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CIDE

NÚMERO 49

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HEALTH AND HEALTH CARE IN MEXICO

Health and Health Care in Mexico

by

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ABSTRACT

This paper presents a discussion of the health status of the Mexican population and the organization of the Mexican health system. It also discusses possible reforms and compares Mexico to other OECD and Latin American countries. Emphasis is placed on the problems with equity in the Mexican health system.

Preliminary draft: March, 1995
This draft: October, 1995

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[1] This work was supported by the Organization for Economic Cooperation and Development in Paris, France. I would like to thank Maite Guijarro for her invaluable support in finding, collecting, and interpreting data for this project. I would also like to thank Beatriz Straffon for additional assistance with data. Carlos Bazdresch, José Gómez de Leon, John Scott, Gerard La Forgia, William Dow, and Ricardo Bitrán all provided useful and important comments.

LIST OF ACRONYMS

CONAPO	National Population Council
DDF	The Department of the Federal District
DIF	The Integrated Family Development program
ENSA	The National Health Survey
FUNSALUD	Mexican Health Foundation
IMSS	The Mexican Social Security Institute.
INSP	National Institutes of Public Health
INI	National Institute for Indigenous People
ISSSTE	The Social Security Institute for State Employees.
OECD	Organization for Economic Cooperation and Development
PASSPA	Program designed to provide health services in the poorest states of Mexico
PEMEX	The nationalized petroleum company
PRONASOL	The Solidaridad development program.
SSA	The Secretariat of Health
SEDENA/ Marina	The health care system for members and employees of the armed forces.
SNS	The National Health System.

I. INTRODUCTION

The Mexican government has emphasized the need to reduce poverty before the start of the next century. Because poor health is both a cause and an effect of poverty, improving the population's health status and increasing its access to basic health care is one of the main goals of the government's anti-poverty plan. This paper examines the current state of the health care system in Mexico and discusses future directions for reform.

Aggregate Mexican health statistics paint the picture of an upper middle income country, with moderate mortality and low malnutrition rates (World Bank, 1994). These figures hide the widespread disparity of health and social indicators within Mexico. Not only do the basic health statistics differ greatly among different income classes, there is surprising disparity among regions; certain parts of the country have health statistics that are close to OECD averages while other regions resemble South Asia. Mexico extends from the Southwestern border of the United States of America to the northern borders of Guatemala and Belize in Central America and in many ways this geographic division reflects the internal divisions within the country. The north tends to be richer and healthier while the south tends to be poorer and have more health problems.

Although the Mexican Constitution guarantees universal health care, in reality the access to medical services mirrors the differences in income distribution through out the country (Frenk, 1994a). Certain groups and areas have access to extremely modern and capital intensive health care at a subsidized cost while other groups and areas are isolated from even the most basic health care. Mexico has a large private health care system and a variety of often overlapping public health care systems that differ widely in terms of coverage. User complaints about the quality of attention and facilities in the public health sector are common.

Following this section is a brief discussion of some important issues in health economics. The third section has a description of the health status of the Mexican population, focusing on regional differences in health. The following section looks in detail at the Mexican health care system, including descriptions of financing and of the differences in resources among the various health care systems. This section also discusses reform options for the National Health System. The fifth section puts the health sector in perspective by comparing it to the rest of the economy and comparing Mexico to other OCED and Latin American countries.

II. HEALTH AND ECONOMICS

Health is unusual because it is both a consumption good, that is directly desired for its consumption benefits, and an investment, to improve future productivity. Individuals demand health services because of their contribution to the production of health. However the use of health services is not the only factor that affects an individual's overall level of health. In a middle income country like Mexico, differences in nutrition, sanitary conditions, health knowledge, and the environment play a major role in explaining the differences in health across the country. Behavior, such as smoking or the excessive consumption of alcohol, also play an important role in determining an individual's health status.

An individual demands health services for several reasons. 1) To maintain his current health status for the future. This entails the use of preventative health services. 2) To improve his current health status, which may be suffering due to illness, accident, infection, or malnutrition. This involves the use of curative health services. 3) To procure services offered by health clinics that are not directly related to maintaining or improving his health status. This might include contraceptives or a health certification that is required for employment.

The choice of health services (public or private; clinic or hospital) depends on many different factors. Only people with poor health demand curative health services. However poor health is not random. Many factors, such as income or geographic location, directly affect both the health status and the demand for health services. The choice of health services is also affected by prices. Some individuals have the right to use certain health services, as a benefit of their employment or of some other entitlement, which is essentially a change in the relative prices.

In Mexico, where a significant proportion of the population lives in isolated areas, the price of health care not only includes the direct cost of the health service, which for many public health providers is low or nothing, but also includes the travel cost (the opportunity cost of time spent traveling and the transportation expenses) and the opportunity cost of the time spent waiting for attention. For isolated communities, distance can be the major factor that determines the utilization of health services (Gertler and van der Gaag, 1990). Perceptions of quality also influence the choice of health services. Because individuals may be willing to pay a greater cost for better quality services, it is possible that even if public health services are expanded, they will not be fully utilized if they are perceived to be inferior to private health services. Increasing the supply of health care providers does not necessarily lead to a major increase in the use of these services. Although governments should use cost-effectiveness analysis when allocating their budget for health care, they should not assume that the public will use subsidized health facilities simply because they exist.

There are many motives to supply medical services. For the private health sector, the main motivation is economic; there may be a large demand for health services that the public sector does not fulfill in terms of either quality or quantity. The private sector's supply is therefore likely to be quite sensitive to public policy in offering health services.

For the public sector, there are many motives to provide health services. The government often views health services as a "merit good," a good that the government offers for non-economic reasons, for example as a right of citizenship. Some health services like vaccination campaigns and vector control programs also provide important health externalities and public goods which the private sector does not fully take into account when it sets a price for health care. The government might want to promote (or discourage) certain behavior by altering market prices and providing services that the private sector does not offer.

Because budgets are limited, governments (like households) must limit their health care expenditures. If health services are subsidized, this requires some form of rationing. In many countries, this rationing involves extended waiting times for services. Many have argued that cost-effectiveness criteria should be used to allocate health care resources (World Bank, 1993), to ensure that the most effective health care services are provided first. While this approach is sound, policy makers need to take the public's perceptions into account when offering health services and make the most cost effective services relatively attractive. This could involve using price policy to make the most cost-effective services the cheapest. Prices can be targeted more easily than many other variables that affect the public's demand for health services and should be used instead of waiting time to ration demand.

Of course, the goal of the government in providing health care is to improve the health of the population. Governments should not be concerned about the provision of health care *per se*, rather it should concentrate on the best way to reach it health goals. This is likely to consist of the provision of subsidized medical services, but may also involve greater in public works projects, such as the provision of piped water or building better transportation networks. There is no reason why the government and the private sector cannot work together as partners in providing health care, with the government focusing on certain services and the private sector on the provision of other services.

III. THE STATE OF HEALTH IN MEXICO

Like many other countries, over the past fifty years Mexico has seen a major fertility and epidemiological transition, with declines in both the birth and death rates. However, health differs greatly among Mexico's 32 states.[1] Some states have seen only a relatively small improvement in their health status while other states have witnessed substantial declines in both birth and death rates. For example, the current total fertility and infant mortality rates in the poor southern state of Chiapas are more than twice the rates in the Federal District of Mexico City (Gomez de Leon, 1994).

Table 1.1 reports the distribution of infant and adult (between the ages of 15 years and 64 years) mortality by five geographic regions, described in the appendix. Nearly half of the population of Mexico lives in the center of the country, in the Interior region and the Federal District.

Table 1.1 Geographic regions in Mexico.

Geographic Region	Description	No. of States	Total Population	Infant Mortality	Adult Mortality
National		32	81,300,000	31.9	3.3
North	Northern Mexico	9	16,200,000	25.1	3.6
D.F.	Mexico City	1	8,200,000	19.0	2.8
Center	Interior of country	11	34,500,000	35.1	3.4
Pacific	Central Pacific Region	5	12,300,000	31.1	3.3
South	Southern Mexico	6	10,,100,000	42.7	3.8

Population figures refer to 1990 and may not sum due to rounding. Adult mortality during economically productive years (age 15 to 64). All statistics weighted by state population.
Source: Frenk *et al* (1994), SSA/CEPS (1994); author's calculation.

Health status varies greatly through out the country. The wealthiest region, the Federal District, has the lowest infant and adult mortality rate, with an infant mortality rate that is less than half the rate in the South of the country. The North, which along with the Federal District is the richest region of Mexico, has an average infant mortality rate that is significantly higher than that of Federal District, however it is still lower than the national average. The Pacific region is similar to the North in terms of infant mortality. The Interior region has a higher infant mortality rate; some of its states resemble the poor south while other states have substantially lower mortality rates. Adult mortality rates do not differ as greatly as infant mortality rates, suggesting that much of the difference in life expectancy in Mexico can be explained by differences in infant mortality.

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1 For the purposes of this paper, the Federal District of Mexico City is treated as a state.

The difference between low mortality areas and high mortality areas is extreme. The Mexican Foundation for Health (FUNSALUD) divides the country into five regions based on the infant and adult mortality rates in each area (Frenk *et al*, 1994a). Table 1.2 identifies the five regions, the total population of each of the regions, and the estimated infant and adult mortality rate in each region. Appendix 1 lists the states in each mortality region. Region A, with mortality rates that are similar to middle-Income OECD countries, consists of Mexico City (the Federal District) and eight other states. Except for Mexico City, all of these states either border the United States of America or are located along the coast, to the north of Mexico City. Region B has similar adult mortality rates but has higher infant mortality rates. With the exception of Tabasco (an oil-rich state on the Southern Caribbean coast), all of these states are in the north or center of the country. All of the northern border states and the northern Pacific states are either in regions A or B. Region C has higher infant and adult mortality rates. The states within region C are central and southern states. Region D states are characterized by low-mortality in the urban areas and high-mortality in the rural areas. It includes the state of Mexico which borders the Federal District; most of the state of Mexico's urban areas are part of the Mexico City metropolitan area. The other states are located in the interior of the country. Region E has the worst health statistics in Mexico, the mortality rate in some states approaches the level of low-income Asian countries. All five states in that region are south of Mexico City and have larger than average indigenous populations.

Table 1.2 Mortality regions in Mexico.

Mortality Region	Description	Number of States	Total Population	Infant Mortality	Adult Mortality
National		32	81,300,000	31.9	3.3
A	Advanced Transition	9	21,400,000	22.4	2.9
B	Intermediate Transition	6	12,500,000	27.5	3.3
C	Beginning Transition	7	10,400,000	37.3	3.3
D	Urban-only Transition	5	22,000,000	33.4	3.4
E	Extreme pre-Transition	5	14,900,000	43.3	3.9

Population figures refer to 1990 and may not sum due to rounding. Adult mortality during economically productive years (age 15 to 64). All statistics weighted by state population.
Source: Frenk *et al* (1994), SSA/CEPS (1994); author's calculation.

From a bio-medical perspective, a significant part of the difference in mortality among the states can be explained by differences in infectious diseases. From a socio-economic perspective, differences in education and sanitary conditions play an important role in determining differences in infant and adult mortality (Gomez de Leon, 1994). Table 2 reports the causes of death in each geographic and mortality region, based on 1992 data from the Secretariat of Health (Secretaria de Salud, 1994a). Although the data are rough due to under-reported deaths in some states and have not been corrected for the different age composition of mortality in each

region, it is clear that in poorer states infectious diseases are a more significant cause of death than in richer states. Mortality region A has the smallest percentage of deaths due to infectious diseases of any mortality region while mortality region E has the highest percentage. Among geographic regions, the North and the Federal District have a substantially lower percentage of deaths due to infectious diseases than the poorer Interior and South regions.

Table 2 Distribution of mortality by cause of death

Region	Percentage of deaths due to infectious disease	Percentage of deaths due to non-infectious disease	Percentage of deaths due to accidents and injuries
National	12.2	73.0	14.0
Geographic region			
North	8.9	75.4	14.9
Interior	13.6	72.7	13.1
Federal District	8.1	80.4	11.3
Pacific	9.5	73.1	17.0
South	18.7	65.0	15.2
Mortality Region			
A	8.4	78.4	12.6
B	10.0	72.9	16.4
C	13.4	72.8	12.6
D	12.5	71.9	15.2
E	19.0	67.4	13.1

States of Durango, Guerrero, Nayarit, and Sinaloa were dropped due to data problems. Sums may not equal 100 due to rounding. All statistics weighted by state population.
Source: Secretaria de Salud, 1994c; author's calculations.

IV. HEALTH CARE IN MEXICO

Like many Latin American countries, Mexico's health system is divided into three principal sectors. The health care of formal sector employees is covered by one of several social security systems that also provide pensions and other social insurance for their members. The Secretariat of Health (SSA), the Mexican Social Security Institute (IMSS), the Department of the Federal District, the state health departments, and several other federal agencies all maintain public health services for the population not covered by one of the social security systems. There is also a large private health sector that operates clinics and hospitals.

The social security health services and the public health services are collectively known as the National Health System (SNS), which was created in 1943 with the incorporation of several national health institutes (specialized hospitals and medical research centers) and the formation of IMSS and the Secretariat of Health and Public Assistance, the predecessor of the current Secretariat of Health. The entire Mexican population has legal access to a government-operated insurance plan or to the public health system.

The public health system may be legally used by the entire population and is an important source of health care for the poor and the uninsured. The working and middle classes in urban areas often have legal access to the publicly supported social security health system and tend to utilize its health services.

Mexico has a large private health sector as well that offers health care at all levels and through out the country. The use of private health care providers is common in all socio-economic classes, in both urban and rural areas.

Mexico is a highly centralized country and virtually all public health expenditures are mandated and controlled by the federal government. Each state has its own public health service but these services are largely financed and directed by the federal health authorities. Several states also directly provide health services to their employees.

Social Security

Mexico has a variety of public health systems for employees in the formal sector that are collectively known as social security. In addition to providing health services, social security also provides retirement benefits and other social services and insurance, such as child care and disability insurance. Table 3.1 lists the major social security systems operating in Mexico and reports the total number of individuals and percentage of the total population that is covered by each system based on official figures. Social security provide health care equally to all legal dependents including

the spouse, the children, and in some cases the parents of the beneficiary. Therefore some households are covered by more than one social security health service. This is not taken into account in table 3.1. Table 3.1 also lists the actual percentage of the Mexican population who claim to be covered by one of the social security systems in the Second National Health Survey in 1994 (ENSA2). ENSA2 suggests that the official figures over-estimate the actual coverage of the social security system.

Table 3.1 Social security systems in Mexico

Health Care Provider	Insured population, 1992*	Percentage of population covered*	Percentage of population covered**	Description and Coverage
IMSS	37.46	43.1%	32.3%	All employees in the formal sector are required to join. Payroll tax paid by the employee and the employer.
ISSESTE	8.64	10.0%	8.2%	All federal government employees. Parallel programs exist in some states
PEMEX	.84	1.0%	.7%	All employees of Petroleros Mexicanos, the state-owned oil company
SEDENA/Marina	.96	1.1%	.5%	Employees and members of the armed forces

Insured population is in millions. *-Insured population and covered population in millions is the legal coverage of the different social security programs. **-Coverage based on results from ENSA2, see appendix 2.
Source: Secretaria de Salud (1994a)

The largest social security provider is the Mexican Social Security Institute (IMSS), which in theory covers all private employees, with a few exceptions. Legally all private sector employees who receive a salary are required to be enrolled in IMSS as are members of cooperatives and collective farms. The self-employed, business owners (including farm owners), domestic servants, and family workers may join IMSS on a voluntary basis as may Mexicans working outside of the country. Previously employed workers are covered by IMSS's health services for the first six months of unemployment. Since its founding in 1943, changes in the law have allowed IMSS to expand its covered population. Coverage which was initially limited to Mexico City and a few other major cities has expanded to cover most urban areas of the country. IMSS has absorbed a number of independent social security systems, which were mostly operated by state-owned enterprises, banks, and utility companies.

In 1994, IMSS charged a premium for health care (officially called Sickness and Maternity insurance) at a rate of 12.5% of the wage, with the maximum "taxable" portion of the salary limited to the first N$12,088.75 per month (25 times the legal minimum wage in the Federal District). The employee pays 3.125%, the employer pays 8.750% and the federal government contributes .625% of the employee's wage for health services. The premiums for the other social security benefits are equal to

11.60% of the wage, which is largely paid by the employer, with additional contributions from the employee and the federal government.[2] An additional 7% of the employee's salary is collected for the National Housing Fund and for the retirement saving insurance plan (a supplement to the IMSS retirement program). Voluntary enrollment in IMSS is quite low-- only 3% of the urban population that has the option of voluntarily joining IMSS actually does so (IMSS, 1995). This probably reflects IMSS's high premiums, the low level of IMSS's pensions, and the universal availability of public health services and private health insurance and health care for those who pay for it.

Evidence shows that evasion of IMSS premiums is also common. Table 3.2 reports the percentage of the urban population employed by the private sector, excluding firm owners and the self-employed, that are enrolled in IMSS by firm size; by law all of these employees should be enrolled in IMSS. Small firms are more likely to avoid enrolling their employees in IMSS than larger firms. There is also evidence that firms are able to avoid IMSS premiums by paying part of their employee's wages "under-the-table", through a second firm, or as a fee or honorarium instead of a wage. For both employees and employers, the incentive for this form of evasion is strong because the medical benefits are identical regardless of the contribution to IMSS and retirement benefits are quite limited particularly for middle- and high-income earners.

Table 3.2 Percentage of the private sector employed urban population

Firm Size, number of employees	Probability employee is covered by IMSS
1 to 5	28.2%
6 to 15	57.4%
16 to 50	77.1%
51 to 100	84.2%
More than 101 employees	92.2%
Urban private sector, total	71.6%

Source: IMSS, 1995

The coverage of IMSS is limited outside urban areas. In smaller cities and towns, only 42.2% of the population employed by the private sector (excluding firm owners and the self-employed) are enrolled in IMSS. Only 4.6% of all private sector rural workers (including small farm owners and agricultural workers) are members of IMSS (IMSS, 1995).

The other social security systems are similar to IMSS although they cover government and state-owned enterprises employees and their dependents. Like IMSS, the government social security system provides its employees with other

2 The federal government reduces the employer's overall contribution by refunding 1% of the employee's wage back to employer. The federal government has covered IMSS's deficit.

benefits, such as retirement and child care. The largest social security institute for government employees is the Institute of Social Security and Services for State Employees (ISSSTE). ISSSTE covers employees of the federal government, the employees of some federal government-owned corporations and agencies, and the employees of some municipal and state governments.[3] Workers contribute part of the wages for the premiums and the employer (the federal government or state government) makes a contribution to the institute, both as the employer and as the government. Several states operate state ISSSTE's for their own employees, most other state and municipal employees are members of the federal ISSSTE. The federal ISSSTE was founded in 1959 (and legally incorporated in 1961) to consolidate the civil service pension and assistance programs and create an institution with the influence of IMSS. The first consolidated program for federal employees was created in 1925. Teachers and members of the police were absorbed in ISSSTE soon after it was founded.

Although social security started by covering only a small percentage of the population, coverage grew rapidly. Since 1960, IMSS and ISSSTE have both seen rapid growth in their covered population. Figures 1.1 and 1.2 show the growth of both social security institutes in terms of the total number of individuals covered (the sum of the insured workers and dependents) and the percentage of the total Mexican population covered by each. In terms of total coverage, IMSS now covers four times the population covered in 1960. Although IMSS has expanded by encompassing independent social security schemes, most of the expansion in IMSS is due to growth in the formal sector, expansion of IMSS to smaller cities, and stricter enforcement of the social security law. ISSSTE has experienced much more rapid growth in its coverage, from an initial coverage of less then 1% of the population in 1960 to approximately 10% of the population in 1993. Although some of this growth is due to the consolidation of different government social security systems, most of this expansion is due to the rapid expansion of government at all levels, particularly during the 1970's when Mexico was a major oil exporter and the number of federal employees increased by more than 100% (Frenk *et al*, 1994b).

Both IMSS and ISSSTE are autonomous agencies, with directors appointed by the President. As with most government agencies in Mexico, these two institutes are highly centralized. Since the 1970's there have been attempts to give greater power to local IMSS and ISSSTE representatives, however most budgeting decisions are made at the federal level. The other social security systems are directly administered by the agencies that they serve.

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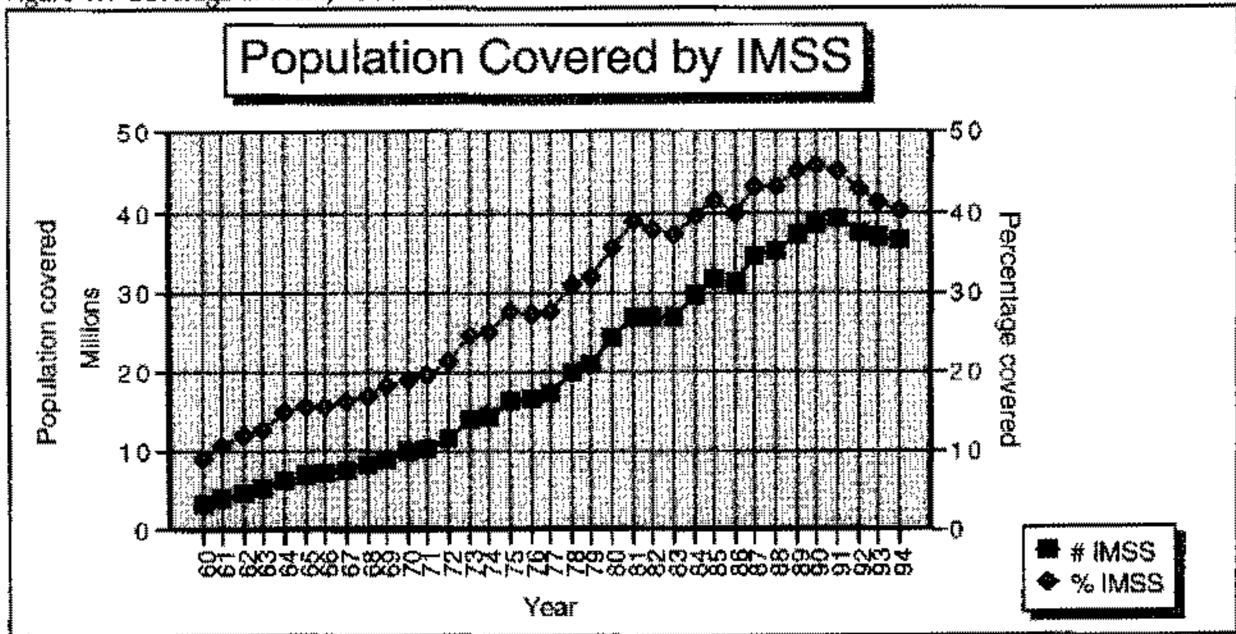
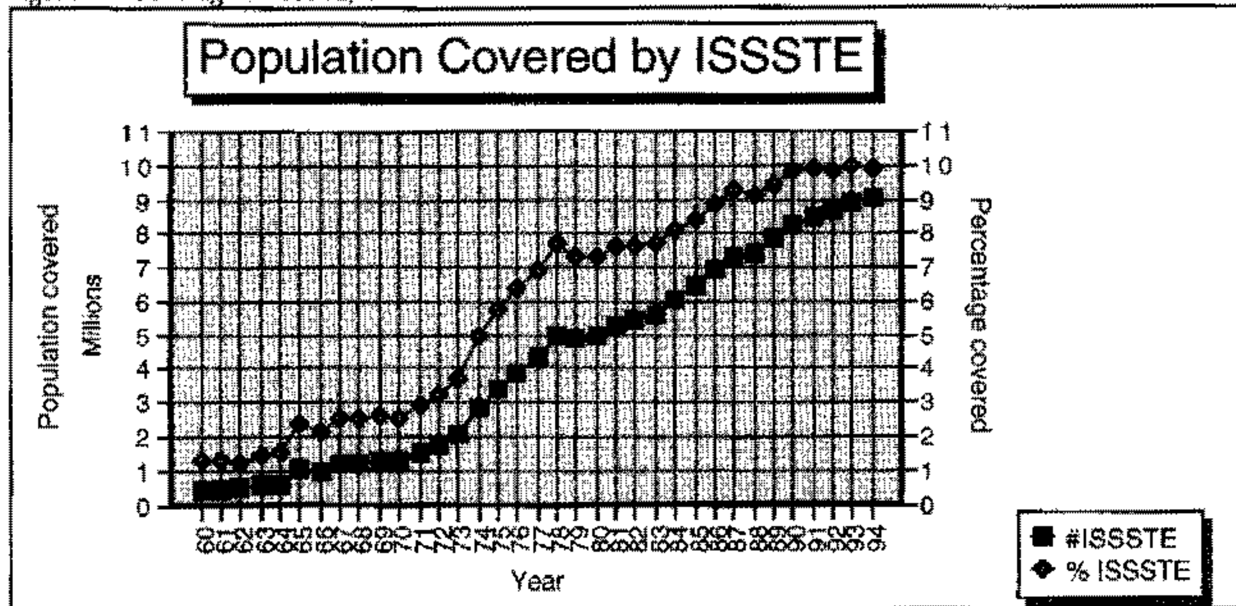
[3] The employees of some government-owned corporations and independent agencies are members of IMSS.

Figure 1.1 Coverage of IMSS, 1960-1993.



Source: Salinas (1994); Gomez de Leon (1994); author's calculations.

Figure 1.2 Coverage of ISSSTE, 1960-1993.



Source: Salinas (1994); Gomez de Leon (1994); author's calculations.

Petroleros Mexicanos (PEMEX), the nationalized oil company, maintains it own social security system that was founded in 1950. The Pemex system is similar to the social security services operated by IMSS and ISSSTE. PEMEX is the only government operated corporation whose workers have not been incorporated into IMSS. The military maintains two social security services for members of the armed forces and their employees-- one for the Army and the Air Force (SEDENA) and one for the Navy (Marina). The current system for members of the armed forces was established in 1955 and built on existing coverage.

Each social security system maintains its own independent network of primary level health clinics and secondary and tertiary hospitals, although patients can be referred to the Secretariat of Health's specialized hospitals and to the facilities of other social security systems due to the severity of the health problem or the lack of local coverage.[4] Members are assigned to a primary level clinic based on their residence. Except in the case of emergencies, all visits should be made to the designated clinic. All services are provided free of charge for all members of the system including prescription drugs. In most IMSS clinics, visits are scheduled on a "first-come, first-serve" basis although some clinics in Mexico City have established an appointment system. In addition to curative services, social security offers its members preventative medical services, dental services, vaccination programs, and family planning services. Some of these services are also offered to the general public during periodic health campaigns. Through its other programs, social security provides support to new mothers, through subsidies and day care centers for new born infants of working mothers. Large firms are required by law to maintain a medical clinic for the use of their employees.

During the Salinas government (1988-1994), Mexico recovered from a severe recession and lowered the inflation rate from levels above 100% to below 10% . The government took advantage of this stability to further invest in health care and embark on important changes in the financing and organization of the health care system.

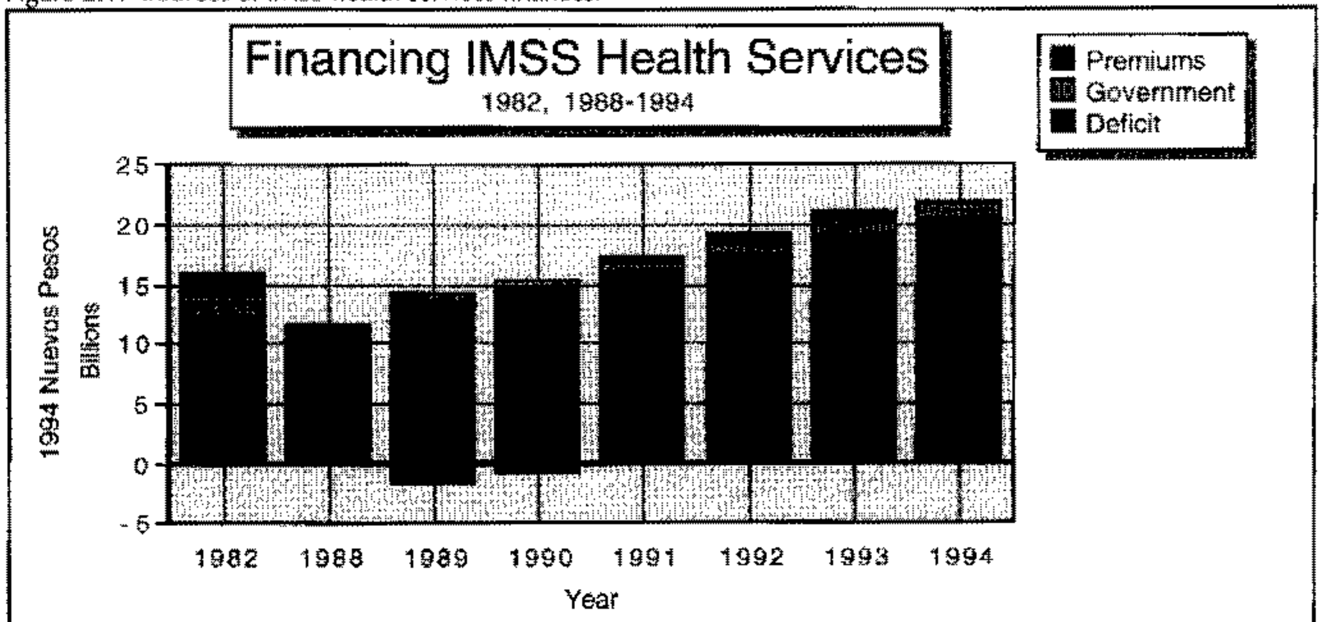
Up to 1988, the health services of IMSS were in chronic deficit. In 1989, the government took steps to reduce this deficit by increasing the premiums for health services and other benefits. Since 1960, the health premiums were fixed at 9%, paid under the 70%-25%-5% (employer-employee-government) formula. Salaries were "taxed" up to the equivalent of a maximum of 10 times the minimum wages for Sickness and Maternity Insurance. Most other IMSS programs also had fixed premiums over this period. As the covered population grew to include more lower wage individuals, and with an aging population, increasing medical costs, and

[4] The different social security systems often contract with each other or with private health care providers to offer health services in areas where their own resources are limited.

occasional economic crises all putting pressure on the health and retirement funds and draining social security reserves, the original financing scheme was not adequate to raise sufficient funds to support social security expenses. In 1989, the new government raised the IMSS health premium from 9% to 12% of the employee's wage. In 1993, the health premium was raised to 12.5% and the maximum portion of the salary subject to IMSS premiums for health care was raised to the equivalent of 18 times the minimum wage. In 1994, the maximum taxable portion of income was raised to 25 times the minimum wages for Sickness and Maternity Insurance. Other social security premiums were raised as well, to bring the total IMSS premium for all programs to 24.1% of the employees wage from a level of 17.9% in 1988 and 16.7% in 1960. Figure 3.1 shows the sources of financing for IMSS health services. From a large deficit in 1988, IMSS health services had a surplus in 1989 and 1990 and a very small deficit from 1991 to 1994. Figure 2.2 shows that the real spending of IMSS health services also grew rapidly during the Salinas government and by 1991, spending had reached the 1982 level.

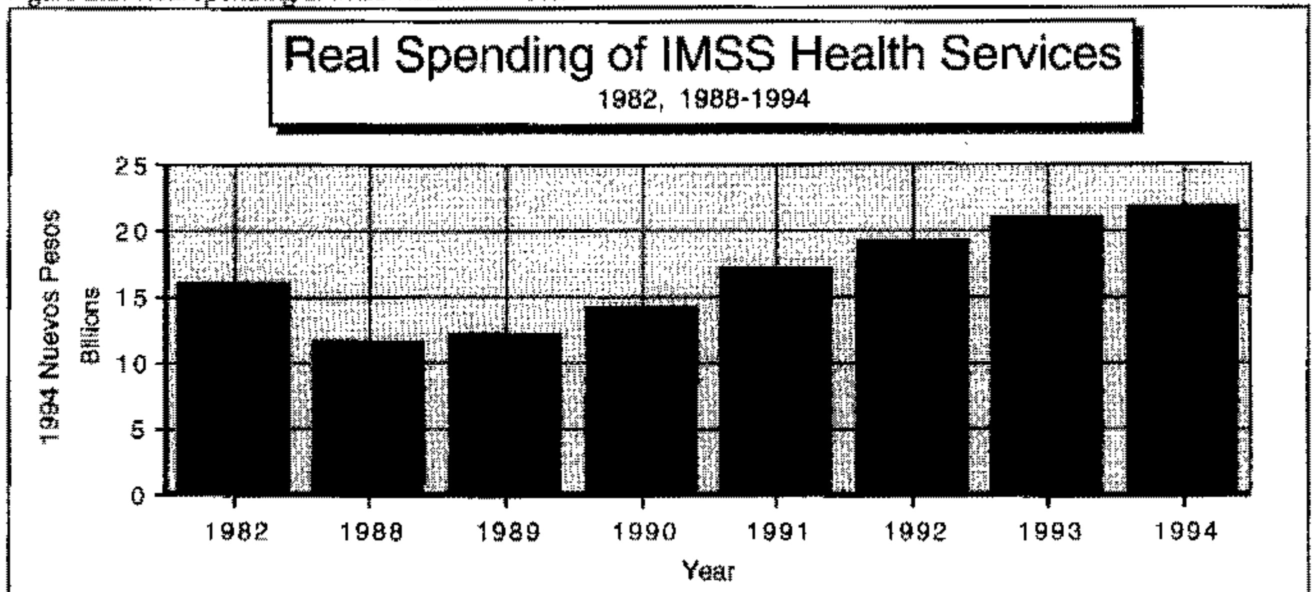
As can be seen in figure 1.1 starting in 1990, the membership in social security started declining rapidly, from approximately 45% of the total population to 40% in 1994. Part of this decline may be due to the rapid increase in taxes.

Figure 2.1: Sources of IMSS health services finances.



Source: IMSS (1994)

Figure 2.2: Real spending of IMSS health services.



Source: IMSS (1994)

Public Health Services

The Mexican government provides universal health care with the goal of offering health services to the population that is not covered by social security and cannot afford private medical care. Table 4 lists the main providers of public health care and their mandate Table 4 also reports the estimated population that is covered by each of the major public health services, as explained in appendix 2. It should be pointed out that due to multiple coverage, the sum of the covered population (social security plus public health) exceeds the total population of Mexico. In reality, there is a significant percentage of the population that is not covered by any health service due to their economic situation and geographic isolation (Frenk *et al*, 1994a).

The Secretariat of Health's public health system provides the majority of public health care in the country, either directly or through state health services, in states where the health service has been decentralized. In Mexico City, the Department of the Federal District (DDF) provides health service to supplement the federal government's public health service.

Table 4 Public health systems in Mexico

Health care provider	Approximate population covered, Millions	Percentage of total population covered	Description and coverage
SSA	27.91	33.2%	Secretariat of Health, national coverage, both directly and through state-run health services.
DIF	N.D.	N.D.	Integrated Family Development program, covering vulnerable groups with health care and other services.
DDF	3.20	3.7%	Department of the Federal District, coverage within Mexico City.
INI	N.D.	N.D.	National Institute for Indigenous People, coverage in areas with large Indigenous population.
IMSS-Solidaridad	10.95	12.6%	Health services provided by PRONASOL to the rural population; administered by IMSS.

N.D.=No data available

Covered population in millions. Coverage is estimated by the theoretical access, not by the actual usage of services. See appendix 2.

Source: Secretaria de Salud (1994a)

IMSS-Solidaridad (formerly IMSS-COMPLAMAR) provides health services in poorer rural communities in the states that have not been decentralized. IMSS-COMPLAMAR was formed in 1979 as a cooperative agreement between the COMPLAMAR program and IMSS, building on early IMSS programs to provide health

to the uncovered population. The Solidaridad Program (PRONASOL), which replaced COMPLAMAR in 1990, is an integrated community development program that provides more than health services; it offers education, community services, and infrastructure to poor communities. Its program include encouraging the use of purified water, rural vaccination campaigns, and nutrition education (IMSS, 1992). As a community-based program, IMSS-Solidaridad has a large number of volunteers as health promoters in local communities. PRONASOL provides the funding for the health clinics which are administered by IMSS. PRONASOL also provides funds for health care through other programs, primarily SSA.

The National Institute for Indigenous People (INI) provides health services to some largely indigenous communities. The Integrated Family Development program (DIF), which was founded in 1977, provides health and social services to vulnerable groups, including women, children, the disabled, and the elderly. Like IMSS-Solidaridad its services are not just limited to health care. There is also a small private charitable sector that provides services to the poor through the Red Cross and other organizations.

Table 5 The distribution of decentralized state-run health services.

State	Date of Program	Mortality Region	Geographic Region	Source of Revenues for State Health Services, 1989	
				State contribution	User fees
Aguascalientes	Oct., 1987	A	Center	13.0%	9.32%
Baja California Sur	Jul., 1985	A	North	6.8%	0%
Colima	Mar., 1985	B	Pacific	5.0%	5.2%
Guanajuato	Mar., 1986	C	Center	17.9%	6.5%
Guerrero	Jun., 1985	E	Center	7.1%	2.4%
Jalisco	Jul., 1985	B	Pacific	49.7%	4.9%
Mexico	Mar, 1986	D	Center	15.1%	4.8%
Morelos	Oct., 1985	B	Center	2.6%	.3%
Nuevo Leon	May, 1985	A	North	29.2%	4.6%
Querétaro	Dec., 1985	D	Center	2.3%	13.6%
Quintana Roo	Dec., 1987	C	South	7.4%*	2.9%*
Sonora	Dec., 1985	A	North	31.1%	8.4%
Tabasco	Dec., 1985	B	South	68.1%	1.3%
Tlaxcala	May, 1985	C	Center	12.5%	2.3%

The federal government provides the remainder of the budget. * Figures for 1987.
Source: Cardoso (1993).

In 1983, the federal government started to decentralize its public health care services to several states. Table 5 reports the states that are decentralized, their mortality and geographic regions, the date of decentralization, the percentage of the state health budget that is provided from state revenues, and the percentage of the

state health budget that is provided from user fees. The figures on state and user's contributions for health care should be treated with caution; it is notoriously difficult to estimate state spending. At the present, fourteen states were officially decentralized.[5] Although these states are drawn from all of the geographic and mortality regions in Mexico, there seems to be a bias towards both northern and healthier states. The decentralized states are on average smaller in size and more densely populated than non-decentralized states, possibly reflecting the greater administrative capacity in smaller states. None of the poor southern states were decentralized. In 1987 the fourteen states had a similar average infant mortality rate to the national average. Although there was a slight bias in decentralizing richer states, the choice appears to be somewhat arbitrary. Baja California Norte, one of the richest states, was not decentralized while Guerrero, one of the poorest states, was decentralized.

Decentralized states contribute part of the cost of operating public health clinics in their states according to agreements made between the federal government and each of the state's governments. The state's contribution ranges from 68.1% of the total public health budget in Tabasco, an oil-rich state, to 2.3% in Querétaro, a poor state. However the wealth of the state seems to play only a small role in determining the state's contribution as several rich states pay a surprisingly small contribution (for example, Nuevo Leon and Baja California Sur). In 1985, IMSS-COMPLAMAR started transferring its facilities to the governments of the decentralized states as did the Secretariat of Health. Most federal health workers were transferred to the state health services.

The decentralized states have three options in terms of setting up a state health system: 1) A single state department of health that provides health services directly to the uncovered population. 2) A single semi-autonomous administrative agency that provides health services. 3) A combination of a semi-autonomous agency and a state department of health. Some states have elected to set-up municipal health services in some municipalities to further decentralize the health care system within the three options.

Analysis of the decentralized states offers a mixed review (Cardoso, 1993). Some decentralized states report major improvements in the health services in their territory as they consolidate different federal programs and allocate services to reflect their own health problems. On the other hand, other states have reported that decentralization exists only on paper and that the federal government essentially controls health services due to its large budget contribution and its detailed

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[5] Technically speaking, the Federal District of Mexico City is part of the federal government and therefore is not considered to be "decentralized." The health service of the DDF is similar to the decentralized state-run health services.

regulations. The difference seems to depend on the state's administrative capacity and the size of the state's contribution to the decentralized health service.

Unlike the social security system, public health services are generally not free. SSA charges a nominal fee for health services at its clinics. The fee depends on the service provided and in theory varies with socio-economic class of the user, based on six classes. However for many curative services, a single fee is charged to all patients because of the expense involved in assessing the patients socio-economic class. The federal government sets the user fees in decentralized states however the recovery of fees differs from state-to-states. Although the fees are quite low in absolute terms, they can be significant for many low income rural households. In addition, since many of the users of public health services are rural households, the travel time, transportation expenses, and the waiting time can be a significant barriers to the use of public health services.

IMSS-Solidaridad does not charge a monetary fee for its services, but encourages its patients to participate in social work in exchange for health services (IMSS, 1992).

As the revenues earned from user fees are small, the majority of the costs of public health are met by the budgets of the Secretariat of Health, the Department of the Federal District, the state governments, and PRONASOL. The federal government's revenues are derived from income taxes on individuals and corporations, a broad based value added tax, tariffs from imports, and profits from state-owned corporations. The Salinas government also relied heavily on the sale of state-owned assets and bonds to both local and foreign investors. Some of the earnings from these sales were given to the PRONASOL (Aspe, 1991). With the exception of the social security premiums, there are no specific taxes dedicated to health care. The decentralized states are required to expend their budget resources to pay for their state health service. The state's independent revenue base is regulated by the Federal government and is usually limited. States may tax alcohol, tobacco, gasoline, and automobiles. The states also participate in a federal fund that shares federal tax revenues.

As with social security, each public health system maintains its own primary level health clinics and secondary level hospitals. More serious cases are typically referred to the SSA's general or specialized hospitals. The majority of physicians in rural areas are recent medical school graduates who are performing obligatory community service (Frenk *et al*, 1994b). Prescription drugs are generally not offered for free and the pharmacies of many public health clinic are often without key prescription drugs. Many users cite the lack of medication as one of the main reasons why they consider poor health to be of poor quality and why they use alternative

services over SSA (SSA, 1994d). The public health system does provide necessary medication and implements for those with chronic health problems, such as diabetes.

Private Health Care

In theory, the entire Mexican population is covered either by one of the social security services or by one of the public health services, however there is a large private health care system operating through private doctors offices, clinics, and hospitals. There is very little reliable data on the scope and the coverage of the private health sector.

Although there are insurance plans that cover major medical expenses, it is believed that the coverage of these plans is quite small but growing. Major medical plans are occasionally offered to employees as a supplement to the benefits offered by IMSS. The total coverage of all private health plans is 2.4% of the population, according to ENSA2. Pre-paid health plans ("HMOs") are not significant in Mexico and are only now starting to enter the Mexican market. Most private medical and dental visits are fee-for-service, with cash paid for the provision of the service.

Using survey data, it is possible to estimate the private use of medical service by the Mexican public. Table 6 reports some results on health care utilization from ENSA2, including the probability of self-reported poor health in two weeks previous to the survey, the probability of using health services given poor health, and the probability of choosing curative private health services conditional on using some sort of health service.

When stratified by income, the richest quintile is the most likely to use private health facilities, given the use of any health service. Among the poorest quintile, use of private health facilities is also high, particularly taking into account the greater propensity to have health problems and to use medical services. Rural-urban differences in health care are not great, although urban residents are more likely to use private health care. As expected, social security members are less likely to use private health services than non-members. However when the high propensity of social security members to report health problems and the greater probability to seek health services is taken into account, the utilization rate of private care is similar for social security members and non-members. Finally, mother's education plays an important role in determining health care use. As expected, high mother's education reduces the probability of poor health. However more educated mothers are more likely to seek out health care and the utilization rate of private care increases with education.

Table 6 Use of private health services in Mexico, 1994

Population by category	Probability of poor health	Probability of using health service | poor health	Probability of private health care | health service | poor health
Total	.145	.276	.365
Economic category			
Poorest 20 percentile	.180	.289	.338
Next 20 percentile	.137	.244	.371
Next 20 percentile	.138	.263	.333
Next 20 percentile	.136	.279	.313
Richest 20 percentile	.132	.297	.472
Geographic location			
Urban	.148	.240	.351
Rural	.137	.291	.370
Member of Social Security			
No	.131	.220	.539
Yes	.164	.340	.235
Education of the Mother			
None	.157	.210	.416
Some primary	.148	.253	.359
Primary completed	.140	.304	.317
More than primary	.136	.323	.390.

Source: ENSA2, author's calculations.

Quality of Health Care in Mexico

One of the major user complaints about the public health sector is the poor quality and lack of attention in government-run facilities. This is clear from the high use of private health facilities by all social groups despite the fact that public health services are virtually free. In a 1994 survey of households, only 44% of the respondents classified health services as good or excellent. Only 58% of the respondents felt that they were treated as well as they deserved. This is significantly worse then results in similar surveys in other countries (Frenk, *et al*, 1994a).

A 1993 study of the urban population by the National Institute of Statistics, Geography, and Information Systems (INEGI), reported in tables 7.1 and 7.2, suggests that the public in Mexico's three largest cities feels that private health care is the best for outpatient care and hospitalization (Ruelas and Querol, 1994). IMSS is considered to be the second best health care provider, well behind private health care but it is perceived to be better than either ISSSTE or public health care. ISSSTE is considered to be better than SSA in terms of quality. In terms of hospitalization, the same overall ranking holds, although there seems to be a little more support for social security hospitals than for social security outpatient services. Clearly private health care is considered superior in terms of quality than all of the major public supported

health programs in three major cities which have a complete range of public and private health services.

Table 7.1 Public comparison of quality and service among institutions for outpatient care.

	Better than private	Better than IMSS	Better than ISSSTE	Better than SSA
Private	NA	70%	81%	87%
IMSS	30%	NA	71%	79%
ISSSTE	19%	29%	NA	67%
SSA/public health	13%	22%	33%	NA

Survey conducted in Mexico City, Guadalajara (Jalisco), and Monterrey (Nuevo Leon).
Source: INEGI survey, reported in Ruelas and Querol (1994).

Table 7.2 Public comparison of quality and service among institutions for hospitalization.

	Better than private	Better than IMSS	Better than ISSSTE	Better than SSA
Private	NA	65%	78%	86%
IMSS	35%	NA	76%	88%
ISSSTE	22%	24%	NA	76%
SSA/public health	14%	12%	24%	NA

Survey conducted in Mexico City, Guadalajara (Jalisco), and Monterrey (Nuevo Leon).
Source: INEGI survey, reported in Ruelas and Querol (1994).

Family Planning in Mexico

In the past forty years, Mexico has experienced a rapid decline in its total fertility rate and its rate of population growth. A series of laws passed in the early 1970's including the 1974 General Population Law set the legal framework for the use of artificial means of contraception, which had been illegal. The government started to actively encourage the use of family planning as a way to decrease the rapid population growth.

As of 1992, approximately 63% of fertile women had used some form of artificial contraception during their lifetimes. Family planning services are available at all government operated health clinics, which are the main sources of contraceptives. Approximately 30% of family users obtain services from the private sector including private pharmacies and NGOs (Consejo Nacional de Población, 1994).

Since 1976 there has been a large increase in the use of family planning services. Among users of family planning, the use of modern methods has been increasing over the past twenty years. Interestingly, tubal ligation has surpassed oral anti-contraceptives and the IUD as the main form of family planning. As has been found in other countries, family planning is more prevalent among better educated women and in urban areas (Consejo Nacional de Población, 1995). The urban-rural difference can be explained by two factors: the desire in rural areas to have more children than in urban areas and the lack of access to family clinics in rural areas.

NAFTA and Health Care in Mexico

On January 1, 1994, the North American Free Trade Agreement (NAFTA) between Mexico, Canada and the United States of America took effect. This agreement expands the trade in goods and services among these three counties and strengthen laws affecting intellectual property and investments.

The health care systems of Mexico, Canada, and the United States are quite different. Canada has a decentralized health care system that is largely publicly financed with private insurance for certain uncovered services. The United States has a mixed public and private system, with public financing carried out on both the state and on the federal level. Large portions of the American public are not formally covered by either public or private insurance schemes. Both Canada and the United States have significantly more regulations in the health sector and offer greater protection to health care consumers than does Mexico. The United States and Canada also spend a substantially greater proportion of their GDP on health care than Mexico and both have significantly better health statistics.

NAFTA affects health care and health in two ways, first indirectly through long term shifts in demand for labor and capital in Mexico and second directly through an increase in the supply of health services from American and Canadian firms (ANM y COMISA, 1994).

Stricter protection of intellectual property rights in Mexico might in the long term promote greater investment in the pharmaceutical industry and increase the availability of pharmaceuticals to the Mexican consumer. However in the short run, this is likely to lead to higher consumer prices for private health care patients and a greater burden on the budgets of the public health systems. This may be partially ameliorated if new imports start to compete with domestically produced pharmaceuticals.

The Mexican health care sector will have greater access to imported capital. While this will lead to improvement in quality of medical diagnosis and care, it should also lead to an increase in health care spending. Cross-border investments may also increase as investment laws are liberalized and investors become more confident about Mexico. This might include American HMOs, hospital companies, and private extended-care providers. Recently a number of American insurance companies have entered the Mexican market and the choice of private health insurance has increased. These changes will probably increase the choice in the health insurance market and the quality of private sector health care but may also lead to an increase in health care costs, which would worsen the distribution of health care in Mexico.

Distribution of Health Services within Mexico

The distribution of health facilities differs greatly throughout the country, both among different geographic regions and between the urban and the rural areas. As a general rule, there are more medical personal and medical capital in rich states than in poor states. Private medical services are concentrated in the capital cities of richer states. Social security (IMSS and ISSSTE) tends to be concentrated in urban areas where most of the members are located, although the geographic bias is not as pronounced. In 1993, an estimated 4% of IMSS's covered population was located in rural areas. By comparison, 28.7% of the Mexican population is classified as rural by the 1990 Population and Housing Census. Public health facilities (DDF, SSA, and IMSS-Solidaridad) tend to be located in rural areas, with a bias for both the richest and the poorest states. In all cases, the residents of Mexico City have the best access to health facilities.

Table 8 Public Resources in Health Care

	Doctors per Thousand	Nurses per Thousand	Beds Per Thousand
Total			
Total, Social Security	1.36	1.96	1.22
IMSS	1.20	1.88	1.15
ISSSTE	1.61	1.94	.97
Total, Non-Social Sec.	.93	1.45	1.64

See Appendix 2.

Source: Sistema Nacional de Salud (1993).

Table 8 gives a broad overview of the distribution of health resources in different health systems. As expected, social security has more doctors and nurses per capita than the public health system. The public health system has more beds per capita, due to the large hospital structure of SSA and a concentration of maternity beds in IMSS-Solidaridad.

Table 9.1 reports the distribution of private medical services in 1989, the most recent year with available data, as measured by the number of inhabitants per private medical establishment, the number of inhabitants per private medical personal, and private medical capital per inhabitant, in 1989 current pesos. The table is divided by geographic and mortality regions and by the capital city, which measures the health services in the capital of the state, and other areas, which includes other non-capital cities and rural communities.[6] The data do not permit the identification of the size of the private medical establishment (small clinic, hospital, ect.) or the staff composition. Clearly private medical facilities are most heavily concentrated in the capital cities. The Federal District has the greatest access to private medical facilities although access is similar in northern capital cities. The Federal District appears to have more

[6] In most cases, the capital city is the largest city in the state.

large scale private health facilities since it has the highest ratio of private medical personnel to private establishment. The private medical personnel in Mexico City also are the most capital intensive in the country. The areas outside of the capital cities always have fewer private medical resources than capital cities. Poorer regions also have substantially fewer private medical resources than wealthier regions of the countries. The capital cities in the south have approximately half the number of private medical personal and private medical capital as the Federal District while the other areas in the south have less than 10% of the private medical capital and one eighth the number of private employees as the Federal District. This region is also the least capital intensive in Mexico.

The government operated health system has a more equitable distribution but in all cases, the population of the Federal District has the greatest access to health care in the country. Table 9.2 reports the distribution of primary level Social Security (IMSS and ISSSTE) and public health (SSA, DDF, and IMSS-Solidaridad) clinics in 1993.

The greatest proportion of Social Security clinics is located in the Federal District. Outside of the Federal District, the distribution of social security clinics is relatively equitable among the capital cities in different regions. However, there is a great difference in distribution among areas outside of the capital cities. In the north, the other areas have a relative high proportion of social security clinics compared to non-capital cities in the rest of the country. The areas outside the capital cities in other regions have significantly fewer social security clinics than urban areas, particularly in the south.

The distribution of public health clinics reflects a greater concern with equity. The Federal District, which is the richest area in Mexico, has the greatest concentration of public health clinics, while the poorest region of the country, the other areas in the south, also has a large concentration of public health clinics. In all cases, the non-capital regions have more access to public health facilities than the capital cities. Mortality regions A and E have the greatest concentration of public health clinics. Region A probably has better access to public health clinics because it includes the Federal District and a number of important decentralized states.

Table 9.1 Distribution of private medical services by geographic and mortality region, capital cities and other areas

Region		Inhabitants per private medical establishments	Inhabitants per private medical employee	Private medical capital per capita, 1988 pesos
National	Total	1696	635.2	19.37
	Capital cities*	1178	456.0	33.50
	Other areas	2547	1307	14.6
Geographic region				
North	Total	1316	484.3	35.22
	Capital cities	927.5	309.8	56.10
	Other areas	1774	760.6	37.47
Interior	Total	2361	1080	10.46
	Capital cities	1150	441.4	31.75
	Other areas	2885	1434	6.94
Federal District	Total*	1103	291.5	57.07
Pacific	Total	1448	583.6	18.93
	Capital cities	807.7	306.6	38.31
	Other areas	2128	913.5	12.41
South	Total	2512	1207	9.10
	Capital Cities	1029	426.4	28.83
	Other areas	3822	1939	4.84
Mortality Region				
A	Total*	1162	455.9	39.31
	Capital Cities*	1024	299.4	57.60
	Other areas	1653	750.5	43.48
B	Total	1587	601	19.99
	Capital Cities	955.4	318.7	37.56
	Other areas	2339	1057	12.99
C	Total	1803	726.6	19.09
	Capital Cities	1267	465.0	29.09
	Other areas	2400	1085	9.01
D	Total	2438	1128	9.57
	Capital Cities	1043	430.4	29.69
	Other areas	2828	1371	7.36
E	Total	2570	1243	8.79
	Capital Cities	926.1	383.2	33.5
	Other areas	3572	1831	5.21

*- Includes Mexico City.

Source: Censo Econômico, 1989; author's calculations.

Table 9.2 Distribution of public medical services by geographic and mortality region, capital cities and other areas.

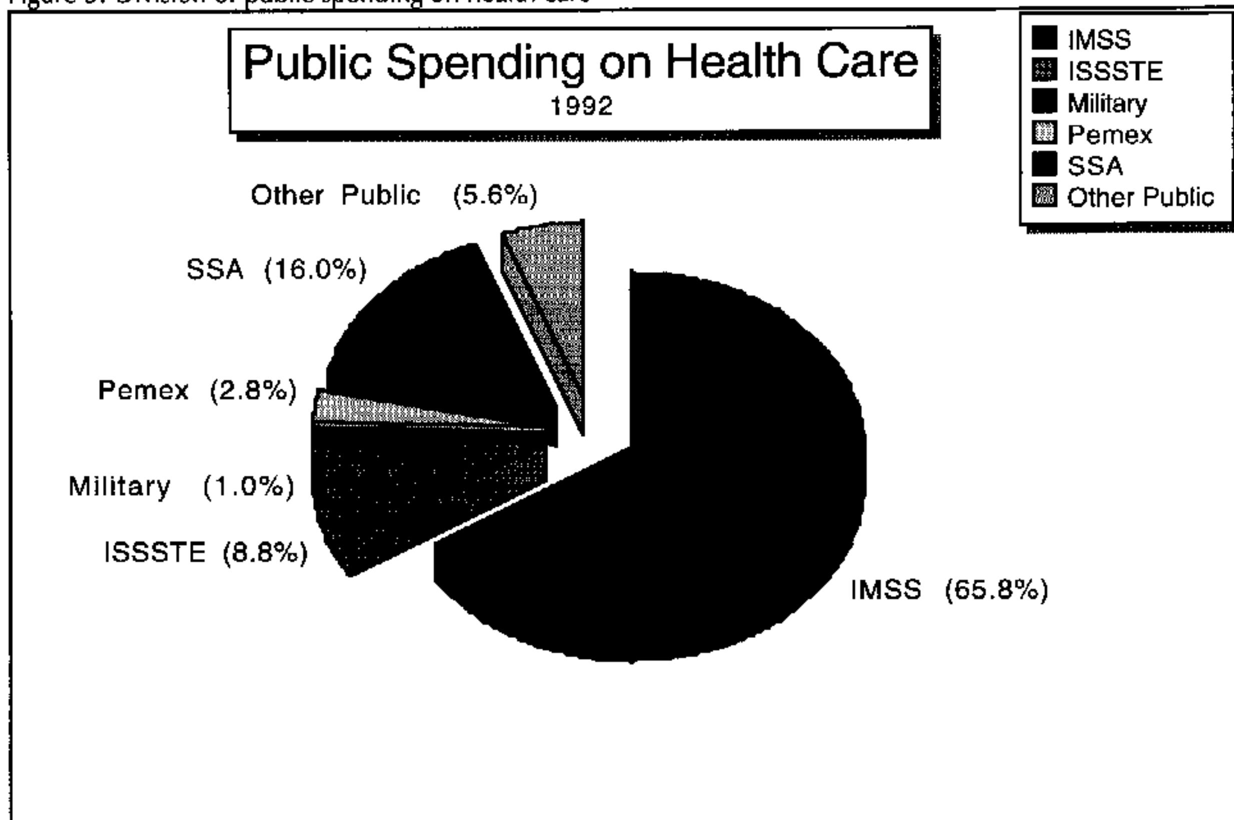
Region		Inhabitants per social security clinic (IMSS and ISSSTE)	Inhabitants per public health clinic (SSA, DDF, IMSS-Solidaridad)
National	Total	6770	4904
	Capital cities*	3036	5964
	Other areas	8162	4509
Geographic region			
North	Total	4092	4856
	Capital cities	3628	6544
	Other areas	4689	4570
Interior	Total	6743	5009
	Capital cities	3370	7307
	Other areas	8675	4837
Federal District	Total*	2358	3308
Pacific	Total	4946	5066
	Capital cities	3038	9297
	Other areas	6176	4396
South	Total	9710	3767
	Capital Cities	3893	7409
	Other areas	13857	3381
Mortality Region			
A	Total*	3817	4838
	Capital Cities*	2744	4348
	Other areas	4484	4480
B	Total	4746	5206
	Capital Cities	3226	8635
	Other areas	6084	4615
C	Total	6415	5136
	Capital Cities	3385	8785
	Other areas	9114	4634
D	Total	6315	5099
	Capital Cities	3600	5857
	Other areas	7033	5076
E	Total	9542	3805
	Capital Cities	3432	7637
	Other areas	13419	3515

Source: SNIM, 1994; author's calculations.

*- Includes Mexico City.

The evidence suggests that social security spends substantially more resources per capita (for each member) for health care than the public health system does for the uncovered population. Comparisons among the government operated health services are difficult due to the different quality in services and different organizations of health services. Even in monetary terms, comparisons are difficult because of different budgeting techniques and large research efforts that are incorporated in some health programs' budgets.

Figure 3: Division of public spending on health care



Military includes SEDENA, Marina, and members of the Armed Forces. SSA includes spending by State Governments. Other public includes DDF, DIF, IMSS-Solidaridad.
Source: Cruz *et al*, (1994)

Figure 3 presents an estimate of the distribution of public resources for health care in 1992 (Cruz, *et al*, 1994). The social security system spends approximately four times as much on health as the public health system. Since approximately half of the Mexican population is not covered by any social security plan, this implies that the governments spends four times on the health care of the covered population than on the uncovered population. Historical data suggests this approximate distribution of resources since at least 1985 (Salinas, 1994). Clearly this is not consistent with a

equitable distribution of government resources.[7] Perhaps the most extreme example is the spending on the health care for Pemex workers and their dependents-- the Pemex and IMSS-Solidaridad budgets are approximately equal, although IMSS-Solidaridad covers more than twelve times as many people.

Medical Employment in Mexico

Although a significant proportion of the Mexican population does not have immediate access to medical services, many doctors and nurses report that they are unemployed or underemployed. Starting in the late 1960's, medical schools saw a large expansion in the number of students entering. In ten years, the number of entrants quadrupled as the number of medical schools in the country doubled (Frenk, *et al*, 1994b). Mexico has both public and private medical schools, with the bulk of doctors graduating from public institutions.

As with many countries, there are more candidates for residencies that there are positions. For example, in 1993, there were on average 2.2 candidates for each opening, although this varied from field to field (Nigenda, 1994). A national survey of physicians in 1986 showed an unemployment rate of 7% and an underemployment rate of 22%. A special section of the 1990 census estimated that 21.1% of doctors were underemployed in that year. Underemployment is highest in wealthier regions and lowest in poorest regions (Nigenda, 1994). This most likely reflects the high demand for medical specialization and the desire of many physicians to stay in large cities, even if there is work available in smaller communities.

Proposed Changes in the Health Care System

In the fifty years since its creation, the National Health System (SNS) has evolved from two institutions and a few specialized hospitals to encompass many different health programs that often overlap in both coverage and service.

As part of its goal to reduce poverty, the Zedillo government is committed to reform the health system in Mexico. In his first Presidential Report, President Zedillo stated that:

> Although the SNS has made impressive achievements, it is very unlikely that under its existing form, the SNS can overcome existing problems that have accumulated over the years and meet new challenges while providing high quality care efficiently. (Zedillo, 1995).

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[7] It should be recalled that a large percentage of the budget for social security comes from the employers and employees. However, the government directly contributes approximately 5% of the social security budget and covers the deficit.

Debate on the future of the SNS has suggested several key reforms both in the organization of the SNS and in the services that are offered. Typically reform is introduced to improve either the equity or the efficiency of the system or both. Social security has a strong "solidarity" component, with all recipients receiving equal benefits regardless of their contribution. However, evidence suggest that the social security is not equitable for two reasons: 1) The urban poor and the rural sector are excluded from the benefits of social security; 2) Middle and high income workers can generally evade the high premiums while still benefiting from the system. There is also reason to believe that the efficiency of the social security health services are low; more health could be "produced" for the same social security expenditures. While social security members most likely have better health than non-members they also receive four times as much resources for their health care.

Lessons form other countries show that it is possible to increase the efficiency of health care while often improving equity and access to services. Successful health care reforms in Mexico will require careful thought about what the society's goals are. The demand for health care should play an important role in the health care debate. Many reforms programs have focused almost exclusively on changes in supply and in organization. Changes in the system will have an effect on the demand for health services-- for example, bringing the uncovered population into social security may lead to large increase in the utilization of health services. This a short term effect; in the long run, the demand for health care may actually decrease as the overall health of the population improves.

One current pillar of the SNS is that health care should be offered at no monetary charge or with a large subsidy. Regardless of the final shape of the health system, the government should consider changing this policy. At the present, the public does pay for subsidized health care through extended queuing times, particularly at "free" social security clinics (Bloom *et al*, 1995). This is neither efficient nor equitable. It discriminates against those who do not have large amount of disposable time, perhaps due to work requirements. Co-payments can be targeted by income and by type of service. For example, higher income individuals can be charged more than lower income individuals and cost efficient procedures can receive a greater subsidy than less efficient procedures.

One important component in the current debate is the proper role for the federal government and local governments in providing health care. As was seen, Mexico is traditionally a highly centralized state and even attempts at decentralization in the 1980's did little to change this. In thinking about decentralization, several important issues should be taken into account.

1) There may be some areas where the federal government should play a leading role, for example in health research and the collection of health data. With

multiple agencies carrying out research, it is quite likely that there is significant overlap of research effort. Greater coordination by the National Institutes of Public Health (INSP) should allow each agency to concentrate on its strength and ensure that all crucial areas of research are covered. Likewise, the collection of data by different agencies can be coordinated by INSP to guarantee comparable figures and a universal quality of data.

2) On the other hand, there is definitely a greater role for local government in terms of health planning and the allocation of resources. Granting greater autonomy to the states should allow each one to address its unique health problems. Such a step would also permit greater consolidation of different federal and state health programs and allow some administrative savings. However it is not obvious that health services should be "decentralized" to the state level. An alternative would be to provide primary health care at the municipal level and hospital care at the state level. Or health services could be directly decentralized to the providers, allowing hospitals and clinics direct control over their budget.

3) Decentralization to local governments would require some transfer of federal resources to be effective. One possibility is that the federal government would distribute economic resources to the states according to a well-defined and transparent financing formula. Such a formula would have to include financing based on the states epidemiological status in addition to a system of incentives to guarantee that certain targets would be met. An alternative would be for the government to decentralize its entire tax base and allow states to decide on their own how much to spend on health care and other programs.

There is much discussion about what sort of health insurance model should be adopted by a new health system. The debate often focuses on improving equity and efficiency in the Reform plans in other Latin American countries have integrated the private sector with the public sector both as health care providers and as insurers.

1) The establishment of a basic health package that defines the minimum level of health care that each citizen is entitled to, based on a realistic cost-effectiveness analysis. The government would ensure that every citizen has access to at least this package of services and provide financing to cover the entire population (Frenk *et al*, 1994, Secretaria de Salud, 1994).

2) The long term goal is the incorporation of the uninsured population into an insurance plan. There are a number ways that this goal can be met. If the consensus that this should be done through a government system, then for urban residents, this would most likely incorporate the poor into the IMSS structure, using government subsidies to pay health premiums for the unemployed and the self-employed poor. For rural residents, it would provide a package of defined

benefits which would include the basic health package (see above) and hospitalization benefits.

3) However there is no reason that greater insurance coverage needs to be provided by the government. Other Latin American countries have experimented with schemes that encourage the public to purchase private insurance often with a subsidy to the poor. Competition within the private sector for patients is likely to improve quality and efficiency of health provision. The population could choose among pre-paid health plans which would compete for patients.

4) Regardless of the form of the insurance system, there should be greater integration of the private health care providers with the public health sector As shown in table 6, a large percentage of the Mexican population uses private services, including many who are covered by social security; greater integration of public and private health services will reduce double payments and meet the consumer's demand for better quality health services.

5) Limitations in the government's budget and the public's virtually unlimited demand for free health care make it inevitable that some form of "cost sharing" or rationing will exist. Rather than introducing arbitrary or haphazard cost sharing or rationing schemes, society should explicitly decide which health care services to subsidize and by how much.

It has been shown in many different situation that individuals and firms respond to incentives offered by the government. In many cases, these incentives are unintentional. For example, if the government offers cheaper insurance rates to employees of smaller firms, it is likely that many large firms will reconstitute themselves as smaller firms. Likewise, giving strong incentives for voluntary membership in the social security system would be likely to bring individuals with poor health into social security, raising social security costs more than its revenues.

Financing is an important issue for the reform of the health care system. It appears that raising the marginal taxes (premiums) on wages does cause a reduction of IMSS membership, part of which may be due to legal evasion of IMSS premiums. A reduction of the marginal rate along with limitation of the legal loopholes might be revenue neutral and encourage more individuals to join social security. High marginal rates discourage workers from leaving the informal sector to enter the formal sector and discourages formal sector employees The extremely efficient approach of imposing a flat enrollment fee on all employees would almost certainly hurt the employment opportunities and wages of low income individuals.

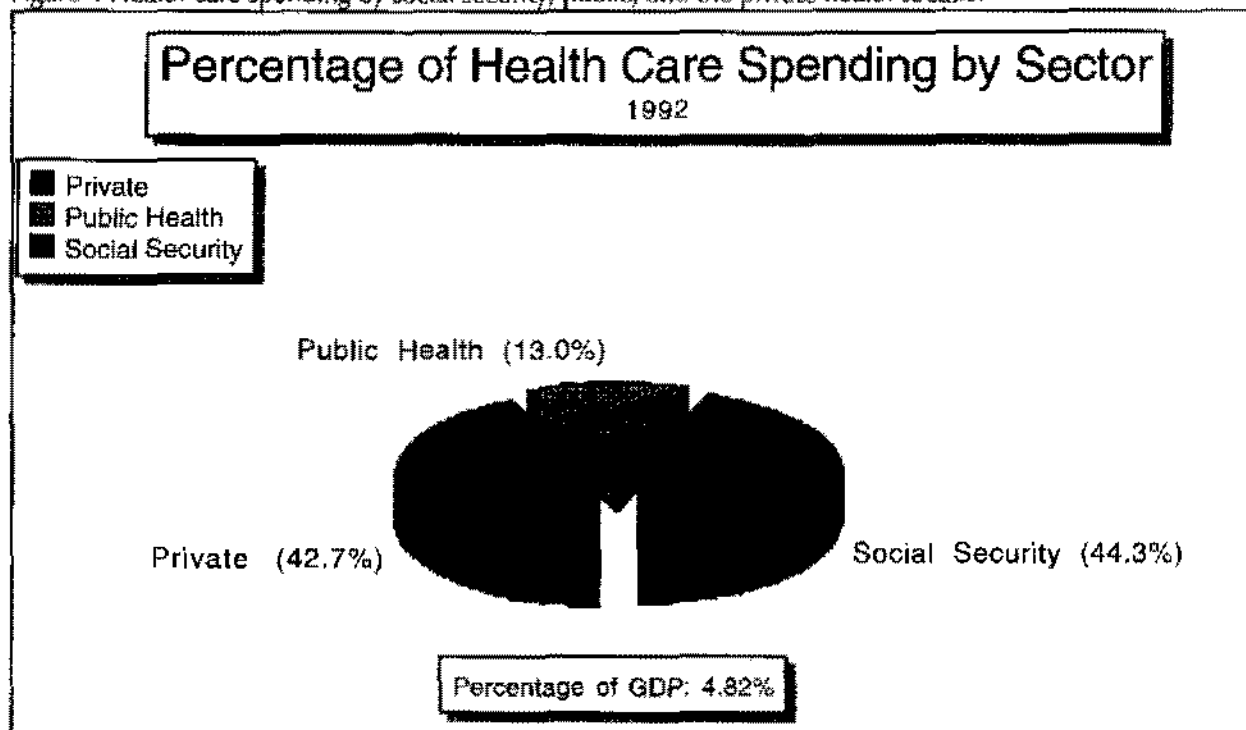
V. HEALTH CARE IN THE ECONOMY

The size of the health care sector in the economy varies greatly from country to country, due to differences in the per capita income, social policies, and the organization of the health system. The internal share of the health sector within a country also changes over time due to changes in the economy, government, and technology.

The Changing Share of Health Care in Mexico

Evidence presented earlier suggests that approximately four times as much resources per person are spent by the social security health system than by public health system. Cruz, *et al* (1994) estimate the total size of health spending in Mexico to be equal to 4.82% of the gross domestic product in 1992. This significantly exceeds the estimate of 3.6% that the World Bank reports for 1990 (World Bank, 1993). Figure 4 shows the estimated distribution of health care spending, using the estimates of Cruz, *et al* (1994).

Figure 4 Health care spending by social security, public, and the private health sectors.



Source: Cruz *et al*, 1994.

In the past fifteen years, the Mexican economy has experienced rapid growth due to increases in oil prices and exports (1979-1982), an economic crisis caused by excessive debt and declining oil prices (1982-1988), and moderate growth financed

by increased access to domestic and foreign capital (1988-1994). During these economic changes, the budget available for health has varied with the collection of tax revenues and the percentage of the budget dedicated to pay the debt. Figure 5.1 shows total government spending and public spending on health care and other social spending as a percentage of the gross domestic product, expressed in 1985 dollars.

Total government spending declined from its peak in 1981. Part of this decline reflects a decrease in tax and oil revenues; it also reflects a decrease in total debt payments as the government renegotiated the foreign debt during the 1980's. The share of non-health social spending also fell from its high in 1981-1982 and continued to fall until 1990-1991. Public health spending also fell from 1983-1987 although not as sharply as other social spending. Public health spending recovered after 1988. It appears that the government tried to maintain health spending as a relatively constant share of the gross domestic products. One of the main reason that health expenditures are relatively stable is that approximately 80% of all public health spending is done by the social security health service which is an <u>entitlement</u> with a budget that is primarily derived from a wage tax. The federal government also tried to maintain social spending as consistent as possible during the debt crisis (Frenk, *et al*, 1994b)

Changes in the economy have had a greater effect on private health care spending. Figure 1.1 suggests that the population covered by IMSS actually increases during poor economic times (1982-1988) and remains stable (1979-1982) or actually declines (1988-1994) during periods of economic growth. This probably reflects a greater demand for public health services during difficult economic times, although at least part of the decline in the 1990-1994 period may be attributed to a large increase in IMSS premiums.

Figure 5.2 shows the percentage of the gross domestic product spent on both public and private health care. Although the share of public health care spending has remained relatively constant at approximately 2% of the gross domestic product, spending on private health care as a proportion of the gross domestic product dropped nearly 50% from its high in 1982 to lowest point in 1987. In absolute terms, the decline was even greater. By 1991, private health spending had not recovered to its pre-recession peak.

In Mexico, private health care appears to be a luxury good. When the economy slows or declines, the demand for private health falls off rapidly. During periods of economic stress, the public relies more on government supported health care.

Figure 5.1: Resources dedicated to the health and social spending, 1980-1991

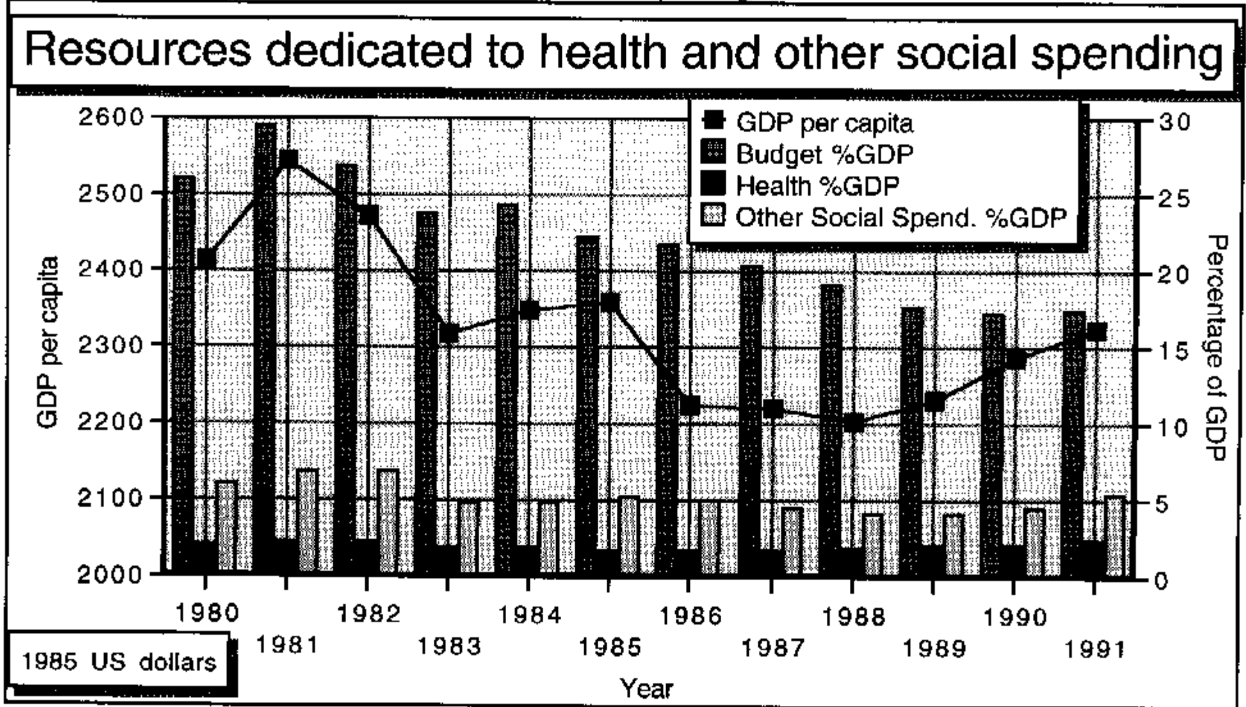
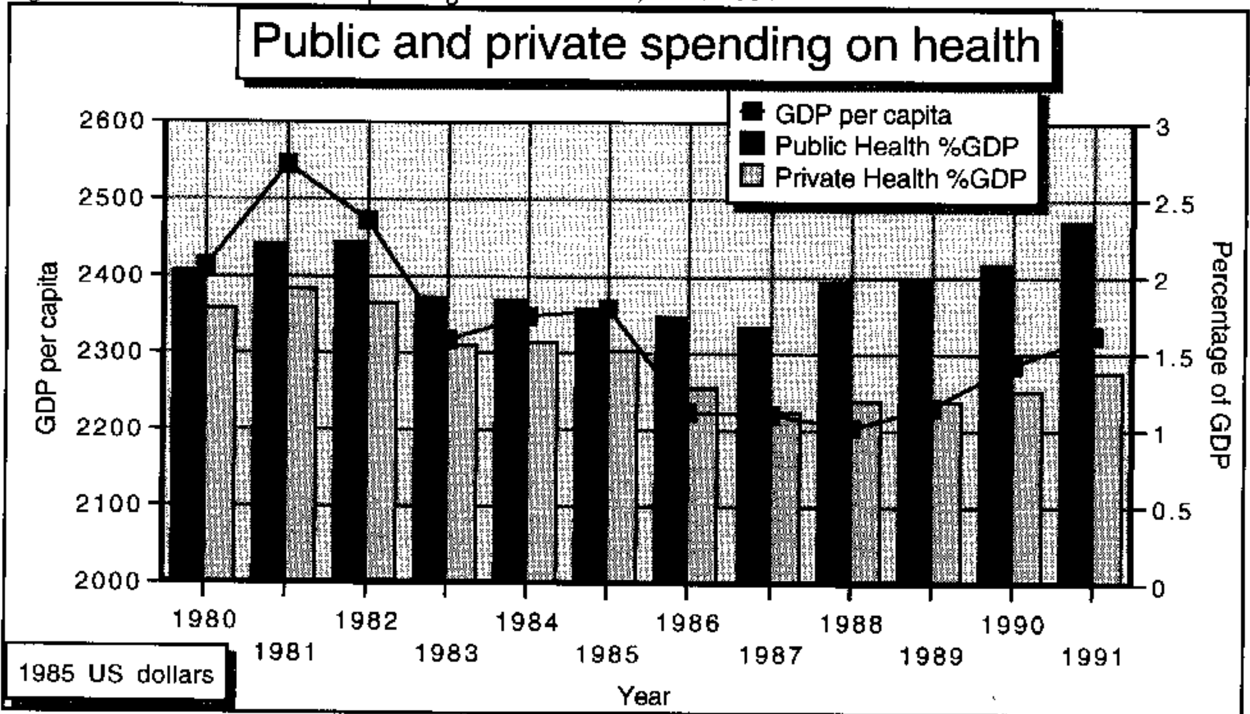


Figure 5.2: Public and Private spending on Health Care, 1980-1991

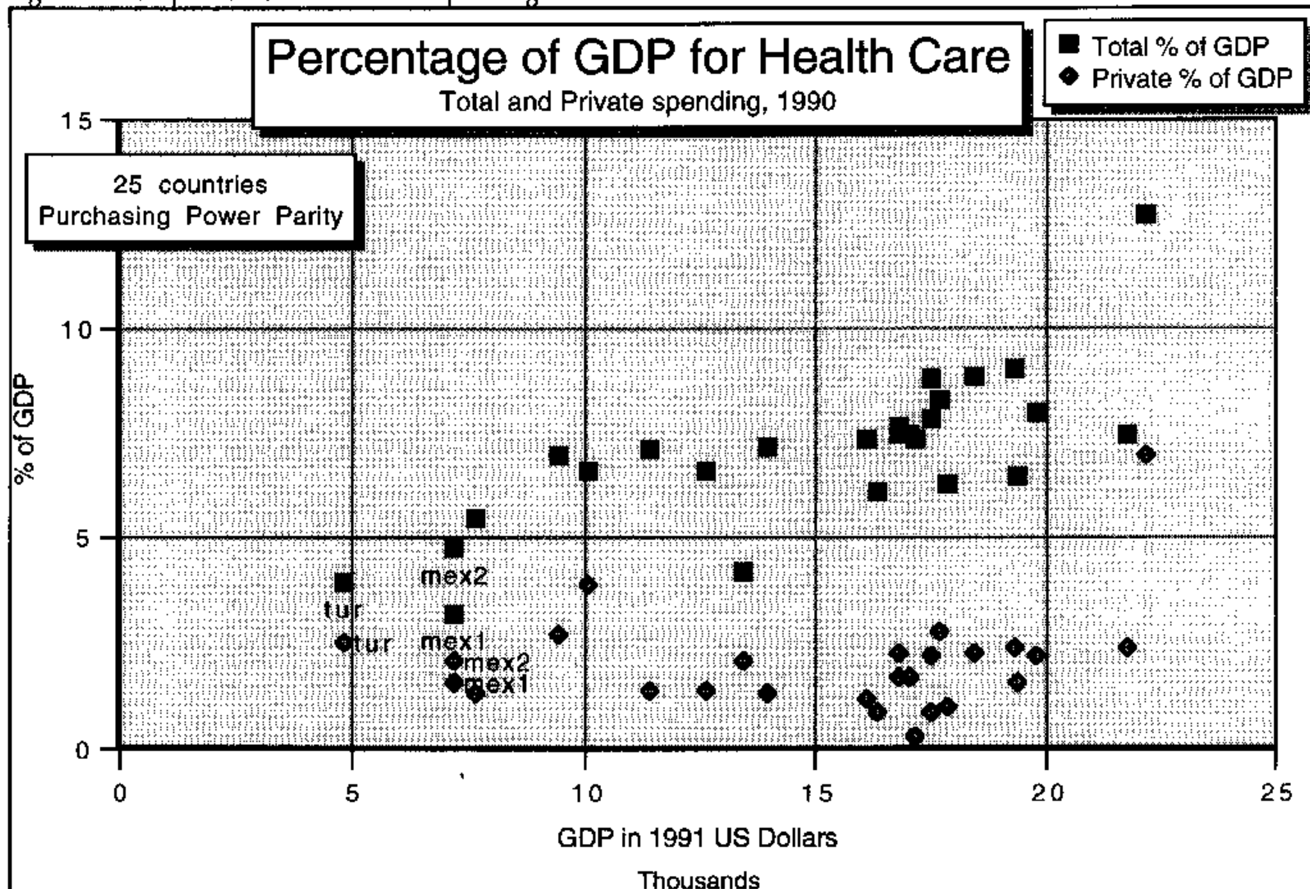


Source: SSA/CEPS 1993.

Mexico Compared to Other OECD Countries

As a nation's income increases, there is a pronounced tendency to dedicate greater resources to health care. This is clear from figure 6 which compares the total spending (government plus private) and the private spending on health care in OECD countries and gross domestic product in purchasing power parity. This "positive income elasticity" is the result of several factors, including the older population in richer countries ("demographic transition"), different capital-labor ratios in the health sector, and the greater availability of resources. However for almost all countries, spending on private health care is a relatively constant percentage of the gross domestic product as income rises. This suggests that for most countries as the demand for health care increases with income, the increased demand is met by increased government involvement in health care.

Figure 6: Comparison of Health Care Spending in OECD countries.



Mex1 refers to World Bank estimates, Mex2 refers to estimates in Cruz *et al* (1994)
Source: World Bank (1993), Cruz *et al* (1994)

Mexico is one of the poorest members in the OECD and consequently spends one of the lowest proportion of its gross domestic product on health care, whether it

is measured by the World Bank (mex1) or by Cruz *et al* (mex2). Mexico's private spending on health care is typical for OECD members, although it is greater than the spending in some European countries that have a long history of publicly supported health care. Using the World Bank estimates, Mexico spends the smallest proportion of any OECD country for health, including other middle income OECD countries. Mexico spends less than half of the amount on health care as a percentage of the GDP that Canada and the United States spend.

Mexico Compared to other Latin American Countries

Mexico has made major advances in the past thirty years to improve the health status of the population. Noticeable improvements includes an increase in the life expectancy by more than fifteen years and a more than 50 percent drop in infant mortality. But Mexico has not been alone in these trends. Most other countries in Latin America have also experienced major gains in health status and drops in fertility and population growth. Further, Mexico's health achievements, while similar to Venezuela's or Brazil's, do not appear as impressive when compared with those of other countries, particularly ones that have devoted comparable or fewer total resources to health. Table 10 compares the health status and health care resources among Mexico and several other Latin American countries. For example, over the past two decades both Chile and Colombia achieved similar gains in life expectancy but considerably greater reductions in infant mortality than Mexico. Yet in 1990 Chile was spending $100 per capita on health, or only about 12 percent more than Mexico's per capita health expenditure of $89. And Colombia was devoting $50 per capita to health, which was significantly less than Mexico's spending on health. Although simple and imperfect, these inter-country comparisons suggest that although Mexico has achieved major success in improving the health of its population, it probably could have provided better results with the available health resources in recent decades.[8]

The Mexican health system is in many ways "typical" of the health care system that exists in many Latin American countries, with its mixed three part system with public, social security, and private health care providers. In many countries, such as Bolivia or Guatemala, coverage by social security is quite limited. In other countries, it is nearly universal. In Cuba, social security is the only health care provider allowed to operate in the country. In Costa Rica and Brazil, social security covers virtually the entire population although there is an important private sector that exists as well.

[8] This paragraph is largely derived from Bloom, Bitran, Dow, Straffon, and Orozco (1995).

Table 10: Economic, demographic, and health indicators for Mexico and other Latin American countries

	Mexico	Brazil	Argentina	Venezuela	Chile	Colombia	Peru	Guatemala
Demographic indicators								
Population in 1991 (million)	83.3	151.4	32.7	19.8	13.4	32.8	21.9	9.5
Annual population growth rate (percent)								
1970-1980	2.9	2.4	1.7	3.5	1.6	2.2	2.8	2.8
1991-2000	1.9	1.4	1.0	1.9	1.3	1.5	1.9	2.9
Fertility rate (children per woman)								
1970	6.5	4.9	3.1	5.3	4.0	5.3	6.0	6.5
1991	3.2	2.8	2.8	3.7	2.7	2.7	3.4	5.4
Health indicators								
Life expectancy at birth (years)								
1960	56	52	67	67	55	58	45	49
1991	70	66	71	70	72	69	64	64
Infant mortality rate per 1,000 live births								
1970	72	95	52	53	78	77	108	100
1991	34	58	25	34	17	23	53	60
Years of life lost per 1,000 population, 1990	17	26	12	13	13	11	32	41
Prevalence of malnutrition (under 5), 1990 (%)	14	13	N.A.	5	2	12	13	34
Infants with low birth weight, 1985 (percent)	15	8	6	9	7	15	9	10
Rural population	28	24	13	15	25	29	29	60
Adult Illiteracy (1990)	13	19	5	12	7	13	15	45
Health services coverage indicators								
Infants immunized with third dose of DPT , (%)	64	75	84	54	91	84	71	63
Infants immunized against measles (%)	78	83	99	54	93	75	59	48
Medical resources								
Doctors per 1,000 population (1988 - 1992)	0.54	1.46	2.90	1.55	0.46	0.87	1.03	0.44
Nurse-to-doctor ratio (1988-1992)	2.5	0.1	0.2	0.5	0.8	0.6	0.9	2.5
Hospital beds per 1,000 population (1985-1990)	1.3	3.5	4.8	2.9	3.3	1.5	1.5	1.7
National income and health expenditure								
GNP per capita 1991 (US$)	3030	2940	2790	2730	2160	1260	1070	930
Total health expenditure per capita, 1990 (US$)	89	132	138	89	100	50	49	31
Total health expenditure as a percentage of GDP (1990)	3.2	4.2	4.2	3.2	4.7	4.0	3.2	3.7
Government per capita health expenditure, 1990 (US$)	45	88	82	49	72	23	29	18
Government health expenditure as a percentage of GDP (1990)	1.6	2.8	2.5	2.0	3.4	1.8	1.9	2.1
Private per capita health expenditure (US$)	45	44	56	40	28	27	20	13
Aid flows as a percentage of total health expenditure, 1990	0.9	0.4	0.2	0.1	0.7	1.6	2.7	11.1

Organized, from left to right, in descending order according to per capita GNP in 1991. N.A. Not available
Source: World Bank 1993, various tables. Based on Bitran (1995)

Some Latin American countries have moved to adopt radical health care reforms that break from the traditional three part health system and bring greater cooperation between the public and private sector. Chile has adopted a health service where individuals choose between a public or private health insurance. Workers pay a tax as a percentage of their income. If they elect the public insurance, their taxes are remitted to the government. If they choose the private insurance, their contributions are remitted to the private company of their choice. The public's ability to choose private health care is limited by their ability to pay for it. Colombia has adopted a similar system but with a greater concern for equity. Colombians may choose among a host of public or private providers with their contributions paid for by the social security health insurance fund. High quality plans require additional contributions from the individual.

Health Care Inflation in Mexico

Many OECD countries have seen health care inflation dramatically exceed the overall level of price inflation in their economy as market forces and changes in medical technology have driven health prices higher. Health inflation in Mexico has on average been slightly faster than the overall level inflation but has not significantly exceeded the aggregate inflation level in a consistent fashion as has occurred in other OECD countries.

Overall price inflation in Mexico has been very variable. Since 1970, the inflation rate has ranged from single digit levels into the triple digits. Health care inflation has generally matched the overall level of inflation and cumulatively has only slightly exceeded it over the past twenty five years. Figure 7.1 shows the general and health inflation rates for Mexico from 1971 to 1993 and the ratio between the two inflation rates.[9] Inflation went from a moderate, but accelerating level in the 1970's to extremely high levels during the debt crisis in the 1980's, before dropping in the late 1980's. While health inflation generally followed the overall level of inflation, there appear to be definite patterns in the ratio between the two inflation rates. After the ratio fell to its low in 1978, the health inflation started increasing relative to general inflation until 1982, during the debt crisis when it started declining until 1989. In 1989, with the economic recovery, health inflation begun to increase relative to the overall level of inflation.

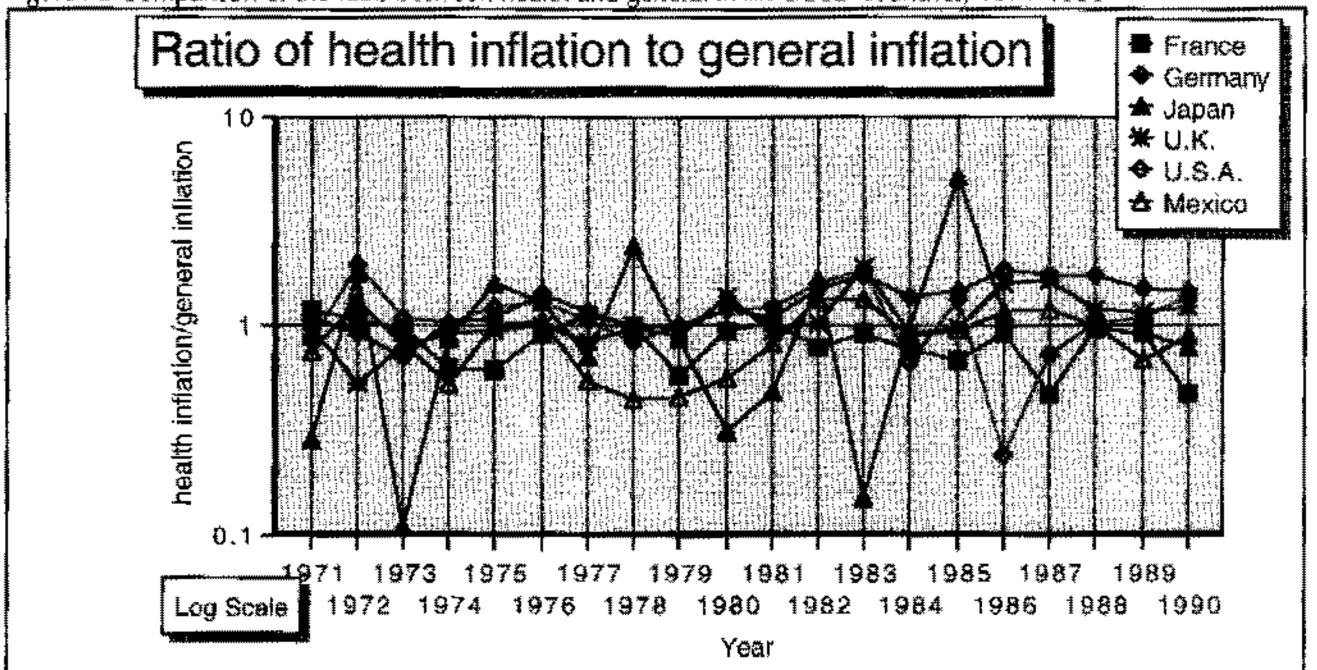
Other OECD countries have had different experiences with health inflation. Figure 7.2 shows a comparison in the ratio between health inflation and general inflation in Mexico and five major OECD countries. Without a doubt, the country with most variable health inflation (in relation to its aggregate level of price inflation) is Japan, which probably has the lowest inflation rate in the OECD. Germany has had

[9] The health inflation rate divided by the overall inflation rate.

a health inflation rate that is moderately above its inflation rate. France and the United Kingdom have both had health inflation rates that are similar to the overall inflation rate, although health inflation is a slightly more variable in Great Britain. The Untied States has had highest ratio of health inflation compared to its overall price inflation. In comparison with this other countries, Mexico's health inflation rate seems stable and close to its overall inflation rate.

Figure 7a General and health inflation in Mexico and the ratio between the two rates, 1971-1993

Figure 7b Comparison of the ratio between health and general in six OECD countries, 1971-1990



Health inflation in Mexico calculated from "Health and personal care index" by the author. Health inflation in other countries calculated from "Price Indices for Total Medical Care Expenditure" by the author.

Source Banco de México (1989, 1994), OECD (1993a, 1993b).

VI. CONCLUSIONS

In the fifty years since the creation of the social security system and the Secretariat of Health, Mexico has seen a dramatic increase in the health status of large parts of its population. Rather than attempting to tear down the existing health system, future reforms should build on the strength of existing institutions and successful programs.

Reforms in the Mexican health system need to promote both greater equity and more efficiency. The current health system spends the bulk of its resources on the relatively well-off working and middle classes, through social security. The poor, particularly in rural areas, receive far fewer health resources in spite of the fact that they are more likely to develop health problems. In some isolated rural areas, the poor often do not have any real access to even the most basic health care. Because of the widespread use of private health care providers, many Mexicans are paying for at least three types of health care: private, social security (through premiums and taxes), and public health (through taxes). Even the poor contribute to social security through the federal government's direct contribution to the social security health system and through its coverage of social security deficits, although they do not benefit from its services. In a sense, the organization of the public health system reinforces the inequality inherent in the private health care system. The current system does not put a great value on equity or solidarity. The financing method is neither transparent nor efficient due to the multiple coverage from often-competing agencies. The high degree of centralization does not permit individual regions to deal with their unique health problems. The large private health sector has not been truly incorporated into SNS despite user's frequent complaints about quality and the often long wait for government supported health care.

As it appears that Mexico is entering a difficult economic period, due to a loss of confidence of foreign investors, the health system might face the same pressures that it felt in the mid-1980's. The evidence suggests that as household income and purchasing power declines, the public reduces its spending on private health care dramatically and relies more heavily on "free" public health services. Rather than let the fall in income lower the health status of the poor and vulnerable, the government should attempt to use the crisis as an opportunity to reform the health system and to expand coverage to the uninsured.

APPENDIX 1: DIVISION OF MEXICAN STATES, BY MORTALITY AND GEOGRAPHIC REGIONS.

Mortality Regions

Mortality region A (Low infant and adult mortality rates):Aguascalientes, Baja California Sur, Coahuila, Distrito Federal, Nayarit, Nuevo Leon, Sinaloa, Sonora, Tamaulipas

Mortality Region B (Low infant and high adult mortality rates): Baja California Norte, Chihuahua, Colima, Jalisco, Morelos, Tabasco

Mortality Region C (Average infant and low adult mortality rates): Campeche, Guanajuato, Quintana Roo, San Luis Potosí, Tlaxcala, Yucatán, Zacatecas.

Mortality Region D (High infant and adult mortality rates and large urban-rural difference): Durango, México, Michoacan, Querétaro, Veracruz

Mortality Region E (High infant and adult mortality rates) : Chiapas, Hidalgo, Guerrero, Oaxaca, Puebla

Geographic regions:

North (9): Baja California Norte, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, Sonora, Tamaulipas, Zacatecas

Central Pacific Coast (5): Colima, Jalisco Michoacan, Nayarit, Sinaloa

Interior (11): Aguascalientes, Guanajuato, Guerrero, Hidalgo, México, Morelos, Puebla, Querétaro, San Luis Potosí, Tlaxcala, Veracruz.

South (6): Campeche, Chiapas, Oaxaca, Quintana Roo, Tabasco, Yucatán

Countries included in Figure 6.

Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany (western), the Republic of Ireland, Israel, Italy, Japan, Republic of Korea, Mexico, The Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States of America

APPENDIX 2: TECHNICAL NOTES ON THE CONSTRUCTION OF DATA.

Table 3.1: Second National Health Survey asked each person (including dependents) in the survey to name the health plan that covers them, if any. Results are weighted using the sample weights and are representative of the entire population.

Table 6: Probabilities estimated from the Second National Health Survey. All probabilities weighted by the sample weight of each household. The probability of poor health is self-reported incidence of health problems in last two weeks. The probability of using curative health services is conditional on a health problem and probability of choosing private health facility is conditional on reporting a health problem and using some sort of curative service. Income is instrumented because a number of households report no income; income is reported per adult in the household. Mother's education is the education of the wife of head of household (if a male) or the head of household (if a female); the effect of mother's education is calculated on the entire sample including adults in the household.

Table 8: Total social security includes IMSS, ISSSTE, Pemex, and SEDENA/Marina. Non social security includes SSA, state health departments, DDF, and IMSS-Solidaridad. Beds include hospital and maternity beds.

BIBLIOGRAPHY

Academia Nacional De Medicina (ANM) y la Comisión Mexicana de Investigación En Salud (COMISA). (1994) *The North American Free Trade Agreement and Medical Services*. Mexico City: Academia Nacional de Medicina

Aspe, P. (1991) "Thoughts on the Transformation in Mexico: The case of privatization of public sector enterprises" Speech given to the World Affairs Council, Los Angeles

Bitran, R. (1995) "Argentina. Estudio de Financiamiento del Sector Salud. Encuesta Urbana de Hogares sobre Seguros Públicos y Privados de Salud" Unpublished Mimeo Santiago, Chile: Inter-American Development Bank

Bloom, E., R. Bitran, W. Dow, B. Straffon, and M. Orozco (1995) *The Demand for Health Care in Mexico: An Econometric Analysis*. Mexcio City: Consejo Nacional de Población

Cardoso. M. (1993) *Analisis de la Politica Descenralizadora en el Sector Salud* Mimeo, Mexico City: CIDE

Consejo Nacional de Población (1994) *Informe Nacional sobre Población Méxcio* Mexico City: CONAPO

Consejo Nacional de Población (1995) *Prgrama Nacional de Población:1995-2000* Mexico City: CONAPO

Cruz, C., F. Alvarez, J. Frenk, F. Knaul, C. Valdés, and R. Ramírez (1994) *Las Cuentas Nacionales de Salud y el financiamiento de los servicios*. Mexico City: FUNSALUD

Dávilia, E. (1994) Untitled mimeo, Mexico City: CIDE

Frenk, J., R. Lozano, and M. González-Black (1994a) *Economía y Salud: Propuestas para el Avance del Sistema de Salud en México*. Mexico City: FUNDSALUD

Frenk, J., G. Nigenda, H. Hernandez, L. Alvarez, C. Robledo, L.A. Vasquez, C. Ramirez, J. Alagón, A. Muñoz, L. Durán, J. Querol, C. García, and D. Vázquez (1994b) *Médicos, Educación, y Empleo* Guadalajara: Universidad de Guadalajara

Gertler, P and J. Van der Gaag (1990) *The Willingness to Pay for Medical Care* Washington DC: The World Bank

Gomez de Leon, J., ed. (1994) *Retos y Propuestas* Mexico City: Fundación Mexicana Cambio XXI, Luis Donaldo Colosio

Instituto Mexicano del Seguro Social (1992) *Diagnostico de Salud en las Zonas Marginadas Rurales de Mexico* Mexico City: Instituto Mexicano del Seguro Social

Instituto Mexicano del Seguro Social (1994) *Vision del Cambio en la Seguridad Social* Mexico City: Instituto Mexicano del Seguro Social

Instituto Mexicano de Seguridad Social (1995) *Diagnostico* Mexico City, Mexico: Instituto Mexicano del Seguro Social

Lozano, R., C. Infante, L. Schlaepfer, and J. Frenk (1993) *Desigualdad, Pobreza y Salud en México* Mexico City: El Nacional.

Mesa-Lago, C. (1989) *Ascent to Bankruptcy: Financing Social Security in Latin America* Pittsburgh: University of Pittsburgh Press

Mesa-Lago, C. (1991) *Social Security and Prospects for Equity in Latin America World Bank* Discussion Papers #140. Washington: World Bank

Mesa-Lago, C. (1993) *La Reforma de la Seguridad Social y las Pensiones en America Latina* Mimeo, Quito: INCAE-Progresec

Nigenda, G. (1994) *Los Recursos Humanos para la salud: en busca del equilibrio* Mexico City: FUNSALUD

Organization for Economic Cooperation and Development (1993a) *OECD Health Systems: Volume 1*. Paris: OECD

Organization for Economic Cooperation and Development (1993b) *OECD Health Systems: Volume 2.* Paris: OECD
Ruelas, E. And J. Querol (1994) *Calidad y eficiencia en las organizaciones de atención a la salud* Mexico City: FUNDSALUD
Salinas, Carlos (1993) *Qunito Informe del Gobierno* Mexico City: Presidencia de la Republica
Salinas, Carlos (1994) *Sexto Informe del Gobierno* Mexico City: Presidencia de la Republica.
Secretaria de Salud (1994a) *La Mortalidad en México: Cuadernos de Salud#1.1* Mexico City: Grupo Forga
Secretaria de Salud (1994b) *Cobertura de los Servicios de Salud: Cuadernos de Salud #1.4* Mexico City: Grupo Forga
Secretaria de Salud (1994c) *Encuestas Nacionales de Salud: Cuadernos de Salud #4.1* Mexico City: Grupo Forga
Secretaria de Salud (1994d) *Encuesta Nacional de Salud II* Mexico City: Secretaria de Salud
Sistema Nacional de Salud (1993) *Boletin de Información Estadistica: Recursos y Servicios.* México City: Secretaria de Salud
World Bank (1993) *World Development Report,* New York: Oxford University Press
World Bank (1994) *World Development Report,* New York: Oxford University Press
Zedilo, Ernesto (1995) *Primer Informe del Gobierno* Mexico City: Presidencia de la Republica.