

**A MEXICAN MODEL FOR INSURING THE POOR?
ASSESSING SEGURO POPULAR'S FIRST DECADE**

BY

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ABSTRACT

Mexico's Seguro Popular (SP) health insurance program, launched as a pilot program in 2001, provides full coverage for a defined benefits package. Two years later, the Mexican Congress passed health reform with SP at its core aiming to enroll all 50 million uninsured Mexicans over the next seven years. Funding for each beneficiary, which totals under US\$200 annually, is divided between the federal and state governments, while beneficiaries are charged a premium equal to 6 percent of their income. Contributions are waived for households in the bottom income quintile.

The reform drew on the World Health Organization's emphasis on financial fairness and the World Bank's advocacy for defined health care benefits.

In this study, I seek to provide insights into whether the major stated goals of the reform are being fulfilled. Specifically, I address the following questions: 1) Has reform reduced the burden of catastrophic health expenditures? 2) Has reform improved access to health care for the uninsured? 3) If gains have been made in these areas, have they led to reductions in socioeconomic and regional disparities?

To answer these questions, I detailed how the reform works — both in design and in practice — and critically analyzed studies on the reform's initial progress. I interviewed SP providers and other Mexican health experts and also conducted original statistical analysis of state-level data on health care resources, access, and outcomes.

A systematic review of the existing literature concludes that observational studies and an experimental study have shown significant reductions in catastrophic health expenditures and out-of-pocket health expenditures, but provide no consistent evidence regarding health care utilization or health outcomes.

In my statistical analysis, I take advantage of the heterogeneous rollout of the program across states by analyzing longitudinal administrative data on health care financing, facilities and utilization, as well as health outcomes. I find that while public health spending on the non-formal sector population increased over the last decade, there was not a significant change in spending growth after states joined SP. There was no change in the growth of health care facilities. Growth in the rate of doctor visits increased by 6 percent following implementation. There was no effect on health outcomes.

Implementation of the reform has deviated from its original goals. Full enrollment was not reached by 2010, while initial enrollment has not targeted the highest need populations to the extent that reformers had intended. Also, states have systematically underreported household income to reduce family contributions and speed enrollment.

As a tool for spreading financial risk, the reform has succeeded. But the program has not produced the sweeping improvements to the health care system or the reduction in health care disparities that reformers had predicted.

INTRODUCTION

Few things are as important to people's lives as affordable access to health care through reliable health insurance. For the sick, health insurance provides access to care that separates pain from healing, life from death. And it provides this access without bankrupting a sick person's family. For the healthy, health insurance provides financial and health security, alleviating a major source of worry.

Designing and overseeing a functioning health insurance system is one of the biggest challenges facing policy makers. When left to the free market, health insurance suffers from a host of market failures. Patients know more about their health status than do insurers; physicians recommend tests and procedures without considering cost; and pharmaceutical companies know more about their products' efficacy testing than do the physicians prescribing the medicines. Additionally, insurance induces moral hazard, which may incentivize physicians and patients to over-use health services, driving up prices. These prices can leave some patients unable to afford care. When run entirely by the government, health insurance programs have performed little better, adapting slowly to innovations in care and consistently failing to meet patient demand. In low- and middle-income countries, this picture is all the more complicated, as tighter resource constraints render some technologies unaffordable and a wide swath of society unable to contribute even small amounts toward health care coverage.

Despite the challenge of developing a well-functioning health system — and emboldened by the urgency of it — countries around the world have passed ambitious health insurance reforms in recent years. In 2010, the United States adopted a health reform package aiming to provide subsidized health insurance to 32 million of the

nation's 50 million uninsured and curtail the ability of insurers to avoid covering the sick (CBO 2010). Less wealthy countries, including Brazil, Chile, China, Rwanda, Thailand, and Mexico, have also passed reforms designed to increase public funding, reduce out-of-pocket payments, and bolster efficiency and equity (WHO 2010).

Grand ambitions, however, are distinct from successful policies. Some health reform efforts will hopefully produce dramatic gains. Others will likely fall short.

To understand which health reform strategies are the most effective, we must rigorously evaluate the design, implementation, and outcomes of previous reforms. Among this crop of recent reforms, no country offers more potential lessons than Mexico. Mexico's health insurance reform effort began a decade ago with the establishment of a pilot insurance program called Seguro Popular (SP) in 2001, which passed the Mexican Congress in 2003 as the centerpiece of a larger health reform package and in 2011 is nearing its initial enrollment goals.

Mexico's reform was designed to provide health insurance coverage to 50 million people outside the formal employment sector who were ineligible for public health insurance. Dr. Julio Frenk, the Minister of Health who led Mexico's reform, sought to craft a plan incorporating the latest evidence and theory from the global health policy community. Recommendations from the World Health Organization and World Bank motivated the reform's guiding principles. The 2003 reform legislation, called the System of Social Protection in Health, includes the following core elements:

1. SP, a public health insurance program, was established to cover the uninsured. SP covers only interventions listed in a defined benefits package. There is a separate fund for each of three categories of health coverage: community health, basic personal health care, and catastrophic health care.

2. State governments are responsible for providing one sixth of the program's funding, enrolling households, and charging beneficiaries a premium equal to 6 percent of family income. The premium is waived for households in the lowest income quintile.
3. The federal government is responsible for providing five sixths of public funding and overseeing certification of facilities. A new financing formula for state health systems adjusts the size of federal grants based on the number of SP beneficiaries in a state.

There are several reasons that this system is appealing to economists and policy makers. By defining benefits and separating funding streams for public health, basic personal health care, and catastrophic health care, reformers hoped to provide health care services cost-effectively. Furthermore, the program decreases budget uncertainty compared with more broadly defined entitlement programs. Beneficiary premiums are included to support program sustainability without causing major financial hardship for the poorest families. The federal-state funding formula addresses funding disparities that had developed across states while maintaining states' flexibility in health system management. Moreover, the government built a system for evaluation into reform, conducting regular nationwide surveys on both household finances and health and even sponsoring an experimental study of its new insurance plan. In practice, however, even the most well thought out programs rarely meet full expectations.

In this study, I seek to provide insights into whether the major stated goals of Mexico's reform are being fulfilled. Specifically, I address the following questions:

1. Has reform reduced the burden of catastrophic health expenditures?
2. Has reform improved access to health care for the uninsured?
3. If gains have been made in these areas, have they led to reductions in socioeconomic and regional disparities?

To answer these questions, I detail how the reform works — both in design and in practice — and critically analyze studies documenting the reform’s initial progress. While several reports have highlighted the key elements of reform, the existing literature lacks a comprehensive presentation of the reform’s design and implementation. I further contribute to the health policy knowledge base by interviewing SP providers and other Mexican health experts and conducting an original statistical analysis of state-level data on health care resources, access, and outcomes.

Definitively answering these questions is not yet possible since the program’s implementation is still underway. Furthermore, it will take decades to evaluate a fourth measure of reform’s success — whether the insurance program has improved the health of beneficiaries — given the slow progression of disease and delayed returns from disease prevention and health promotion. Nonetheless, policy makers cannot press a “pause button,” waiting for decisive conclusions from policy experiments while leaving critical problems unaddressed. Even tentative, initial findings allow policy makers to capitalize on promising strategies and avoid strategies that have failed elsewhere.

This study opens with a discussion of the international health policy framework prevailing at the turn of the 21st century. Chapter 2 provides domestic context for the Mexican reform, describing Mexico’s people and health system prior to reform, as well as the core problems of health disparities and financing inequity. This chapter also compares Mexico’s health care financing and outcomes with those of peer countries. Chapter 3 explains the nuts and bolts of Seguro Popular, including its financing mechanism and the care it provides through its system of defined benefits. Chapter 4 tells the story of the reform’s rollout, focusing on the process of enrollment and the provision

of care. Chapter 5 critically evaluates initial economic and epidemiological studies analyzing the health reform. Chapter 6 presents my regression analysis of state-level longitudinal data. Finally, Chapter 7 concludes with a discussion of the lessons from reform, in which I distill policy conclusions from the Mexican experience that other countries should consider as they plan reforms of their own health systems. While I do not offer specific policy recommendations for the Mexican government, I highlight several features of the law that the government could improve.

CHAPTER 1: A FRAMEWORK FOR HEALTH INSURANCE REFORM

Before delving into Mexico's health system and reform, it is helpful to review the theoretical framework for evaluating health systems used by policy makers at the time. The first two sections of this chapter detail two principles of health system design pushed by influential policy advocates. Section 1.1 explains the World Health Organization's emphasis on health financing fairness. Section 1.2 discusses the World Bank's advocacy for defined packages of health care benefits. Section 1.3 outlines three Latin American health system reforms enacted prior to Mexico's reform, those in Chile, Colombia, and the Dominican Republic. While none of these countries served as a direct model, their experimentation with health insurance expansion and decentralization, and their contrasting approaches to benefits levels, informed the Mexican reform.

1.1 The World Health Organization and a Framework of Fairness

Mexican politicians, from President Vicente Fox down, focused on equity in health care access and financing as paramount goals of the health system, following the lead of the World Health Organization's *World Health Report 2000: Health Systems: Improving Performance* (Frenk 2007). The report, which was the first major ranking of overall health system performance, argued that equity was central to health system performance (WHO 2000). As WHO Director-General Gro Harlem Brundtland wrote in the preface to the report, the WHO's approach looked beyond health outcomes:

Health systems are not just concerned with improving people's health but with protecting them against the financial costs of illness. The challenge facing governments in low income countries is to reduce the regressive burden of out-of-pocket payment for health by expanding prepayment schemes, which spread financial risk and reduce the spectre of catastrophic health care expenditures. (ix)

The WHO's performance ranking included five performance scores: overall level of health (25 percent of cumulative performance rating); distribution of health in the population (25 percent); overall level of responsiveness (12.5 percent); distribution of responsiveness (12.5 percent); and distribution of financial contribution (25 percent). To measure these goals, the WHO relied on a wide range of indicators. Health attainment scores incorporated epidemiological estimates of mortality and morbidity, responsiveness scores were derived from survey results, and the financial contribution score focused on estimates of out-of-pocket household spending.

Under this ranking, health systems that did not provide access to affordable care across the population fared poorly. The World Health Organization's influence on Mexican policy making would be entrenched when Julio Frenk, who previously chaired the WHO's health system performance ranking steering committee, became Mexico's Minister of Health. Under Frenk, the Ministry of Health would cite this report as evidence that Mexico's health system was in need of reform.

1.2 The World Bank and Defined Benefits

The second major philosophical framework underpinning the Mexican health reform was the strategy of defined benefits. The World Bank included the first major template for defined benefits in its *1993 World Development Report: Investing in Health*. The report argued that "a basic responsibility accepted by governments almost everywhere is to ensure access to a package of essential clinical services" (112).

The Bank called on states to meet this responsibility by prioritizing preventive care and cost-effective services. It proposed that essential benefits packages in low-

income countries should cover prenatal and delivery care, family planning, care for sick children, tuberculosis treatment and sexually transmitted disease case management. Women's health services were also recommended for inclusion in order to address two of the major causes of death in low-resource areas, namely maternal and infant mortality. The other recommended services target conditions with high negative externalities.

In countries with more available resources, the report proposes that countries should also cover treatment for chronic conditions like diabetes and hypertension, treatment of some psychiatric issues such as schizophrenia, breast and cervical cancer screening and treatment, hernia repair, and cataract removal, among other interventions. At the same time, the World Bank argued that countries ought to exclude expensive interventions such as heart surgery, treatment of lung, liver and stomach cancers, and even some HIV drugs.

1.3: Health Reform Precedents in Middle-Income Latin American Countries

Though different in important ways, Chile, Colombia, and the Dominican Republic each instituted health overhauls that would offer lessons for Mexico's reform. While the Mexican health reform is regularly credited with being a trailblazer in health care policy, it drew on the experiences of these countries' reforms, enacted in 1981, 1993, and 2001, respectively.

Chile, under right-wing dictator Augusto Pinochet, became the first Latin American country to institute a neoliberal health reform in 1981, beginning the trend of

decentralization of national health services.¹ Prior to reform, Chilean health care was provided through a nationwide network of public facilities. The reform supported development of private insurance plans providing access to private providers, and the public health system was decentralized into 26 autonomous entities. Chile's insurance system was effectively unregulated. As a result, insurance companies' business models relied on cherry-picking patients unlikely to need much care, rather than on providing care at a lower cost (Unger et al. 2008). Instead of competing with public insurance population-wide, private insurance enrolled mainly wealthy people, many of whom maintained public insurance for chronic or catastrophic care and used private insurance for less expensive clinical care. In 1991, the new Christian Democrat governing coalition instituted some regulations. A high of 26 percent of people held private insurance in 1997, before public insurance began an upswing. By 2008, only 16 percent of Chileans held private coverage, compared with 73 percent with public insurance (Mesa-Lago 2009). A second round of reforms in 2004 and 2005 established an insurance mandate coupled with subsidies for the poor, slated to take effect by 2016. Despite evidence that the Chilean reform had not infused efficiency to the delivery of care as reformers had hoped, it was cited as a model in other countries' health reforms, particularly that of Colombia (De Groote, De Paepe and Unger 2005).

In 1993, Colombia² also turned to a decentralization effort, following encouragement from the World Bank (Unger et al. 2008). Before reform, roughly 25 percent of the population accessed health care through an employment-based social

¹ Discussion of Chile's health reform is drawn from Mesa-Lago 2009 and Unger et al. 2008.

² Discussion of Colombia's reform is drawn from Glassman et al. 2009.

security system, which operated its own health care facilities. The uninsured population purchased care out-of-pocket at private and public facilities. The latter were supposed to provide free care to the poor, yet 91 percent of the poorest quintile of hospital patients faced out-of-pocket costs at public facilities. As a result, nearly 60 percent of those with an illness requiring clinical care did not see a health care provider due to cost. In an attempt to remedy this situation and extend insurance beyond those with formal employment, the government introduced mandatory, comprehensive health insurance under a managed-care model. Through reform, administration of public health care facilities was devolved to local governments, which were given federal grants to operate the facilities. The social security and public clinic systems were merged in the reform, receiving operating funds from general taxation and a payroll tax. The new system relied on taxation and premiums, which were waived for the poorest people. While reformers had high hopes for an expansion of coverage, only 58 percent of the country was insured by 2001, largely because of soaring costs associated with free, comprehensive care for beneficiaries.

The third country whose health reform contributed to the international context in which Mexican policy makers operated is the Dominican Republic, which passed a framework for reform in 2001.³ Before its reform, over two thirds of total health spending was private, 90 percent of which was financed out-of-pocket. Eighteen percent of Dominicans held health insurance. The regressive nature of this financing system was a leading reason for reform. In March 2001, just as the Fox administration embarked on devising its reform, the Dominican Republic enacted a series of laws aimed at

³ Discussion of the Dominican Republic's health reform is drawn from PAHO 2007.

guaranteeing health care for the entire population. The reform gave authority for care provision to regional, autonomous provider networks and health facilities. The health system's financing and service provision functions, which had been centralized within the social security administration, were divided. Following World Bank recommendations, the government established a defined benefits package, which all insurers must cover. Public health insurance is provided for low-income people, while others have the option of paying for public or private insurance.

1.4: Conclusions

Though Mexico's health insurance reform would be shaped by forces of domestic politics and designed to fit within the context of Mexico's existing health system, its foundations are best understood through the lens of international health policy principles and precedents. While the WHO encouraged countries to close equity gaps, the World Bank urged countries to explicitly define benefits packages. Tensions can arise between these principles in fragmented health systems like Mexico's. Extending limited benefits to one portion of the population while another portion has comprehensive care perpetuates a disparity in health care access, even if this disparity is somewhat smaller than it had been before. In the Mexican case, reformers couched design elements aimed at lowering the cost of reform in the language of solidarity and equal access to care, as we will see in the following chapters.

In addition to theory, real-world examples of Latin American health reform also informed Mexico's experience. Chile's decentralization of health services, coupled with its development of an unregulated health insurance agency, illustrated that reliance on

unregulated private insurance does not advance equity concerns. Instead, insurers compete based on their ability to avoid covering the sick. Colombia's merger of a two-tiered health system into a single health insurance program offering unrestricted benefits showed that offering universal access to comprehensive care puts a strain on health system budgets, limiting the number of people who can be served. And in the Dominican Republic, a health reform incorporating decentralization, subsidized insurance for the poor, and defined benefits showed that all three of these components could be combined into a single reform package.

CHAPTER 2: MEXICO’S HEALTH CARE SYSTEM BEFORE REFORM

While Mexico’s 1917 Constitution guarantees all people the right to the protection of health, its subsequent policies have proved less expansive. Over the course of the 20th century, Mexico gradually expanded health coverage. Health insurance was first guaranteed to formal sector private workers, then coverage was expanded to include agricultural workers and public employees, and finally basic health care was offered to those in extreme poverty. At the turn of the 21st century, half of Mexico’s population — informal workers, the self-employed, and the unemployed — remained without guaranteed access to health care. In a 2002 article published in *Health Affairs*, a group of high-ranking Ministry of Health officials and National Institute of Public Health researchers lambasted the health care “nonsystem” that had emerged (Barraza-Lloréns et al. 2002).

This chapter describes Mexico’s nonsystem. Section 2.1 offers an introduction to Mexico, including its ongoing demographic and epidemiological transitions, government, and economy. Section 2.2 describes the taxonomy of Mexican health care institutions prior to reform. Section 2.3 highlights health care disparities across divides of insurance status, socioeconomic level and geography. Section 2.4 puts Mexico’s health care financing, resources, and outcomes in an international context.

2.1 The Mexican People

With over 113 million people, Mexico is the largest Spanish-speaking country in the world.⁴ Though Mexico’s historical roots lie in agriculture, the urban population has risen

⁴ Unless otherwise specified, data in this section are from CIA 2011.

to 78 percent and continues to grow. Mexico City, home to roughly 20 million people, is the third largest metropolitan area in the world. Ethnically, a large majority of Mexicans are Mestizo, 9 percent are White and 3 percent are Amerindian, based on self-reporting.

Over the last 60 years, Mexico has undergone significant demographic and epidemiological transitions. Mexico's fertility rate of 2.3 children born per woman is down from 7.2 children per woman in the early 1960's (CONAPO 2002). Life expectancy has risen from below 50 years in 1950 to 76.5 years, which is 73rd highest worldwide. The infant mortality rate of 17.29 deaths per 1,000 live births is only 120th best worldwide, but this rate is 75 percent lower than it was in the 1960s (Alba-Fernandez 1982). These health gains and the declining birth rate combine for a quickly aging population.

Mexico faces an evolving disease burden in line with global trends. Since 1955, the number of deaths attributable to communicable diseases has fallen from 70 percent to 12 percent, while the proportion of deaths attributable to non-communicable diseases has risen from 23 to 75 percent (González-Pier et al. 2007). Yet gains in treatment of communicable diseases were not universal. Frenk and Octavio Gómez -Dantés (2011), who worked as a deputy to Frenk in designing Mexico's health reform, argue that Mexico faces a "triple burden" of disease:

First, the unfinished agenda of infections, malnutrition, and reproductive health problems; second, the emerging challenges represented by non-communicable diseases, mental disorders, and the growing scourge of injury and violence; third, the health risks associated with globalization, including the threat of pandemics like AIDS and influenza, the trade in harmful products like tobacco and other drugs, the health consequences of climate change, and the dissemination of harmful lifestyles leading to the obesity pandemic. (224)

Mexico's government structure, a federal republic with a president, bicameral congress, and appointed supreme court, was established in its 1917 Constitution, adopted following independence from Spain. For most of modern Mexico's history, elections were uncompetitive, with the Institutional Revolutionary Party (PRI) winning every presidential election prior to the victory of Vicente Fox and the National Action Party (PAN) in 2000. The federal government shares power with 32 federated entities: 31 states and Mexico City.⁵

Mexico's economy relies on a mix of service, industry and agriculture. With an estimated per capita GDP (purchasing power parity) of \$13,800, Mexico is the 84th wealthiest country in the world, comfortably within the middle-income category. Yet it is also the second poorest of the 35 members of the Organization for Economic Co-operation and Development (OECD), in front of only Turkey. Mexico also has a high level of income inequality, with a Gini coefficient of 48.2, the 27th highest worldwide. As of 2002, half of Mexico's population lived in poverty, and one fifth lived in extreme poverty (World Bank 2011). The Mexican Peso (MX\$) has converted to U.S. Dollars at a rate between 9 and 12 Pesos per Dollar for most of the past decade.

2.2 A Patchwork Health Care System

In 2002, out of Mexico's population of 103 million, half were uninsured, as shown in Table 2.1. These insurance programs had vastly different budgets and provided different

⁵ For the purpose of this paper's discussion and analyses, all federated entities will be referred to as states.

levels of services.⁶ Each of the health care programs listed in this table is described in this section.

Table 2.1: Breakdown of Government Health Care Coverage in 2002				
	Insurance Program	Enrollees (in millions)	Percent of Population	Approximate Public Spending per Capita (in 1997 MX\$)
Population with Health Insurance	IMSS	40.9	39.7	2,542
	ISSSTE	9.1	8.9	1,500
	Other Social Security	2.5	2.4	5,950
Population without Health Insurance	Eligible for IMSS- Oportunidades	10.3	10.0	1,200
	Ineligible for IMSS- Oportunidades	40.2	39.0	

Data From Secretaría de Salud 2001, IMSS 2004, and OECD 2005

Social security, available for the half of the population in a family with formal sector employment, forms the core of the Mexican government's social services. Mexican social security is quite different from the American program that provides monthly payments to the elderly and disabled. By contrast, the Mexican version provides health care coverage, retirement benefits, disability insurance, and other benefits to all salaried workers. These benefits are funded through payroll taxes on employers and employees, along with general revenues. The first and largest social security institution, the Mexican Institution for Social Security (IMSS), was established in 1943 for industrial workers. A 1954 reform added rural workers to IMSS. A parallel benefits system, the Institute for Security and Social Services for Government Employees (ISSSTE), was created in 1960 for the vast majority of public employees. Separate social security programs, meanwhile, provide benefits for the public workers of the state-run oil

⁶ Description of Mexico's public health care institutions is drawn primarily from Gomez-Dantés 2010 and OECD 2005.

company and military branches. While retirees retain benefits, non-contract workers, the self-employed, and the unemployed cannot access social security.

Each social security institution operates its own clinics and hospitals and employs its own doctors, nurses, and other staff. Social security beneficiaries receive free primary and secondary care at these facilities, along with free medicines. For specialty care, beneficiaries of all social security institutions can access free treatment at the eleven specialty hospitals comprising the National Institutes of Health. Pre-existing medical conditions are covered beginning two years after enrollment. Social security does not cover private health care, which many beneficiaries nonetheless purchase out-of-pocket.

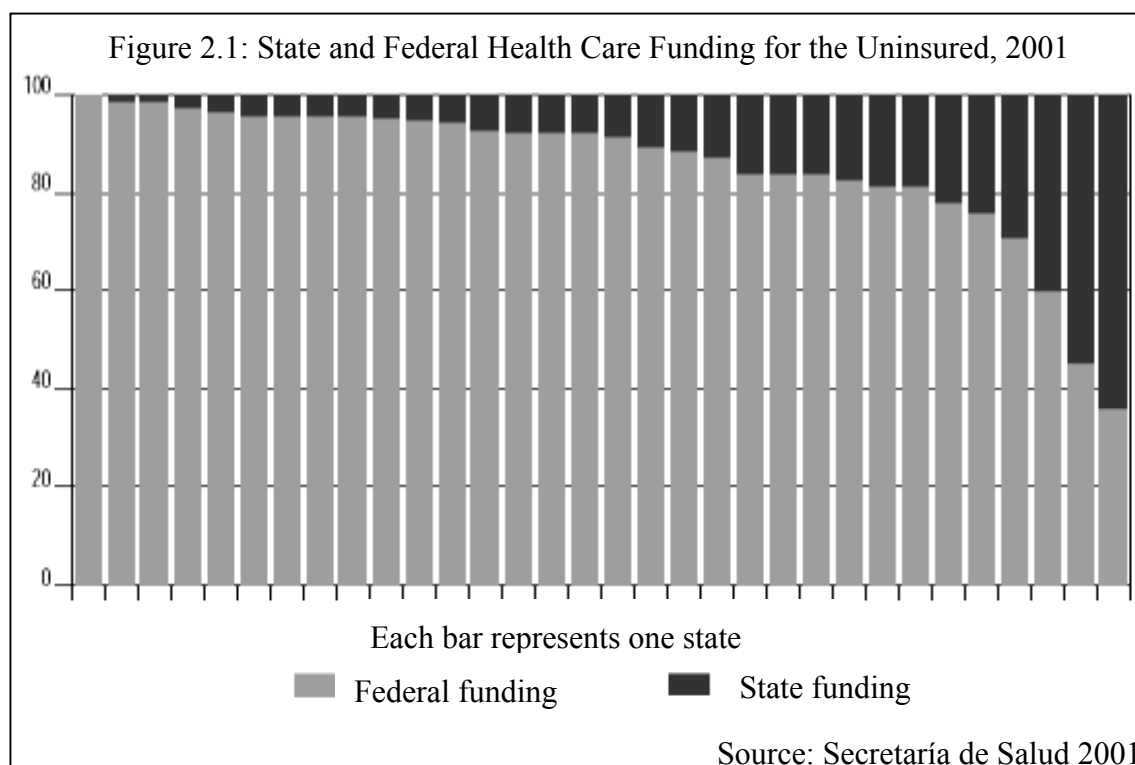
Private health care accounts for 32 percent of all physician consultations and 30 percent of hospital beds (Brown, Pagán and Rodríguez-Oreggia 2002). In contrast to the large public hospitals and clinics, private practice physicians generally conduct house visits or run their own offices, many of which are located at pharmacies. Most private hospitals have 20 or fewer beds. In large cities, private tertiary care hospitals offer advanced care that is among the best in the country. Though some private-practice doctors lack residency training, others are fully qualified and hold concurrent positions in supervised public facilities, collecting out-of-pocket fees to supplement their public salaries (Barraza-Lloréns et al. 2002).

Private health insurance plays a minor role in the health care system. Only 3 percent of the population — nearly all of whom also have social security — purchase private health insurance (OECD 2005). With annual premiums generally ranging from US\$3,000 to \$4,000 per family, private insurance is affordable only for wealthy families (Ibid). More than 90 percent of private care is paid for out-of-pocket (WHO 2004).

Because they are inexpensive and convenient, pharmacy-based clinics are quite popular. At the Farmacia-Similar chain, ubiquitous in urban areas, anyone can see a doctor for a fee equivalent to only a few U.S. dollars. Traditional medicine, which eschews Western biomedicine altogether, is also prevalent.

Those without social security can access care through these private providers or public clinics for the uninsured. In 1943, the same year of IMSS' founding, the government created the Ministry of Health to operate a separate network of subsidized hospitals and clinics for the poor. Forty years later, the Ministry of Health began a drawn out process of decentralization. By 1988, state governments had assumed operational control of Ministry of Health clinic operations in 14 states. In the mid-1990s, operation of remaining facilities was transferred to the states. Ministry of Health clinics receive the bulk of their operating budget from federal and state governments, but they also collect user fees for clinical services and medications. These fees are generally low and sometimes waived, with 89 percent of Ministry of Health facility users reporting that their health care is "cheap" in a survey of over 10,000 uninsured households (Kroeger and Hernandez 2003).

Though states were supposed to pay for 20 percent of the program's operations as part of the decentralization arrangement, many states have ignored this requirement and operate facilities almost entirely through their federal grants. Figure 2.1, included in The Ministry of Health's 2001-2006 planning report, illustrates wide variation in state funding for health care for the uninsured. State funding ranged from near zero to more than 60 percent, with most states paying between 5 and 20 percent of health costs.



While the ratio of per capita spending for the insured and uninsured populations was two-to-one overall, there was high variation among states. In Aguascalientes and Sonora, per capita public spending on the uninsured, at roughly US\$170 in both states, was 90 percent as high as public spending on the insured (Secretaría de Salud 2001). In four other states, however, per capita spending on the uninsured was less than 30 percent of public spending on the insured.

In absolute terms, health care spending for the uninsured ranged from a low of roughly US\$40 per capita in Puebla and Michacán, rural states in the south, to over US\$200 per capita in Baja California Sur (OECD 2005). States receive widely different grant levels from the federal government, through a historical budgeting process that rewards states with more facilities and personnel.

Largely as a consequence of differing budget levels, wide variance existed in the level of care provided by states for the uninsured. While Mexico City offered nearly comprehensive health care prior to reform, many states offered only those services that could be provided through their modest levels of federal funding. Due to historical budgeting, states with more Ministry of Health facilities and personnel received more funding, perpetuating the access disparity. Only basic preventive interventions were available in much of the rural south (Frenk and Gómez-Dantés 2009).

To supplement the Ministry of Health network and improve health care access for the rural poor, Congress established IMSS-Oportunidades (IMSS-Op) in 1983. Though administered and staffed by IMSS providers, IMSS-Op provides health care at separate facilities from those serving the social security population. Operating in 17 rural states, IMSS-Op clinics are located in both urban and rural localities, while hospitals are concentrated in rural areas (IMSS 2005). IMSS-Op provides free and low-cost primary and secondary care, with 95 percent of users in the study describing their care as “cheap,” according to the Kroeger and Hernandez (2003) study of user satisfaction mentioned above. Despite providing care for nearly 10 percent of the population, its roughly US\$400 million operating budget in 2002 represented less than 2.5 percent of total public health expenditures (OECD 2005).

Neither the Ministry of Health clinics for the uninsured nor IMSS-Op provides specialty care. Prior to reform, people without social security could access health care through either the private market or the National Institutes of Health, but they had to pay for either option out-of-pocket. While the institutes gave discounted prices to low-income

patients, this was done on a case-by-case basis, and care was still unaffordable for many patients with expensive conditions.

Along with personal health care service provision, the government also conducts public health services. The Ministry of Health carries out nationwide campaigns for risk control, health promotion, disease prevention and vaccinations, along with conducting epidemiological surveillance. Several vertical public health campaigns have been successfully implemented across Mexico. Vaccination coverage for children under 5 years old reached 97.8 percent nationally by 2001, with 31 states vaccinating more than 95 percent of the population and Mexico City vaccinating 88.6 percent of children (Secretaría de Salud 2002). Another success has been the public awareness campaign for oral rehydration therapy, which has led to decreases in deaths from diarrhea among children under 5 years old. The proportion of under-5 deaths caused by diarrhea fell from 26.4 percent in 1983 to 11 percent in 1993, as use of oral rehydration therapy rose to 80.7 percent of diarrhea cases (Victora et al. 2000).

Oportunidades, a federal anti-poverty program established in 1997 under the name Progresa, also has a health care component. Along with a nutritional program aimed at pregnant women and young children and a financial incentives program that helps children stay in school, Oportunidades offers preventive health care at Ministry of Health and IMSS-Op clinics. In negotiations between the Mexican government and World Bank over a loan Mexico took following the 1995 economic crisis, the Bank urged Mexico to explicitly define which health care benefits would be covered through its health programs (González-Pier et al. 2007). Though the government rejected changing health insurance provided through the social security institutions, it agreed to establish a defined package

of health benefits for the program. The 34 interventions included in this package mainly cover community services and personal preventive care, including vaccinations, and screening and treatment for diarrhea, respiratory infections, hypertension, diabetes, and cervical/uterine cancer (Levy 2006). Roughly 4 million households were enrolled in the program by 2003, qualifying through a strictly enforced means test that targets poor families (World Bank 2003).

2.3 Health Care Disparities

Mexico's fragmented health care system has contributed to significant health care disparities. Rural, low-income, and uninsured residents lagged behind their urban, high-income, and insured counterparts in key indicators of access to health care, as well as in health outcomes. A few of the most salient disparities are highlighted in this section.

There is significant deviation between levels of health care need and use, as shown in an analysis of the 2000 Study on Mexican Health and Attitudes Toward the Recovery Process (Brown, Pagán and Rodríguez-Oreggia 2002). Levels of health care need were estimated from a model incorporating health status indicators such as age, self-reported health condition, and disability status. Households in northern states, with higher family income and with health insurance all utilized more health care relative to their predicted need than did households in southern states, with lower income and without insurance. There were gaps between the need for and utilization of generalist and specialist physicians. An urban-rural divide was also evident for specialist care, with those living in a large city more likely to visit a specialist. The pattern of urban residents

visiting clinics and hospitals more often than rural residents was also found in an analysis of the 2002 National Evaluation of Performance Survey (Molina-Rodríguez 2006).

Differences in health care utilization vary not just for the general population, but also for those with chronic disease. A study by Pagán and Puig (2005) focuses on health care use by diabetics. Examining data from the 2000 Mexican Health and Aging Survey, the researchers found that 28 percent of those with diagnosed diabetes were uninsured. Health insurance was positively associated with visiting a doctor, while the uninsured were more likely to self-medicate or visit a homeopath or traditional healer.

Health outcomes relating to access to primary and ambulatory care also show significant disparities. A study of 713 clusters of Mexican municipalities found that while 80 percent of women in the highest income decile delivered babies in hospitals, fewer than ten percent of women in the poorest deciles did so (Lozano et al. 2001). Infant mortality rates ranged from just nine deaths per thousand live births in the wealthiest municipalities to a staggering 103 per thousand in the poorest (Barraza-Lloréns et al. 2002). An example of extreme disparities, the maternal mortality rate for indigenous communities in the state of Guerrero is more than five times the national average (Ibid).

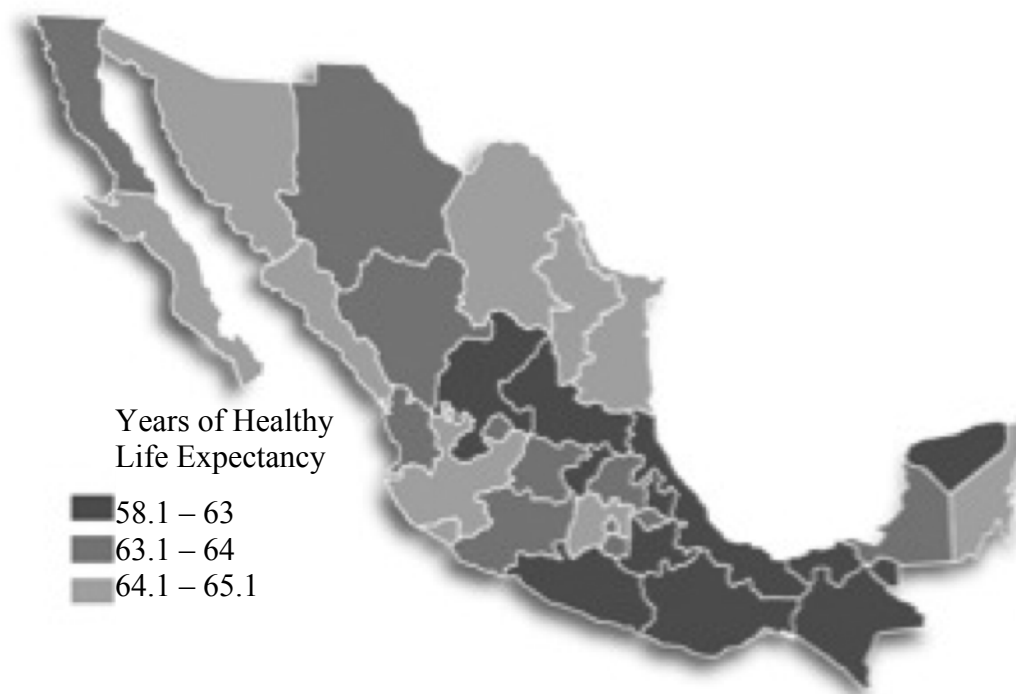
The federal government directly acknowledged such disparities. In its 2001-2006 planning report, the Ministry of Health lays out the case for health reform by pointing to health disparities and lack of financial security as the crux of the health system's inadequacies (Secretaría de Salud 2001). Pregnancy outcomes feature prominently in the report. For example, only 25 percent of poor pregnant women receive prenatal care, compared to 95 percent of pregnant women who are not poor. Disparities between rural and urban populations are also highlighted. Thirty out of every thousand rural children

under the age of five years die each year, compared to fewer than 20 per thousand among urban children. And while the mortality rate among urban men aged 15 to 59 decreased by 28 per thousand from 1992 to 1998, it increased by 3 per thousand for rural men over the same time period. The report also highlights poor health outcomes among indigenous populations, who had maternal mortality rates and diarrheal mortality rates more than three times as high as national rates and a tuberculosis mortality rate more than twice as high.

Fifteen years after IMSS-Op was adopted to fill health care gaps in rural areas, accessing any health care was a challenge in some communities. As of 1998, 3 percent of Mexicans lived more than 50 kilometers from a clinic or hospital providing secondary care, along with many others who lived within 50 kilometers but still had trouble accessing facilities. (Hernández-Avila et al. 2002).

Southern Mexico and part of central Mexico, the poorer and more rural regions of the country, achieved significantly worse health outcomes. As Figure 2.2 illustrates, residents of southern states have worse health outcomes based on the health life expectancy metric, which discounts from average life expectancy according to the prevalence and negative impact of diseases and disabilities.

Figure 2.2: Healthy Life Expectancy, 2000



Source: Secretaría de Salud 2001

For those families attempting to pay for health care out-of-pocket, the financial burden can be overwhelming. Catastrophic health expenditures are defined as health expenses greater than 30 percent of a household's income, while impoverishing health expenditures push families' income net of health expenditures below the poverty threshold. The Mexican government estimated that in 2000 between 3 and 4 million families faced catastrophic or impoverishing health expenses (Secretaría de Salud 2001). An estimate by Funsalud, a Mexican think tank focused on health care, pegs that number twice as high, or over 6 million families (Knaul et al. 2006). Surveys show that nearly 20 percent of households in the lowest income quintile faced catastrophic or impoverishing health care expenses, compared with less than 3 percent of households in the top income

decile (Sesma, Pérez and Gómez 2004). Among the uninsured, such spending impacts 10 percent of families, compared with 2 percent of insured families (Knaul et al. 2006).

Due to the high cost of care, many Mexicans forgo medical care altogether. As Carolina Martinez, a demographer at the Universidad Autónoma Metropolitana, Xochimilco, notes, pockets of Mexican culture feature perceptions of death that are very different from those of most advanced Western nations (Interview by the author, Mexico City, January 21, 2011). Through the mid-20th century, child mortality was common in Mexico, and it is still a part of life for many poor families. As Martinez lamented, for many poor families, “If the child is sick, they will die.”

2.4 Mexican Health Care in an International Context

Mexico's health system performance among peer countries at the beginning of the Fox Administration depends largely on the comparison group in which Mexico is included. Among middle-income Latin American countries, such as Argentina, Brazil, Colombia and Uruguay, Mexico compared reasonably well on metrics of health care financing, resources and outcomes. Among OECD countries, however, Mexico is among the worst. Table 2.2 shows Mexico's performance on selected indicators, as reported by the World Health Organization and OECD, prior to health reform.

Table 2.2: Health Care Financing, Resources, and Outcomes in Mexico and Peer Countries										
		Mexico	Argentina	Brazil	Colombia	Uruguay	USA	Canada	OECD Average	
Health Care Financing	GDP per capita, 2001 (US\$ at average exchange rate)	6,066	7,147	2,921	1,909	5,532	35,158	22,768		
	Total Health Expenditures as percent of GDP, 2001	6.1	9.5	7.6	5.5	10.9	13.9	9.5	8.1	
	Total Health Expenditure per capita, 2001 (US\$ at average exchange rate)	370	679	222	105	603	4,887	2,163		
	Total Health Expenditure per capita, 2001 (US\$ PPP)	552					5,052	2,733	2,026	
	Private Health Care Expenditures, as percent of Total Health Expenditures	55.7	46.6	58.4	34.3	53.7	55.6	29.2	28.4	
Health Care Resources	Out-of-Pocket Expenditure as percent of Private Health Care Expenditures	92.4	62.4	64.1	65.2	30.4	26.5	52.3	59.8	
	Practicing Physicians, 2002 (per 1,000 residents)	1.5					2.4	2.1	2.9	
	Practicing Nurses, 2002 (per 1,000 residents)	2.2					7.9	9.4	8.1	
	Acute Care Beds, 2002 (per 1,000 residents)	1.7					2.9	3.1	4	
	CT Scanners, 2002 (per 1,000,000 residents)	2.6					28.9	9.8	19	
Health Outcomes	MRI Machines, 2002 (per 1,000,000 residents)	1.2					20.9	4.2	8.2	
	Life Expectancy, 2002 (years)	74.4	74.4	68.9	71.8	75.2	77.3	79.8	77.8*	
	Healthy Life Expectancy, 2000 (years)	64.2	63.9	57.1	60.9	64.1	67.2	70.0		
	Infant Mortality, 2000 (per 1,000 live births)	25	17	37	22	14	7	5	6*	
	Under-five Mortality, 2000 (per 1,000 live births)	29	19	41	24	16	9	6		
	Maternal Mortality, 2000 (per 100,000 live births)	83	70	260	130	20	14	5	8*	

Data from OECD 2004, OECD 2005, WHO 2001 and WHO 2004

*For 2004

Mexico had one of the top life expectancies among Latin American peer countries, at 74.4 years, but lagged behind OECD peers, who averaged 77.8 years. When incorporating disease burden, Mexico's healthy life expectancy, at 64.2, was the highest among Latin American peer countries. Two major drivers of life expectancy are infant and maternal mortality. Mexico's infant mortality rate of 25 deaths per 1,000 live births and maternal mortality rate of 83 deaths per 100,000 live births are both in line with most Latin American peers and well ahead of Brazil. Yet Mexico's infant mortality rate is still five times that of the OECD average, while its maternal mortality rate is ten times that of the OECD average. Uruguay also performs better than Mexico, with an infant mortality rate of 14 deaths per 1,000 live births and a maternal mortality ratio of 20 per 100,000 live births.

Mexico's health financing also lags behind its peers. Mexico spent only 6.1 percent of its GDP on health care prior to reform, a figure lower than every peer country except Colombia. Mexico's per capita spending on health, as measured in US\$ (purchasing power parity) was roughly one fourth of the OECD average. Spending levels were not reported for non-OECD members, while the unadjusted rates reported by the WHO offer less exact comparisons. Mexico's low level of health spending comes alongside a relatively low level of public spending as a proportion of overall health care expenditures. Mexico's public-private breakdown is almost identical to that of the United States. Public health spending in the United States corresponds to 6.2 percent of GDP, however, which is larger than total health care spending in Mexico.

The metric in which Mexico deviates the most from its peer countries is the level of out-of-pocket spending as a percentage of private health expenditures. With over 90

percent of private expenditures coming from out-of-pocket payments, this category of spending is more than 25 percent higher than that of Colombia, its nearest peer country. This means that people seeking private care in Mexico face a greater financial risk than in other countries, where insurance tools are more prevalent, spreading risk across beneficiaries.

Beyond financing metrics, Mexico also lags behind OECD countries in terms of personnel and diagnostic technology. Neither the WHO nor the OECD reports these metrics for non-OECD countries. Mexico trails OECD countries in terms of overall personnel, physicians, and nurses per capita. It also has fewer acute-care beds, CT scanners, and MRI scanners per capita. This lack of resources made the prospect of expanding health care offerings for the uninsured all the more daunting. Not only would the country have to invest more money in health care to expand utilization, but it would also have to expand its workforce and technological infrastructure to provide the uninsured with high-quality care.

Table 2.3 presents Mexico's WHO health performance rankings, discussed in Chapter 1, compared with its peer countries. Mexico was penalized for its poor distribution of outcomes across its population and its high out-of-pocket costs. Its overall health attainment ranking, 55 out of 191, was better than its distribution of health attainment ranking by 10 slots. The responsiveness gap was worse, with an overall responsiveness ranking of 53–54 and a distribution of responsiveness ranking of 108–109. Only the United States, with an overall system responsiveness rank of 1 and a distribution of responsiveness rank of 3–38, had a responsiveness gap that was almost as large. Its financial fairness ranking was 144, ahead of only Brazil among its peers.

Table 2.3: WHO Health System Performance Rankings, from the 2000 World Health Report							
	Mexico	Argentina	Brazil	Colombia	Uruguay	USA	Canada
Health Level	55	39	111	74	37	24	12
Health Distribution	65	60	108	44	68	32	18
Responsiveness Level	53–54	40	130–131	82	41	1	7–8
Responsiveness Distribution	108–109	3–38	84–85	93–93	53–57	3–38	3–38
Fairness in Financial Contribution	144	89–95	189	1	35–36	54–55	17–19

Data from WHO 2000

Even though Mexico spent the 55th most per capita in international dollars, its distributional and financial fairness rankings led its overall health system performance ranking to fall to 61, ahead of Argentina, Brazil and Uruguay but behind its other peers. Mexico's overall health performance was safely in the middle of the pack. Yet there were also several areas, particularly fairness of health financing and maternal and infant mortality, with clear room for improvement.

2.5 Conclusions

Prior to reform, the Mexican health care system provided highly regressive levels of service. While people holding formal sector jobs received comprehensive health insurance from social security institutions, 50 million people had much greater uncertainty in accessing health care. The uninsured were relegated to public facilities with budgets half the size of those for the insured. At these facilities, service provision was erratic and patients were generally charged user fees. While alternative health care was available in the private sector, reliance on out-of-pocket spending resulted in

financial catastrophe for millions. Overall, the uninsured had poorer access to health care and worse health outcomes.

Spending 6.1 percent of its GDP on health care, Mexico invested less than most of its peer Latin American and OECD countries. While basic measures of health outcomes put Mexico in the middle of the pack for Latin America, comparing Mexico with OECD countries demonstrates Mexico's opportunity for substantial health gains on the population level. The Fox Administration's essential premise of reform — that changes to the health system had the potential to dramatically improve the lives of the uninsured — was soundly grounded in reality.

CHAPTER 3: DESIGNING SEGURO POPULAR

Designing a reform that could alleviate Mexico's health system inequity without negatively impacting access for those with health insurance was a major challenge in itself. Yet reformers held even greater ambitions. Through SP, reformers hoped not only to reduce financial risk and improve health care access for the uninsured, but also to improve the efficiency of the larger health system.

This chapter touches on five central aspects of the reform's design.⁷ Section 3.1 discusses the collision between reformers' initial design principles and the politics of passing legislation through Congress. The rest of the chapter explores the final legislation. Section 3.2 outlines SP's financing structure. Sections 3.3, 3.4, and 3.5 explain the mechanics of the public health, personal health care, and catastrophic health care components of the reform, respectively. In this chapter, I focus only on the reform's mechanics as written into the law, deferring discussion of the challenges and compromises of implementation to Chapter 4.

3.1 Political Context for Reform

As discussed in Chapter 2, prior to reform the government operated three large health care networks of government — the Ministry of Health, IMSS, and ISSSTE — along with smaller networks for the military and oil workers. After deciding to expand public insurance coverage for the non-social security population, an early question for reformers was where these patients would access health services. The government could either

⁷ Explanation of the final legislation is primarily drawn from OECD 2005 and Frenk 2007.

continue providing health care for the non-social security population through a separate network of providers or open up the social security system to the uninsured population.

There were several potential benefits of streamlining the system. First, they could improve efficiency by avoiding duplication of services in some areas. Existing administrative costs, at 9.5 percent of health care expenditures, dwarfed those of every other OECD country (OECD 2004). If patients in areas with IMSS clinics but not Ministry of Health facilities could receive care at IMSS, it would mean that fewer new facilities would be required. Additionally, combining the systems would improve parity between the quality of health care for the non-social security and social security populations.

Yet there were also drawbacks to the change. Expanding access to IMSS would mean doubling the network's patient base, even though low levels of health care personnel and technology already stretched the IMSS network. If IMSS beneficiaries — roughly 40 percent of the population and a wealthy, politically powerful group of voters — grew concerned about the effect of reform on their access to health care, passing reform through Congress would become much less likely. A second politically active group that reformers had to contend with was the IMSS union, which was reticent to accept changes that might increase their workload without increasing compensation accordingly (Lakin 2010). With more than 350,000 members, the IMSS union was the largest union in all of Latin America, and it played a historically powerful political role at the federal, state, and local levels (González-Rossetti and Bossert 2000). In comparison, the non-social security population standing to benefit from reform had much less political power.

Frenk's first template of health reform called for collaboration between the Ministry of Health clinics for the uninsured and social security institutes (Lakin 2010). Under his vision, a new public insurance plan would reimburse providers — the Ministry of Health, the social security institutions, and possibly private providers — for the care they provided to the plan's beneficiaries. While IMSS representatives might have considered a plan that entailed expanding IMSS programs for the uninsured, they balked at a system in which patients could access care at either IMSS or Ministry of Health facilities (Lakin 2010).

In 2001, Frenk released the Ministry of Health's planning report for 2001–2006. In the report, the principles of a plan to establish a new system of Social Protection in Health were outlined. Health insurance would be available to the non-social security population at an affordable cost. This coverage would guarantee access to a defined set of benefits at state-run clinics. Stringing together an impressive assortment of buzzwords, the executive summary of the report states the reformers' vision as “Creating a health care system that is universal, equitable, solidary, plural, efficient, of high quality, anticipatory, decentralized, participatory and linked to development” (Secretaría de Salud 2001).

That same year, the government launched a small pilot health insurance program called Seguro Popular (SP). Over the course of 2001, five states agreed to participate in the pilot, at no cost to the states. The federal government paid the bulk of the cost to provide people without social security access to a set of defined benefits at Ministry of Health facilities, while families were charged a small co-pay. The pilot built on the international policy frameworks discussed in Chapter 1 by focusing on health care access

and financing equity, a World Health Organization priority, and the defined benefits template supported by the World Bank.

The Mexican Congress passed the System of Social Protection in Health, with SP as its centerpiece, with broad Congressional support in April 2003. The package was designed to transition health care financing away from a supply-driven approach toward a demand-driven one while increasing overall spending on health (Frenk and Gómez-Dantés 2009). Reformers hoped the plan would improve access to health care and lower catastrophic health expenditures by 75 percent (Presidencia de la República 2004).

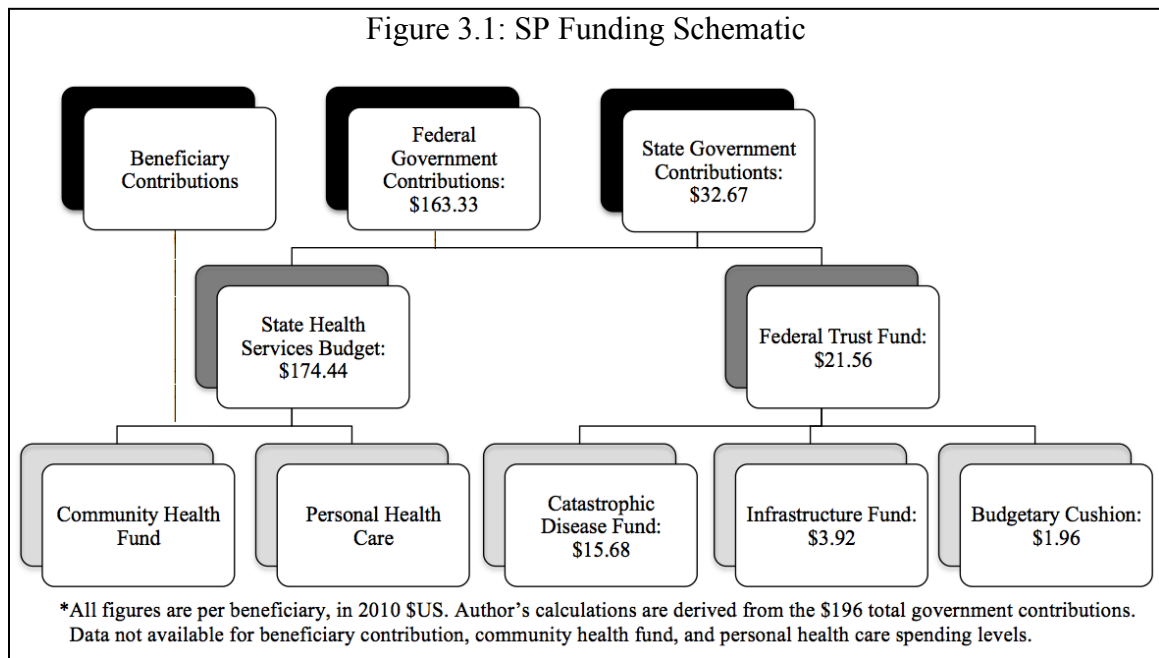
3.2 Financing

Funding for the program is divided between federal government, state government, and beneficiaries. The annual per capita budget for personal health care is pegged to Mexico's Consumer Price Index, and rose to \$196 in 2010 (World Bank 2010). As diagrammed in Figure 3.1, the federal government is responsible for providing five sixths of this amount, with the states providing one sixth. The state contribution is a minimum level, with states welcome to allocate further funding to their state health system, if desired. States have strict constitutional limits on their ability to collect revenue, so most of their budgets come from block grants from the federal government. The state health services are responsible for providing community health and basic personal health services, while the federal trust fund divides allocations among a catastrophic health fund, an infrastructure improvement fund, and a budgetary cushion fund.⁸

⁸ The budgetary cushion fund is allocated to states with higher than anticipated demand for services.

The beneficiary contribution is the smallest source of funding. These contributions are enforced by state governments, and they augment the state health services' budgets. Beneficiaries are responsible for contributing a premium equal to 6 percent of family income. Frenk initially envisioned all families contributing premiums, but families in the lowest income quintile were exempted during the legislative debate in the Mexican Senate (Lakin 2010). Unlike the complex formula used to determine eligibility for Oportunidades, SP relies solely on self-reporting of income to determine contribution requirements.

Combined state and federal funding for personal health care is divided among three pools. Eighty-nine percent is allocated to the state health services to provide community health services and the essential package of benefits, 8 percent goes to the catastrophic health fund, 2 percent goes to a health infrastructure fund, and 1 percent is reserved as a budgetary cushion, doled out to states with higher than expected demand.



In addition to the SP funding, the federal government continues to make block grants to states based on a previous formula, which supports health care for both SP beneficiaries and the uninsured, who are charged user fees. This funding is being gradually phased out, but still comprises a large component of states' overall budgets. In 2007, the federal government transferred US\$1.8 billion to states through SP and \$4.1 billion through the historical grant formula (Lakin 2010).

3.3 Public Health

The community health fund finances health promotion and disease prevention efforts at the state level. Early detection of disease and treatment of communicable diseases are two priorities. Among the diseases targeted for prevention are tuberculosis and malaria, while early detection efforts have prioritized cervical cancer and hypertension. Public health interventions are available for all people, regardless of whether they are enrolled in SP. Once the federal government allocates funding for public health initiatives to the states, states control how this money is used. Public health funding is separated from personal health funding in order to protect against the cannibalization of public health programs. Frenk (2007) outlines the logic behind this decision:

One risk of financial reforms is that an increase in access to curative services can be produced at the cost of funding for community interventions, which often do not generate spontaneous demand among the population. The independent fund was established to avoid this type of distortion, which increases the budget for curative care at the neglect of cost-effective prevention and early detection programs. (S19)

Other public health planks of the reform included increased epidemiological surveillance and the establishment of a public health agency focusing on food safety,

environmental and occupational regulations, pharmaceutical standards, and control of alcohol and tobacco.

3.4 Primary and Secondary Care

The core benefit established through SP is basic coverage personal health care, provided at state-run ambulatory clinics and hospitals. The law calls for SP administrators to compile an annual list of defined benefits, including treatments based on their cost, effectiveness and social acceptability (Frenk 2007). Defining benefits is a step away from the social security institutions' model of insurance, in which all available health services are covered. The first defined benefits package covered 90 interventions (CNPSS 2004).

Beyond improving the program's cost-effectiveness, reformers have also presented the defined benefits package as a tool for advancing the notion of health care as a right of beneficiaries. Frenk and Gómez-Dantés (2011) argue that explicit benefits “empower people to exercise their right to health care and help strengthen the organization of civil society groups around health goals, a key factor in overcoming the obstacles to access health care” (230). Upon enrolling in SP, beneficiaries are given a pamphlet with a list of defined benefits in the hopes of reinforcing this idea.

Several reform elements were intended to improve the quality of state-run clinics providing these services. SP administrators contract with the state health services to provide care for beneficiaries, creating a division between purchaser and provider designed to promote quality through competition. The law also calls for federal administrators to certify facilities to ensure that they offer all defined benefits at a high quality. A number of other management reforms were encouraged at the state level,

including more efficient schemes for drug supply, human resource development, and outcome-oriented health information services (Frenk and Gómez-Dantés 2011).

3.5 Catastrophic Care

The catastrophic disease fund is tasked with providing coverage for a small package of expensive health care services. The federal government directly reimburses health care providers for treating SP patients with catastrophic conditions. To qualify as catastrophic care providers, facilities must receive federal certification.

Treatment for HIV/AIDS, pediatric cancers, heart disease, cataracts and renal failure are among those now covered by the fund. For each condition, eligible expenses are strictly defined, specifying which tests can be run and which types of surgery can be performed. Some diseases have fairly expansive mandates. The HIV/AIDS coverage, for instance, incorporates prevention, anti-discrimination campaigns, and universal access to integrated treatment, including anti-retrovirals, which the government provides to more than 15,000 people (Frenk 2007).

The catastrophic disease package, designated by the Ministry of Health and routinely updated, is supposed to balance a number of considerations, including the prevalence and impact of a disease, the effectiveness and cost of detection and treatment, and the workforce and technological capacity to address the disease. The Ministry of Health makes final decisions regarding the diseases covered by the fund, incorporating advice from a panel of technical analysts. Disability Adjusted Life Years are used to calculate the disease burden, while World Health Organization analyses are used to

compare the cost-effectiveness of interventions. Mexico-specific cost-effectiveness estimates for future analyses are still in progress (González-Pier et al. 2007).

One of the reasons that catastrophic care was separated from primary and secondary care follows the same logic behind separating public health spending from personal health care spending: Underestimates of expensive treatments could quickly run up a larger portion of the health budget, taking funds away from basic care. Separating catastrophic care from primary and secondary care also makes sense for efficient financing of catastrophic coverage. First, pooling risk at a national level improves the equity of care, since people with a covered disease receive coverage regardless of where they live (Frenk 2007). Second, many specialists — and 54 percent of technologically advanced medical equipment — are located in Mexico City, while poor states have little to no capacity to treat catastrophic conditions (OECD 2005). Accordingly, it is more efficient to direct funding to the facilities most capable of providing advanced treatment, rather than for each state to develop its own catastrophic care infrastructure.

3.6 Conclusions

Policy makers originally hoped that health reform would take a complex system and make it simpler. Instead, the final reform made the system even more complex.

Collaboration between social security institutions and Ministry of Health clinics would have provided integrated health care delivery, reducing duplication of service. When this option encountered political pushback from the IMSS union, reformers turned to a plan that would transform existing health care institutions for the uninsured into a network of providers for a new health insurance system.

The final reform also incorporated several components designed to improve the system's efficiency. Funding for public health care is separate from personal care because public health offers the highest cost-effectiveness. And basic personal care is separated from catastrophic care for similar reasons. The separation of payer and provider through SP contracting with Ministry of Health facilities was designed to improve services through introducing competition. Furthermore, efforts to reform state management of Ministry of Health clinics aim to improve operational efficiency.

CHAPTER 4: THE POLITICAL ECONOMY OF IMPLEMENTATION

Mexico's final health reform legislation incorporated a number of efforts to improve health system efficiency, including the World Bank's recommendation of defined health care benefits. Reformers also sought to improve the system's equity through SP insurance coverage, following the World Health Organization's emphasis on health financing fairness. Both of these aims would be tested during the implementation of health reform.

This chapter describes the reform's implementation process and analyzes several major problems that hampered implementation efforts. Section 4.1 discusses the Ministry of Health's 3-year path toward reaching agreements with each of the 32 states, which required compromising several of the reform's principles. Section 4.2 continues with an explanation of the second step in the implementation process, in which each state worked to enroll its eligible population. This section details the pace of enrollment, the progressiveness of enrollment targeting, and the de facto elimination of the family contribution. Section 4.3 describes the health benefits available to beneficiaries in practice. Finally, Section 4.4 features a discussion of alleged corruption centered on enrollment and health care funds.

4.1 Enrollment of States into Seguro Popular

The first challenge for the Ministry of Health was to convince states to join the program. During the SP pilot phase, the federal government paid the full cost of the program, and many states responded by readily agreeing to participate. By the end of 2002, 22 states had joined the pilot. States were more hesitant about signing official Agreements of Coordination after the law was passed, since states were responsible for paying one sixth

of the health costs. States have limited ability to collect taxes due to constitutional constraints. Several states with strong state health systems also voiced opposition to the defined benefits system. In Mexico City, which provided the most generous health care to the uninsured at the time of reform, officials argued that its citizens had a broad right to health care that went beyond the interventions included in the defined benefits package (Leal 2009).

States did not have to immediately sign the agreements, since their health systems continued to receive federal funding outside of SP. The law called for only gradual transition away from the previous budgeting system for the state health services, in which they received funding based on their facility and personnel costs. For Fox, however, getting states to quickly join the program was important, since strong enrollment was necessary to entrench SP beyond the end of his presidency in 2006. In order to induce states to join the program, the federal government agreed to relax standards regarding what counted toward the state contribution, so that infrastructure costs would be included. As will be discussed in Section 4.3, the federal government also loosened the requirement for all states to provide the same benefits package. By February 2005, 31 states had agreed to join the program. Negotiations with Mexico City stretched on until May of that year, when Mexico City reluctantly signed on (Leal 2009). The full breakdown of when states began enrolling beneficiaries and signed formal agreements with the federal government is shown in Table 4.1.

Table 4.1 Timing of States Joining SP						
		Initial Enrollment in SP or SP Pilot				
		2001	2002	2003	2004	2005
Official Agreement of Coordination	2003	2	3			
	2004	3	13	4	3	1
	2005		1			2

Data from CNPSS 2006a and Secretaría de Salud 2005

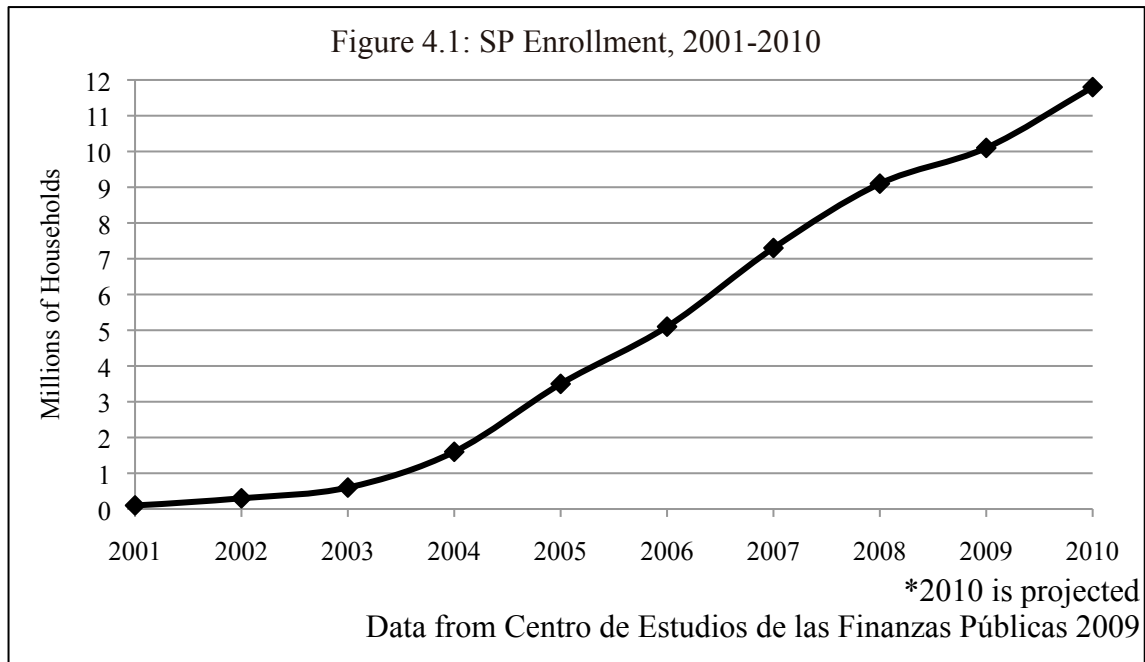
4.2 Enrollment of Beneficiaries into Seguro Popular

The health reform's final legislation called for the gradual enrollment of the roughly 50 million people eligible for Seguro Popular. The law set an enrollment target of 14.3 percent of the eligible population each year, starting in 2004, which would result in full enrollment by 2010 (Nigenda et al. 2009). During the implementation phase, the law called for targeted enrollment of the highest need communities. Yet states have not met goals for either the pace of enrollment or the targeting of communities. Further, states have tacitly encouraged the underreporting of household income, allowing families to avoid paying premiums.

The process for enrolling beneficiaries is quite simple. State administrators select communities as targets for enrollment, and then local administrators conduct campaigns to enroll as many households in that community as possible. Areas selected for enrollment campaigns had to ensure that facilities could provide the health coverage promised to beneficiaries. Families can enroll by presenting personal identification for each family member and self-reporting their household income. To ease the enrollment process, officials are not required to verify household income or SP enrollment in other states, but they are required to check whether applicants are already enrolled in a different public insurance program. States are also allowed to automatically enroll

Oportunidades households in SP, since these families have already shown that they have low enough income that they would not be charged premiums. Administrators then report back to the federal government, which tallies enrollment at the household level.

During the pilot phase, over 600,000 families enrolled in Seguro Popular. Enrollment has steadily increased thereafter, as shown in Figure 4.1. By 2010, when enrollment was supposed to have been completed according to the initial implementation plan, the government projected that 11.8 million households would be affiliated (CEFP 2009).



For the first six years of the program, the federal government overestimated total enrollment by using an inaccurate measure of household size. The government initially multiplied each household by 4.3 people to calculate overall enrollment, using the official census calculation of the average number of residents per household. Yet a field survey later showed that SP families averaged only 3.1 people (World Bank 2010). When

Congress adjusted the official calculation methodology accordingly in 2009, official enrollment “dropped” from over 43 million individuals to 31 million individuals.

With roughly 20 million individuals remaining uninsured, it became clear that SP would not meet its initial target of achieving universal coverage by 2010. Concurrent to the change in enrollment calculation methodology, Congress approved an amendment to the original health law, postponing the target for universal affiliation from 2010 to 2012 (World Bank 2010).

It is highly implausible that the uninsured families comprising half of Mexico’s population were more than 25 percent smaller than the average household in the census calculation. This would also imply, algebraically, that families *with* health insurance had an average household size of 5.5 people, nearly double the size of uninsured households. Instead, what probably happened is that local officials conducting enrollment campaigns enrolled multigenerational families living in the same household as multiple households — contrary to the law’s definition of a household — thus allowing them to more easily meet enrollment targets.

A second shortcut toward universal enrollment was the government’s low definition of full enrollment for each state. Among the five states where President Fox declared universal coverage had been achieved, three were among the five smallest states, and none was among the bottom quartile of states according to GDP per capita or human development index (Barros 2008). This suggests that states with aggressive enrollment campaigns were among those in which high levels of coverage would be easiest to achieve, rather than among the neediest states. By 2009, government figures showed 11 states with more than 100 percent of those households subject to affiliation already

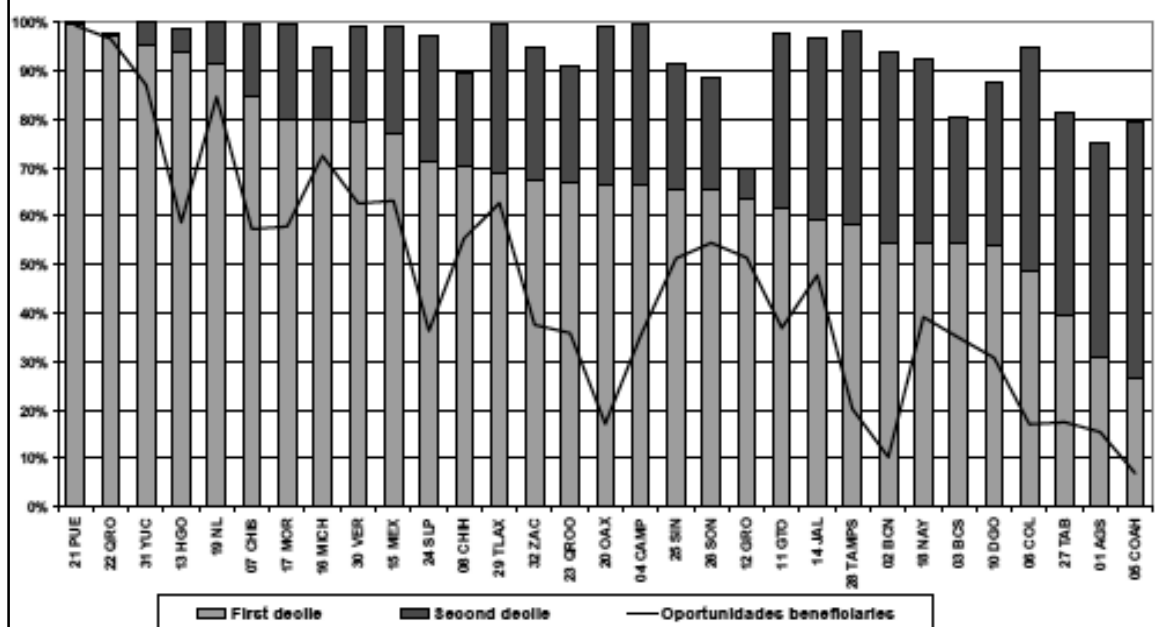
enrolled, and 96 percent of eligible households enrolled nationwide (Nigenda et al. 2009). Using this farcical measurement of universal enrollment, it is much more likely that the government will claim universal coverage by 2012, which would be a large political accomplishment for PAN heading into the 2012 presidential election.

The composition of the enrolled population has also deviated from the initial plan, in which the government called for targeting enrollment efforts toward disadvantaged families. Specifically, high-priority, often overlapping, groups included: 1) low-income families 2) families with high levels of marginalization 3) Oportunidades beneficiaries and 4) indigenous ethnic groups (Nigenda et al. 2009). These groups, however, are often the most difficult to enroll, for several reasons. First, providing care in low-resource areas requires higher infrastructure and personnel start-up costs. Second, even though paperwork is minimal, presenting official personal identification is sometimes a roadblock to enrollment, particularly for the poorest families (Nigenda et al. 2009). Third, health insurance enrollment is not part of Mexican culture, particularly in marginalized communities with few people enrolled in health insurance through the social security institutions.

Despite the difficulty of enrolling target populations, states reported wildly successful targeting of low-income households. 2005 enrollment figures showed several states where nearly 100 percent of SP beneficiaries were enrolled in Oportunidades (Scott 2006). This is plausible, since the easiest way for states to quickly increase enrollment is to automatically enroll Oportunidades households. The ratio of families in the lowest income decile versus families in the second lowest decile suggests misreporting of income. As shown in Figure 4.2, families in the lowest income decile dwarf those in the

second lowest decile in most states, implying drastically different levels of targeting between two groups of people that are quite similar except for slight differences in income. Combined, families in these two deciles made up 82 percent of beneficiaries.

Figure 4.2: Enrollment of Low Income and Oportunidades Beneficiary Households, 2005



Source: Scott 2006, Based on 2005 Enrollment Data

Data from 2008 administrative records provide definitive proof of misreporting by income. Of the 9.1 million households enrolled in 2008, 7.5 million were reported to be in the lowest income quintile (Secretaría de Salud 2008). Yet the 2005 Census showed only 25 million total households, meaning that there are only 5 million total households in the lowest income quintile (Lakin 2010).

While official enrollment statistics depict SP as an uncannily progressive benefits program, a national household survey and census data combine to show a program that is

much less progressive. According to the 2004 National Income and Expenditure Household Survey (ENIGH), which asked respondents detailed information about their income and expenses, as well as whether they were enrolled in SP, only 45 percent of enrolled households were in the lowest income quintile: 26 percent in the lowest decile and 19 percent in the second lowest decile (Scott 2006).

According to the census data, there are actually more beneficiaries in the second lowest income decile than in the lowest income decile, and roughly the same number of beneficiaries in the lowest income decile and third lowest income decile, after controlling for age, sex, family size, rural residency, and indigenous origin (Gakidou et al. 2007). Controlling for those demographic factors allowed researchers to highlight that the poorest families were benefitting from preferential enrollment targeting, all else being equal. An even less progressive pattern emerged regarding levels of household marginalization, controlling for the same demographic factors. Households in communities in the third highest decile of marginalization were the most likely to enroll in SP, followed closely by households in the second highest decile of marginalization. Households in the fourth, fifth, and sixth highest levels of marginalization were also more likely to enroll in the program than households in the highest level of marginalization.

The reason that beneficiaries have been systematically misclassified into lower income deciles is that both families and the state have strong incentives for misreporting. Families avoid paying a higher premium or any at all. Among SP-enrolled households in the top six income deciles, all were required by law to pay a premium, which should have averaged MX\$989 (Scott 2006). Only 8 percent of these households paid any premium, though, and those who did pay premiums contributed an average of just MX\$393 (Ibid).

States, meanwhile, can more easily reach enrollment goals if they do not have to convince families to pay a premium in order to enroll. Higher enrollment tallies allow states to draw down much more federal funding than they would receive in family contributions. Furthermore, states can avoid adverse selection, in which only healthier families opt out of the insurance market rather than pay fees, raising per capita health care costs.

While misreporting of income has quickened enrollment and lowered financial burdens on families, the major drawback of low levels of premium payment has been a lower level of resources for the program than planned. Lakin (2010) calculates that, by 2004, the program was already being underfinanced by MX\$1.75 billion annually due to underpayments from beneficiaries.

This pattern of misclassification is vastly different from the Oportunidades program, which has more sophisticated means testing and income verification procedures. The initial SP pilot used the Oportunidades wealth test and also charged higher premium levels than were included in the final SP law. But when families were reticent to pay premiums, this approach was soon abandoned in favor of a simpler but more easily manipulated approach (Lakin 2010).

By not verifying income, the enrollment approach has also, counter-intuitively, facilitated over-reporting of household income. ENIGH data show that, between the two lowest-income deciles, over 3 percent of beneficiaries paid a contribution, averaging MX\$228 (Scott 2006). This pattern could deter families in poor communities from enrolling, if low-income families see low-income neighbors joining SP and then paying

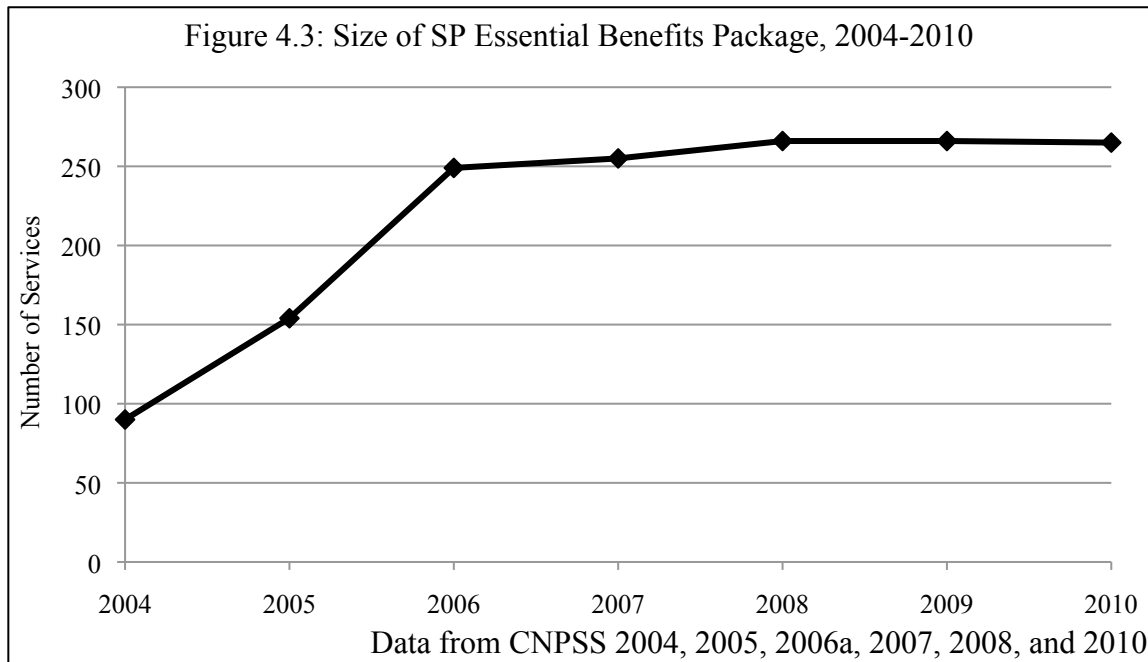
annual premiums. Furthermore, it detracts from the program's progressive reason for waiving fees for the poorest families.

Since enrollment lasts for only two years, states must also reaffiliate beneficiaries in order to maintain enrollment levels. The largest factors influencing reaffiliation behavior are perceived quality and availability of services, according to interviews with affiliation directors in several states (Nigenda et al. 2009). This is intuitive, since people would have little reason to reaffiliate if they believed that SP would fail to provide the health care that they need. Accordingly, states have a budgetary incentive to provide a high level of care, beyond the intrinsic value of serving their residents. The level of services that SP beneficiaries receive is the topic of the next section.

4.3 Defining Benefits

At the core of the health reform is the guarantee that beneficiaries can access a defined package of essential health services at SP-affiliated clinics and hospitals, as well as interventions for certain catastrophic conditions. Determining which services will be offered is a complicated and imperfect process, however.

As noted in Chapter 2, the government's first experience offering defined benefit packages came through the Oportunidades anti-poverty program. When planning the benefits package for the SP pilot, the Ministry of Health decided that an effective program would require a more comprehensive set of benefits (Secretaría de Salud 2000). In 2004, 90 interventions were included in the package. The number of services offered spiked in the next two years of the program, before leveling off in the mid-2000s, as shown in Figure 4.3.



Growth in the number of services covered gives the appearance of an expansion of benefits. But a review of the benefits packages offered each year shows that benefits expansion is almost entirely accounted for by splitting the same service into multiple categories. For example, in 2004, SP offered beneficiaries consultations with a general physician. In 2005, this health service was removed from the list, as the number of ambulatory care services offered increased from 64 to 83. Some genuinely new conditions have been added to the list, however, such as diagnosis and treatment of Hepatitis A, added in 2006.

Though medicines are supposed to be fully covered through SP, facilities do not always have medicines on hand, leading beneficiaries to purchase some medicines elsewhere, out-of-pocket. Empirical evidence points to a lack of guaranteed access to health care.

A study of 2004 and 2005 National Survey of Satisfaction and Appropriate Treatment results, 2005 and 2006 External Measurement of the Supply of Medicines and internal monitoring registries shows that the level of drug supplies at state health clinics and hospitals, which treat SP patients, are lower than those of social security facilities (Garrido-Latorre, Hernández-Llamas and Gómez-Dantés 2008). At ambulatory clinics affiliated with SP, 90 percent of beneficiaries receive medicines prescribed for them, which is significantly higher than the 80 percent of uninsured patients who receive prescribed medicines at the same facilities. Social security facilities have rates in the mid-90 percent range. SP facilities do not trail behind social security institutions nationwide. In 2006, facilities in seven states had rates above 97 percent. There were also four states, however, with rates below 70 percent. Medicine supply is also much worse at SP-affiliated hospitals than at ambulatory clinics. Only 44 percent of beneficiaries receiving a prescription at a state hospital had that prescription fully dispensed. Since hospitals prescribe, on average, more advanced and more expensive medicines than ambulatory clinics, the program will have to address this problem for beneficiaries to receive comprehensive care and for catastrophic expenditures to drop further.

There is also variation in the level of services provided across states. While wealthier regions, such as Mexico City, generally offer all services included in the plan, not all do. Chiapas, in one extreme example, offers its beneficiaries an explicitly pared down benefits package, which the federal government authorized through its Agreement of Coordination (Lakin 2010). A smaller package allows Chiapas to save money by providing more limited care. This exemption directly contradicted the goal of reducing regional disparities in provision of health care.

Reformers hoped that states could expand their coverage beyond the defined benefits through efficiency gains tied to management reforms, but these reforms have not been implemented. Once state health systems receive federal grants, they are granted near total control over how to purchase supplies, pay providers, and run clinics. The law's provisions encouraging states to incorporate management reforms have been almost universally ignored, though Baja California has made some efforts (Kurowski 2011). The main reason that these reforms have stalled is that they were not backed by any enforcement mechanisms.

With fewer benefits, higher prices and life-or-death consequences, definition of the catastrophic care package is more politically volatile than that of essential benefits. My interviews with SP personnel and physicians indicate that growth in the catastrophic care package appears to be genuine, though the catastrophic care fund has also been used as a Ministry of Health slush fund.

One benefit added to the catastrophic coverage list following lobbying from health care professionals was the 2010 inclusion of treatment for adult non-Hodgkin's lymphoma. Before 2010, only treatment of juvenile non-Hodgkin's lymphoma was covered through the catastrophic care fund. As Dr. Alejandro Mohar, the director of the National Institute for Cancer explained, the Institute would try to negotiate payment with patients in low-income households to help cover the costs of treating this disease (Interview by the author, Mexico City, January 25, 2011). Yet the hospital could not afford to provide treatment at a financial loss to all of these patients. Accordingly, when uninsured 17-year-old patients with non-Hodgkin's lymphoma came to the hospital, they could access care through SP, into which they could quickly enroll if they were uninsured

at the time. But if those patients were one year older, the government would not foot the bill. Last year, Mohar successfully lobbied SP administrators to cover treatment of non-Hodgkin's lymphoma for patients of all ages.

The process through which coverage decisions are made sometimes deviates from the type of cost-benefit analysis that led to coverage in the above case. A technocratic committee of SP administrators recommends which diseases should be covered by analyzing the costs and benefits of the coverage expansion, explained Manuel Aguilar Romo, who sits on the committee (Interview by the author, Mexico City, January 27, 2011). This committee draws on detailed reports that estimate the total cost of covering a disease, based on the likelihood and cost of every test, drug, procedure and consultation associated with diagnosis and treatment, as well as the expected number of lives that would be saved, based on epidemiological data and the success rates of treatment. This process is designed to take an evidence-based approach to the definition of benefits. But the committee only makes recommendations. Romo conjectured that the Ministry of Health political appointees who make final decisions regarding coverage accept the committee's recommendations roughly half the time. And in some situations, Romo said, political considerations play a significant role.

One example of a situation where the fund deviated significantly from its intended use came in 2009. During the H1N1 scare that year, roughly MX\$1 billion from the catastrophic care fund was used to purchase H1N1 vaccines (Rubio Aguilar 2009). In this situation, using catastrophic care funds for the vaccination purchase allowed the government to avoid making an additional appropriation to respond to the public health emergency in the context of an already tight budget. Such appropriations, however, result

in less than the full value of the catastrophic care fund going toward its purpose of treating beneficiaries with expensive diseases.

4.4 Questions of Corruption

No public policy in Mexico can be considered separately from the pervasive culture of corruption in Mexican government. Corruption has systematically been used throughout Mexico's history as a way for the elite to bolster their control (Morris 2010). In a 2001 poll asking Mexicans the first word they thought of when they heard the word "politics," "corruption" was the most common response, with 21 percent of respondents choosing it (Secretaría de Gobernación 2002). A 2004 poll found that 39 percent of respondents consider corruption "very generalized" and another 44 percent "somewhat generalized" (Buendía, Moreno and Seligson 2004). Most corruption involves lower-level administrative bribes, though government leaders have also periodically enriched themselves while holding high positions. Transparencia Mexicana (2005) estimates that bribes for public services cost Mexican households an average of MX\$177 per year. Since PRI's political stronghold began to weaken in the late 20th century, new institutional checks, including a strengthening of the auditing agency, congressional committees, and constitutional review, have been established (Morris 2010). While competitive elections have been one of the most important forces against corruption, they have also raised the importance of the government's providing direct benefits to citizens, encouraging a new form of clientelist corruption.

There are several examples of questionable governing practices in the SP program, though there is not explicit evidence of corruption. The first level is financial,

with state governments failing to contribute to the SP program and using federal SP funding for uses other than health care. Second, SP affiliation was carried out in a way that benefited PAN in the 2006 elections, in what some have described as a vote-buying scheme.

Analysis by Lakin (2010) shows that state contribution reports have been widely manipulated. After SP's benefits package was designed, the expected cost of providing this level of care was used to determine the size of contributions by the federal and state governments. Separate funds were established for construction and equipment, and state payments were to be directed toward the provision of care, including labor, supplies and other operational costs. Spending use requirements were relaxed somewhat in an effort to induce states to join, as discussed in Section 4.1. In many states, however, payments are both systematically underfunded and diverted to other expenses. In 2007, states spent an average of MX\$31 per family on care provision and were credited for another MX\$65 per family once other types of health spending were included, still leaving a gap of MX\$35 per family.

Furthermore, Lakin notes that a component of the funding for which states are credited actually came from federal infrastructure grants, rather than state funds. In 2007, Oaxaca could have spent, at most, MX\$63 million of its own resources on health, based on its budget data, and a total of MX\$136 million including infrastructure credits from the previous five years. Yet the state was credited with MX\$434 million, more than three times this amount. This culture of underfinancing, accepted by both the state and federal levels of government, means that beneficiaries do not receive the level of health spending promised to them, and the program's financial framework involving shared contributions

among federal, state, and household levels is being systematically misrepresented by the Mexican government.

With the money that is allocated for health care, there is also some concern of misappropriation. Gustavo Leal, a fierce critic of SP since its onset, alleges that some governors use SP block grants as de facto slush funds, citing conversations with mid-level bureaucrats who described misappropriations (Interview by the author, Mexico City, January 28, 2011). Christoph Kurowski, the World Bank's top regional social services economist, also raises concerns about questionable purchasing practices, noting that some states have purchased medicines at prices multiple times higher than a neighboring state (Interview by the author, Mexico City, January 20, 2011).

There is also some evidence that political considerations leading up to the 2006 election influenced enrollment. Galarraga et al. (2008) note that affiliation and coverage rates nationwide were higher, on average, in PAN-led jurisdictions. Diaz-Cayeros, Estévez and Magaloni (2006) characterize the implementation of SP as an effort by PAN to gain votes for the right-leaning party among less wealthy, normally left-leaning constituents. Analyzing panel data from the 2006 election, they conclude that, holding other factors equal, people were more likely to vote for PAN if they were enrolled in SP and that this effect is even stronger in left-leaning communities. The researchers conclude, "PAN did manage to buy-off segments of the urban poor through its social assistance programs," referring to SP and Oportunidades.

The idea that SP led more people to vote for PAN is not itself evidence of government wrongdoing. Indeed, it shows that beneficiaries thought the program made their lives sufficiently better to vote for the party that installed it. Yet the notion that SP

was implemented in such a way as to maximize electoral gains does potentially hurt the program's credibility. More importantly, the implementation decisions that sped up enrollment, such as the non-enforcement of family contributions and the targeting of populations based on factors other than need, directly traded off with the initial policy goals of the program. More broadly, this serves as a useful example that in designing policies, the political interests of politicians in charge of implementation should be considered.

4.5 Conclusions

The Mexican government was unable to meet its goal of achieving universal coverage by 2010. Though hesitation by some states contributed to this shortfall, beneficiary enrollment also proved more difficult than reformers had anticipated. It was easy for reformers to write a law stating that 14.3 percent of the uninsured population would voluntarily enroll each year, with the poorest and most marginalized joining first. In reality, however, this proved overly ambitious. The pressure to boost enrollment led the federal government to ease state spending requirements and state governments to ignore underpayment of premiums.

Another unintended consequence of the enrollment pressure was that administrators devoted their attention to enrollment in communities that had adequate facilities and personnel. While this step increased the number of people who could quickly access free, quality care, it also meant that improvements in less well-off communities did not start as quickly as planned. In the short term, disparities actually grew between some of these communities.

SP beneficiaries receive care that does not always live up to its billing. Rather than receiving the full essential benefits package, residents of Chiapas receive a pared-down version. Rather than benefitting from 8 percent of total funding for SP, patients with catastrophic conditions must share this money with health officials who use the fund for unrelated purposes, such as vaccination campaigns.

Finally, the rollout of the program may have been influenced by electoral politics, with PAN-led local governments enrolling beneficiaries more aggressively than areas led by opposition parties. This gap presumably developed because PAN stood to gain electorally from public support for SP. While there is not compelling evidence of government wrongdoing, it is likely that officials incorporated their political agenda — particularly the desire to show early gains from reform — into implementation decisions.

CHAPTER 5: INITIAL ASSESSMENTS OF REFORM

The most important measure of SP's success is whether it succeeds in reducing the financial impact of sickness, since health insurance products are tools for spreading financial risk. Two metrics — the prevalence of catastrophic health expenditures and the level of out-of-pocket spending — provide simple metrics for evaluating SP's gains on this front.

Health insurance is special, however, in that we also care about its non-financial impact. We do not expect home fire insurance to reduce the risk of fire, but we do hope that health insurance will improve the quality of beneficiaries' health care and their health outcomes. Furthermore, since Mexican politicians reinforced this expectation by arguing that reform would advance the quality of health care, improvement on this front is an important measure of the program's success. Choosing metrics for assessing health care gains is not as easy, but rates of health care utilization and measures of disease control — such as blood pressure levels for people with hypertension — serve as useful proxies.

The program's true impact is not captured by simple comparison of these metrics before and after reform, since this does not account for underlying trends exogenous to reform. Comparing outcomes for beneficiaries and the uninsured is similarly problematic, since there are inherent differences between people who enroll in SP and those who do not.

An ideal analysis of the program's effects would compare the experience of beneficiaries with what would have hypothetically happened to those same beneficiaries had the program not been available. While precise knowledge of this counterfactual is

impossible, two research techniques, observational and experimental studies, offer approximations. Observational studies of SP have compared outcomes for beneficiaries with outcomes for non-beneficiaries who are otherwise similar. And an experimental study provided an even more reliable test of SP by comparing the change in outcomes over a ten-month period for 50 pairs of similar communities, in which one community was randomly assigned to enroll in SP while its comparison community was not.

This chapter reviews the existing research literature's methodologies and findings, as well as offering a critical analysis of their conclusions. Section 5.1 covers research on the program's impact on financial security. Section 5.2 continues with a discussion of research on the program's impact on health care. My own analysis, considering both questions through examination of annual population level data for each state, is the subject of the following chapter.

5.1 Effect on Household Finances

Before detailing studies on the impact of SP on household finances, it is useful to consider an earlier study that sought to project the health reform's impact. Using data from the 2000 version of National Income and Expenditure Household Survey (ENIGH) and the 2001 National Health Insurance and Expenditure Survey (ENSA), researchers modeled the effect of different SP enrollment rates and changes in out-of-pocket expenditures on the finances of the uninsured (Knaul et al. 2005). The model predicted that if 100 percent of the uninsured population most likely to enroll⁹ did so, and if

⁹ Analysis of ENIGH data showed that, at most, 100 percent of the uninsured in the lowest income quintile, 80 percent in the second quintile, 60 percent in the third quintile, 40 percent of

beneficiaries had 40 percent lower out-of-pocket health expenditures, the prevalence of catastrophic health expenditures would decrease from 3.4 percent to 1.6 percent nationally. This simulation exercise showed that SP had the potential to make a significant financial impact on the population, especially for the poor. On the other hand, if only 20 percent of the likely enrollment population took advantage of the program while out-of-pocket expenditures decreased by only 20 percent for beneficiaries, the same model predicted that the prevalence of catastrophic health expenditures would fall to only 3.1 percent. This simulation illustrates that while successful implementation of the reform had the potential to revolutionize health spending in Mexico, there was also the chance that the reform's impact would be negligible.

During the SP pilot, the Ministry of Health hoped not only to test out program implementation, but also to get an initial measure of the program's impact on beneficiaries. In September 2002, a government-sponsored external evaluation group surveyed households in the states of Colima and Campeche. This observational study, focusing on 482 households enrolled in SP and 1,676 non-social security households without SP provided the first evidence that the program reduced catastrophic health expenditures (Hernández-Torres et al. 2008). After controlling for demographic characteristics including state, age of family members, income, family structure, and health needs and correcting for endogeneity, the study found that households with SP had an 8 percent lower chance of incurring a catastrophic health expenditure. This showed that the program had some effect, but that it did not come close to reaching President Fox's goal, as noted in Chapter 3, of reducing catastrophic health expenditures by 75

the fourth quintile, and 20 percent in the top quintile could be expected to join, based on the projected economic benefit of holding insurance compared with increasing premiums.

percent among beneficiaries. One concern with this study is that it is not nationally representative. Colima had an initial prevalence of catastrophic health expenditures — 2.2 percent — that was more than one third lower than the national level (Sesma, Pérea, Gómez 2004). Accordingly, the study could underestimate the drop in catastrophic expenditures or overestimate the impact if Colima’s initial availability of affordable, quality health care facilitated the reduction.

More recent observational studies provide some evidence that SP has lowered out-of-pocket and catastrophic health expenditures. Galarraga et al. (2008) examined both categories of spending using data from the 2006 National Income and Expenditure Household Survey (ENIGH), the 2005-2006 National Health and Nutrition Survey (ENSANUT), and the 2005 Seguro Popular Impact Evaluation Survey (SPIE). Each had large analytic samples of SP-insured and uninsured households¹⁰. While the ENSANUT and ENIGH samples were nationally representative, the SPIE population was poorer, more rural, and more marginalized than the general population. With each dataset, the researchers built a bivariate probit model to compare the two groups’ levels of catastrophic and out-of-pocket health expenditures. The three datasets generally found a lower likelihood of catastrophic and out-of-pocket health expenditures among beneficiaries, but the findings were not uniformly positive. In the ENIGH sample, which had the most accurate expenditure data, SP enrollment was not a statistically significant determinant of catastrophic health expenditures. In the ENSANUT sample, households with SP had a 3.6 percentage point reduction in catastrophic health expenditures,

¹⁰ ENSANUT included 1,736 SP-insured and 12,936 uninsured households; ENIGH included 4,440 SP-insured and 16,376 uninsured households; and SPIE included 7,952 SP-insured and 21,884 uninsured households.

compared with members of the control group. The SPIE sample showed a 5.3 percentage point reduction in catastrophic health expenditures among SP households. Taken as a whole, these results suggest modest reductions in catastrophic expenditures. However, as the ENIGH survey, which provided the most detailed information on health spending, showed no impact in this regard, the analysis should be considered inconclusive.

Regarding out-of-pocket spending, Galarraga et al.'s model showed that SP beneficiaries in the ENIGH sample had 12.9 percent lower outpatient costs, but did not have statistically significant differences in medicine or inpatient costs, compared with the control group. The ENSANUT sample showed a 7.3 percent reduction in outpatient costs and an 8.6 percent reduction in medicine costs, but no reduction in inpatient costs. The SPIE sample showed the largest impact on out-of-patient costs, with 29.4 percent, 15.9 percent and 7.3 percent reductions in outpatient, medicine, and inpatient costs, respectively. Once again, the ENIGH results should be given the most weight. The lack of reduction in medicine expenditures, in particular, is concerning, since free medicines would have eliminated medicine spending almost entirely if the program were functioning as it was designed.

Also examining 2006 ENIGH data, Gakidou et al. (2007) note changes in health care purchasing for SP beneficiaries. They find that SP beneficiaries spent 40 percent of health costs on medicines, compared with 70 percent for the uninsured. When beneficiaries were divided by income level, every group had a significant reduction in the risk of catastrophic health expenditures. Yet SP respondents still had a higher rate of catastrophic health expenditures than respondents with social security at every income level.

Barros (2008) also analyzed SP's effect on household health expenditures using 2006 ENSANUT data with a more rigorous modeling technique. Barros compares ENSANUT data with results from its predecessor, the 2000 National Health Survey (ENSA), using a triple-difference approach based on 1) a household's eligibility for SP, 2) the ratio, in that household's state, of the number of people targeted for enrollment divided by the eligible population, and 3) the trajectory of results over time. This technique limits the confounding effect of unanalyzed factors correlating with SP enrollment and helps to home in on the program effect of SP by capturing differences between states prior to enrollment. This model showed a shift away from private health care and toward public health care for SP households, thus saving them 4.2 percent of their budgets.

Barros also analyzed ENIGH data from 2000, 2004, 2005, and 2006 using the same triple-difference model. This analysis shows that the program resulted in a 12 percent reduction in spending on health services, a 10 percent reduction in medicine expenses, and an 11 percent reduction in primary care spending. This data showed savings equal to 4 percent of household budgets, the identical reduction found in ENSANUT analysis. The program is also associated with a 2 percent increase in non-health spending. For every MX\$100 that the government spends on SP, the model estimated that beneficiaries save MX\$53 in their household budget. Essentially, this suggests that SP can be seen as not just a tool for avoiding financial risk, but also a wealth transfer program.

A separate analysis of ENSANUT data showed that SP patients are more likely to end up paying for their prescribed medicine (Wirtz, Russo, Kageyama-Escobar 2010).

Health service provider was the strongest predictor of whether patients who filled a prescription for medicine were responsible for paying for it out-of-pocket. SP patients were 5.1 times as likely to pay for a prescription as a social security patient, after adjusting for sex, indigenous status, income, and region. This is lower than the payment rates among non-SP facility patients, who are 10.7 times more likely to pay for a prescription than a social security patient, but nonetheless much higher than reformers had hoped.

All of these observational studies showed modest, positive effects on household spending due to SP. The observational studies that comprise the bulk of the literature, however, all suffer from the setback of selection bias, inherent to such studies. Even after controlling for demographic differences, it is impossible for these studies to precisely demonstrate the extent to which differences between SP-insured and uninsured households are caused by the program, rather than confounding factors. This source of bias is particularly concerning regarding evaluations of SP because, as discussed in Chapter 4, enrollment into SP was not random. The drive to quickly enroll people led state governments to balance targeting of high-need communities with targeting of areas that were the easiest to enroll, given the infrastructure and personnel levels needed to absorb the demand for care caused by SP. In areas selected for early enrollment because they had sufficient facilities, it would make sense to see higher levels of health care utilization regardless of the establishment of SP. Accordingly, communities that were targeted for the program might have lower rates of catastrophic spending in part due to easier access to preventive care, which can reduce expensive health problems. For example, if a community with a functioning health care infrastructure made hypertension

treatment more easily accessible, community members might be able to reduce their risk of heart attacks.

Using these studies, we do not have a reliable way of answering the counterfactual question of what would have happened to SP beneficiaries if they had not enrolled in the program. While evidence from these surveys suggests that SP beneficiaries have lower catastrophic health expenditures, along with potentially lower out-of-pocket expenditures, they do not show either point definitively. Now, we will turn to an analysis of an experimental study designed to answer these methodological concerns. As the 2006 presidential election neared, a major priority for the Fox Administration was working to ensure the continuation of SP — Fox’s signature policy achievement — into the future. The best way to protect the program, Frenk argued, would be to provide solid evidence showing that the program was effective (Octavio Gómez-Dantés, Interview by the author, Cuernavaca, January 28, 2011). The government reached out to a team of researchers, many from Harvard’s School of Public Health, to design an evaluation that could stand up to a higher level of scrutiny than the observational studies performed to date.

The evaluation team designed an experimental survey taking advantage of the piecemeal implementation of the program to compare communities that join SP with those that do not (King et al. 2009). The researchers defined over 12,000 health clusters (contiguous geographic regions including a public health care facility and the population in its catchment area) across the country. Of these, the researchers paired 100 communities in seven states that 1) were demographically similar, 2) had not been targeted for SP, and 3) were not yet scheduled for enrollment campaigns. For each pair of

communities, a treatment community was randomly assigned to join SP and a control community was assigned to not join SP. In treatment communities, state health administrations automatically enrolled Oportunidades households in SP and informed them of beneficiary rights; held publicity campaigns to encourage every eligible family to enroll; and began the process of improving facilities, personnel, and drug supplies to accommodate increased demand. The researchers conducted a baseline survey at the time of assignment of over 32,000 households and a follow-up survey ten months later, reaching roughly 30,000 of the original households.

The researchers compared treatment and control pair to measure the intention-to-treat estimate (ITT). Additionally, they compared the subset of households in the treatment group that actually enrolled in SP with the control group to measure the complier average causal effect (CACE). In the treatment group, 44 percent of households enrolled in SP, compared with 7 percent who joined in the control group¹¹. Differences between households that did and did not enroll were identified, so as to control for household differences in the ITT and CACE analyses. The proportion of households experiencing a catastrophic health expenditure during the 10-month assessment period was 8.4 percent in the control group and 6.5 percent in the treatment group, which was a statistically significant difference. The CACE control group had a 9.5 percent prevalence of catastrophic household spending, compared with 4.3 percent among compliers, which was also statistically significant. When breaking the sample down by high-asset and low-

¹¹ Control community households were not banned from enrollment. Some families enrolled before their communities were targeted. Additionally, one nationwide target group was comprised of people with a catastrophic condition covered by SP.

asset households¹², the program effect was even larger among low-asset households, with an ITT reduction in catastrophic health expenditures from 9.9 percent to 6.9 percent and a CACE reduction from 11 percent to 4.5 percent. Though the reduction was positive, it was no longer statistically significant among high-asset households. Out-of-pocket health care spending reductions were also identified, with a 15 percent ITT reduction and a 40 percent CACE reduction. Once again, differences were statistically significant for low-asset but not high-asset households.

The experimental design of the study confronts confounding due to selection bias through random selection of communities for enrollment into SP. This study provides the best available evidence on household-level changes, showing that, even over a short period of time, bringing SP to a community significantly reduces out-of-pocket and catastrophic health expenditures. There are limitations to this study, however. The largest limitation is the 10-month period of the study. Health system improvements, if they were to take effect, would be unlikely to show results for at least several years after implementation in a community. This bias would point toward an underreporting of the program's impact. Operating in the other direction is a second limitation of this study. The gold standard of experimental trials — a double blind study design in which neither researchers nor participants are aware of into which group participants are placed — is not possible for a public policy experiment. It is unlikely that the existence of the experiment would affect the health care seeking behavior of participants. It is quite possible, however, that the administrators implementing SP in treatment communities

¹² High-asset households were defined as having at least half of the following items: non-dirt floor, electricity, washing machine, gas stove, refrigerator, phone, television, computer, and a second home.

were influenced by their knowledge of the experiment. The goal of the experiment was to show that SP worked. Accordingly, health officials might have put more pressure on community- and state-level administrators to work particularly diligently at implementing the program effectively. Administrators' future employment could easily be tied to the future of the SP program, which was tied in part to finding positive results in the study. Enrolment campaigns, infrastructure and personnel improvements, and responsiveness to user needs could all have plausibly been better in treatment communities than in the average community undergoing a SP rollout. If this were the case, it would nonetheless serve as a proof-of-concept that SP rollout can help communities. But it would make the study less representative of SP's effectiveness nationwide.

5.2 Effect on Health Care

While there is some evidence that patterns of health care utilization have changed among SP beneficiaries, there is no evidence of altered health outcomes. The Barros (2008) model for analyzing ENSA and ENSANUT found a large gap in health care utilization between those with and those without social security, but no difference between the uninsured and SP beneficiaries. Non-social security households were 12.5 percent less likely to seek care if they faced a health problem in the previous two weeks than households covered by social security. SP beneficiaries were no more likely than the uninsured to seek medical care if they were sick in the past two weeks, or to cite cost as the reason for not seeking care.

A separate analysis of ENSANUT showed differences in perceived health care needs between SP enrollees and the uninsured. After standardizing by age, 16.3 percent

of SP patients expressed a need for health care services, compared with 14.6 percent of the uninsured (Gakidou et al. 2007). The researchers note that this could be the result of sicker people joining SP, but it could also suggest that people perceive a greater need for health care after gaining insurance. It is highly unlikely that the uninsured population actually has lower health needs than those with social security, who are wealthier and better educated. Among ENSANUT respondents who perceived a health care need, 63.8 percent of SP enrollees and 58.3 percent of the uninsured received care, while 71.3 percent of those with social security did so. Analysis of municipal-level hospitalization data, meanwhile, showed a higher level of hospital spending per 1,000 residents in areas with higher levels of SP enrollment. According to the model, an increase in SP affiliation from 0 to 100 percent of the eligible population would result in a 71 percent increase in hospital spending on all care and a greater than 100 percent increase in spending on HIV/AIDS, appendicitis, and hernias. Spending on leukemia in children, one of the diseases covered by the catastrophic disease fund, would increase by 275 percent.

As with the suggestion that SP decreases catastrophic health expenditures, Barros' overall conclusion that SP beneficiaries access more health care than the uninsured is logically plausible. Both conclusions, though, suffer from the selection bias discussed earlier in this chapter.

While the above studies focused on the overall population, changes have also come for treatment of individual diseases. One area in which SP has made a significant impact is in financing for treatment of covered cancers. Dr. Mohar (2009) described the state of breast cancer treatment based on administrative data from 2007. Breast cancer was approved for coverage through the Catastrophic Disease Fund in February 2007, and

is treated in state-run facilities in 23 states, as well as at two federal centers and the National Cancer Institute. Patients in the other nine states must travel elsewhere for treatment at a SP-affiliated center. Eighty percent of breast cancer cases were identified in advanced stages, and more than 90 percent of patients at the National Cancer Institute required surgery. Treatment for these patients is complicated by a lack of personnel and medical equipment. The researchers concluded by calling for an improved infrastructure for diagnosing and treating breast cancer, serving as one situation in which resources have been stretched to reach patient demand.

Hypertension is a particularly useful disease to analyze in more detail for several reasons. Hypertension is associated with increased risk of chronic conditions such as heart disease; recommended medical treatments are relatively straightforward; and over 40 percent of Mexican adults had high blood pressure in 2006, which is an increase in prevalence of 25 percent over just six years (Barquera et al. 2010). The Barros analysis compared anthropomorphic data on hypertension, finding that SP beneficiaries showed no difference in hypertension levels compared to the uninsured, but had a decreased likelihood of having a physician diagnose them with hypertension. Barros concluded that SP did not have an effect on health outcomes, based on analysis of self-reported overall health status and a disability index.

Bleich et al. (2007), meanwhile, find that treatment for hypertension increases among SP beneficiaries, based on their analysis of the same 2006 ENSANUT data. Adjusting for demographic differences between the SP beneficiary and uninsured populations, the researchers found that SP beneficiaries with hypertension had a 51 percent chance of receiving treatment, which was significantly higher than the 41 percent

chance of receiving treatment for the uninsured. They drew the same conclusion as Barros regarding the lack of hypertension control improvement among the SP population.

If SP enrollment does not result in improved health care outcomes among beneficiaries, as Barros and Bleich et al. conclude, it is unlikely that there would be improvements in treatment of other conditions. The recommended treatment for hypertension, a combination of dietary sodium reduction and blood pressure medication, is far more straightforward than the treatment of conditions such as diabetes, which requires effective monitoring of blood sugar levels and potential chronic complications with the feet, eyes, and kidneys. One observational study suggests that diabetes coverage has improved with SP, however.

Sosa-Rubí, Galárraga and López-Ridaura (2009) analyzed whether diabetes patients with SP had better health outcomes than the uninsured using data from the 2005-2006 ENSANUT. Of 1,491 diabetic adults, 430 were enrolled in SP and 1,061 were uninsured. Comparisons between the groups were adjusted for demographic differences by matching individuals from each group. Both groups had poor control of their diabetes, but outcomes were better overall among SP enrollees. Of the uninsured, 7.4 percent had appropriate blood sugar control ($HbA1c \leq 7$ percent), compared with 8.9 percent of SP enrollees. 46.2 percent of the uninsured had very poor blood sugar control ($HbA1c > 12$ percent), compared with 36.7 percent of SP enrollees. Both differences were statistically significant. Differences in outcome were associated with closer disease management among SP enrollees, who were more likely to see a doctor four or more times per year. SP patients also averaged more insulin shots per week (with the median jumping from 7 shots per week to 14 shots per week) compared with the uninsured, with members of each

group equally likely to use any insulin. While diabetes management is not achieved at a high level for either group, SP does appear to have a potentially positive effect. This could, however, be due to confounding factors.

Diabetes management is, to be sure, a problem for the social security population as well. A separate, more detailed laboratory analysis from a sample of 428 diabetic ENSANUT respondents found poor levels of blood sugar control across the sample, with no difference between social security and non-social security subjects (González-Villalpando et al. 2010). Similarly, a survey conducted from 2001-2007 of 1,000 individuals with Type 2 Diabetes seeking outpatient care at a public ophthalmology hospital in Mexico City found widespread problems in disease management (Rodríguez-Saldana et al. 2010). Nearly 90 percent of these patients did not check their blood sugars regularly, only 39 percent said they had ever received nutritional counseling, only 21 percent said they had ever received diabetes education, and only 5 percent had ever had a glycated hemoglobin test. Roughly half the respondents had social security, but the findings showed no difference based on social security status.

The King et al. (2009) experiment did not find a statistically significant program impact on use of medical services, nor did it find an impact for any demographic subgroup analyzed. This finding contradicted government expectations, along with observational studies. A detailed explanation of their findings on health care utilizations was not published.

5.3 Conclusions

There is substantial evidence that SP has led to reductions in catastrophic and out-of-pocket health expenditures for beneficiaries. Observational studies, though suffering from selection bias, showed modest, significant reductions in catastrophic expenditures and certain categories of health care spending. Experimental evidence buttressed these findings.

While some observational studies suggest that SP beneficiaries are more likely to receive needed health care than the uninsured, observational studies provide mixed evidence on whether SP has improved beneficiaries' control of chronic conditions. Experimental evidence did not show an impact on health care utilization or health outcomes among beneficiaries.

These developments are not surprising, since health insurance has a much greater effect on household finances than on health care utilization or health outcomes. A recent systematic review of the literature on health insurance's impact on health outcomes concluded that there is little evidence that increased health insurance improves health outcomes (Levy and Meltzer 2008). While natural experiments provide mixed evidence on whether beneficiaries' health care improves with insurance expansion, observational studies purporting to show the positive effect of insurance on health outcomes suffer from endogeneity that renders their results unconvincing, Levy and Meltzer (2008) explain. Nonetheless, the Fox Administration pitched its health reform as a path toward improving health care for the uninsured, so the success of the program rests in part on the extent to which this goal has been met.

CHAPTER 6: POPULATION LEVEL ANALYSIS OF REFORM

One limitation shared by all studies reviewed in Chapter 5 is that they only measure SP's impact directly following its rollout. The observational studies based on ENSANUT and National Income and Expenditure Household Survey (ENIGH) came from 2006, only one year after some states began enrolling SP beneficiaries. The major experimental study, meanwhile, focused on only the first ten months of enrollment. Comparing the trajectory of states before and after joining the program over a longer period of time offers the potential for richer understanding of the program's effects on health care financing, access, and outcomes.

In my analysis, I take advantage of the heterogeneous rollout of the program across states by analyzing largely untapped longitudinal administrative data. My analysis considers whether year-to-year growth in health care expenditures, services, and outcomes were larger in states that had joined SP relative to states that had not yet joined the program. In addition, I examine whether improvements in outcomes after joining SP were larger in poorer states relative to wealthier states. I expect that SP should show the largest and most immediate effects on health care financing and possibly smaller or less immediate effects on facilities, utilization, and health outcomes, all of which may take longer to respond to the program.

In addition, I examine whether growth in outcomes after joining SP was larger in poorer states relative to wealthier states. As noted in Chapter 3, one of the government's goals was to reduce disparities in access to care. A finding that poorer states improved more quickly would be evidence of the program's success on this front.

While this approach is not designed to elucidate the effect of SP on individual enrollees, it provides a bird's eye view of whether the program is showing any impact at the population level.

6.1 Data

The Ministry of Health collects annual, state-level data on public financing, facilities, utilization and health outcomes, and publishes this data on its website (SINAIS 2009 and SINAIS 2010). Financing data was available from 2000–2009, while all other data were available from 2000–2008. For my analysis, I constructed a dataset that contained measures of 19 outcomes at the state-year level.

The outcomes I examine are defined as follows:

- *Public per capita spending on the non-social security population* sums federal and state spending on SP, state health systems, the health component of Oportunidades, the National Institutes of Health, IMSS-Oportunidades, and several other small health programs, in constant 2008 MX\$.
- *Federal spending as a percent of total public spending on health* is the ratio of public per capita spending on the non-social security population divided by combined state and federal spending on the non-social security population.
- *Hospital beds* is the number of active beds available for treating patients, thus excluding beds used for transportation or other needs, per 1,000 residents.
- *Ambulatory care establishments* is the number of public clinics providing basic health care, per 100,000 residents.¹³
- *Doctor visits* is the number of patients treated by doctors at public facilities per 1,000 residents.

¹³ Ambulatory care establishment data were reported by SINAIS as a total for each state and converted to per capita using 2000 census data.

- *Hospitalizations* is the number of hospital stays at public hospitals, per 1,000 residents.
- *Prenatal visits per births in a clinical setting* is the average number of prenatal visits reported by women upon giving birth at a public clinic.
- *Infant mortality* is the number of deaths under age 1 per 1,000 live births.
- *Perinatal mortality* is the combined number of miscarriages after 22 weeks of gestation, stillbirths, and deaths in the first seven days after birth, per 1,000 live births.
- *Maternal mortality* is the number of deaths during pregnancy or within 42 days following pregnancy per 100,000 live births.
- *Total mortality* per 1,000 residents.
- *Child mortality* is the number of deaths under age 5 per 100,000 residents under age 5.
- *Combined maternal, perinatal, nutritional, and transmissible disease mortality* is the combined number of maternal and perinatal deaths, along with deaths classified as due to malnutrition or transmissible diseases per 100,000 residents.
- *Circulatory system disease mortality* includes death from circulatory disease, including deaths due to ischemic heart disease and strokes, per 100,000 residents.
- *Ischemic heart disease mortality*, also known as coronary artery disease mortality, per 100,000 residents.
- *Cerebrovascular disease mortality*, including deaths due to strokes, per 100,000 residents.
- *Cancer mortality* per 100,000 residents.
- *Liver disease mortality*, including deaths due to cirrhosis, per 100,000 residents.
- *Diabetes mortality* per 100,000 residents.

For some outcomes, data were excluded for certain years due to large, unexplained jumps between years, presumably caused by systematic changes in reporting methodology. Several states were also excluded for specific measures due to erratic year-to-year changes suggesting unreliable reporting or changes in reporting methodology.

- Data were excluded for the year 2000 for hospital beds, ambulatory clinics, doctor visits, and hospitalizations
- Data were excluded from Tabasco for doctor visits and hospitalizations.
- Data were excluded for the year 2008 for prenatal visits.
- Data were excluded for the years 2007 and 2008 for infant mortality, maternal mortality, and perinatal mortality.
- Data were excluded for Baja California Sur and Colima for maternal mortality.

Descriptive statistics for public health financing, facilities, and health care utilization, along with descriptive statistics for annual growth trends, are shown in Table 6.1. Each category showed wide variance across the year-state data. Both facility metrics varied by more than a factor of 5. Variation in health care utilization was somewhat smaller.

All growth rates were positive, on average. Annual growth in spending on the uninsured averaged over 10 percent, while all other growth rates were less than 2 percent. Federal spending as a percent of total spending was the most stable measure across year and state, with a growth rate under 1 percent.

Table 6.1 Descriptive Statistics for Health Care Resources and Utilization						
		Data From	Outcomes		Annual Growth Rate for Outcomes	
			Mean (SD)	Range	Mean (SD)	Range
Public Health Financing	Public Per Capita Spending on the Non-Social Security Population (in constant 2008 MX\$)	2000 – 2009	1953 (903)	538 – 6093	0.104 (0.122)	-0.306 – 0.653
	Federal Spending as a Percent of Total Public Spending on Health	2000 – 2009	85.8 (0.12)	0.39 – 1.00	0.004 (0.072)	-0.396 – 0.482
Facilities	Hospital Beds (per 1,000 residents)	2001 – 2008	0.72 (0.27)	0.33 – 1.91	0.006 (0.110)	-0.286 – 0.500
	Ambulatory Care Establishments (per 100,000 residents)	2001 – 2008	22.7 (9.22)	5.39 – 42.58	0.014 (0.065)	-0.299 – 0.244
Health Care Utilization	Doctor Visits (per 1,000 residents)	2001 – 2008 (Tabasco Exc.)	2660 (462.8)	1757 – 4132	0.016 (0.075)	-0.244 – 0.421
	Hospitalization (per 1,000 residents)	2001 – 2008	49.01 (12.62)	22.44 – 80.18	0.018 (0.056)	-0.232 – 0.288
	Prenatal Visits (per births in a clinical	2000 – 2008	4.92 (0.65)	3.57 – 7.10	0.012 (0.078)	-0.197 – 0.354

Table 6.2 includes descriptive statistics on health outcomes and annual growth in health outcomes. Once again, there was wide variation across state-year data points. Maternal mortality — which is closely tied to health system performance in providing access to trained birth attendants and quality birth facilities — varied by roughly a factor of 10. Total mortality was more consistent, varying by a factor of 3.

Growth in mortality was not consistent across categories. Growth in mortality rates was negative for infant mortality, perinatal mortality, and combined maternal, perinatal, nutritional, and transmissible disease mortality. All other mortality rates had

positive growth over the time period, possibly the result of population aging and increased chronic disease. Somewhat surprisingly, maternal and infant mortality trended in opposite directions.

Table 6.2: Descriptive Statistics for Health Outcomes

	Data From	Outcomes		Annual Growth Rate for Outcomes	
		Mean (SD)	Range	Mean (SD)	Range
Infant Mortality (per 1,000 live births)	2000 – 2006	20.15 (3.93)	6.07 – 30.90	-0.007 (0.181)	-0.651 – 1.336
Perinatal Mortality (per 1,000 live births)	2000 – 2006	21.68 (4.06)	11.38 – 29.29	-0.012 (0.087)	-0.303 – 0.368
Maternal Mortality (per 100,000 live births)	2000 – 2006 (Baja California and Colima Exc.)	61.98 (22.55)	13.11 – 128.00	0.035 (0.369)	-0.633 – 2.006
Total Mortality (per 1,000 residents)	2000 – 2008	4.47 (0.59)	2.60 – 6.27	0.022 (0.040)	-0.069 – 0.230
Child Mortality (per 100,000 residents under age 5)	2000 – 2008	23.34 (5.17)	13.06 – 39.3	-0.052 (0.043)	-0.226 – -0.004
Combined Maternal, Perinatal, Nutritional, and Transmissible Disease Mortality (per 100,000 residents)	2000 – 2008	58.50 (12.11)	32.79 – 106.77	-0.008 (0.075)	-0.199 – 0.296
Circulatory System Disease Mortality (per 100,000 residents)	2000 – 2008	102.63 (22.47)	41.48 – 160.03	0.028 (0.056)	-0.133 – 0.257
Ischemic Heart Disease Mortality (per 100,000 residents)	2000 – 2008	48.76 (15.38)	17.30 – 83.28	0.037 (0.079)	0.154 – 0.367
Cerebrovascular Disease Mortality (per 100,000 residents)	2000 – 2008	25.39 (50.2)	10.64 – 38.62	0.018 (0.088)	-0.210 – 0.392
Cancer Mortality (per 100,000 residents)	2000 – 2008	61.26 (10.45)	29.13 – 85.16	0.022 (0.048)	-0.107 – 0.192
Liver Disease Mortality (per 100,000 residents)	2000 – 2008	23.16 (9.24)	9.27 – 47.20	0.020 (0.105)	-0.300 – 0.450
Diabetes Mortality (per 100,000 residents)	2000 – 2008	54.86 (13.9)	16.12 – 98.98	0.062 (0.070)	-0.150 – 0.402

6.2 Methods

To test whether changes in outcomes for each of these dependent variables was associated with a state having joined SP, I compared growth in states that had adopted the program with growth in states that had not joined. Specifically, I estimated regressions of the form shown in equation (1).

$$Y_{s,t} = \beta_0 + \beta_1 \text{Adopt}_{s,t} + \varepsilon_s \quad (1)$$

Where:

- $Y_{s,t}$ is an outcome for state s in year t
- $\text{Adopt}_{s,t}$ is an indicator that a state was a member of SP on January 1 of year t .

As shown in Tables 6.1 and 6.2, many of the outcomes I use exhibit time trends, which could be due to SP, but could also be due to economic, social or technological factors unrelated to SP. For this reason, I measure all outcomes as year-to-year growth rates. Thus, the parameter β_1 measures how much the *growth rate* of the outcome changes after the state joins SP.

There may be different growth rates in outcomes across states that are independent of SP. For example, poorer states could be “catching up” with wealthier states, or falling farther behind, for reasons independent of the health insurance system. To refine the regression, I control for variation across states, as shown in equation (2).

$$Y_{s,t} = \beta_0 + \beta_1 \text{Adopt}_{s,t} + \gamma_1(s=1) + \gamma_2(s=2) \dots \gamma_{32}(s=32) + \varepsilon_{s,t} \quad (2)$$

Where:

- $s=1$ is an indicator for Aguascalientes, $s=2$ is an indicator for Baja California, and so on, alphabetically.

Next, I estimate models that include a time trend in order to capture any

systematic changes in trends that are common to all states.

A final test separates states by GDP per capita, measured in 2001, with the top 16 states categorized as non-poor and the remaining 16 states categorized as poor. This test shows whether changes in the annual growth rates for outcomes were consistent across both groups of states or were concentrated among poor or non-poor states.

Each of these regressions was estimated for two different definitions of state adoption. As explained in Chapter 4, the process for states joining the program came in two waves. Many states joined the pilot program for SP, which was essentially the same as the enacted program. Enrollment was not conducted universally among the non-social security population, but the program was nonetheless operating in these states. *Adopt1* is an indicator that a state had begun enrolling residents, either through the pilot program or through the final program as enacted in 2003.

After the law's passage, states signed official Agreements of Coordination with the federal government stipulating that they would contribute to the financing of residents involved in the program and allowing for much higher levels of enrollment. *Adopt2* is an indicator that a state had signed this agreement, which indicates the official point when a state has joined the program.

Results for the aforementioned regressions are presented for health care resources and utilization outcomes in Tables 6.3 and 6.4, using *Adopt1* and *Adopt2* metrics, respectively. Results are presented for health outcomes in Tables 6.5 and 6.6.

I also estimated regressions that controlled for both measures of adoption at the same time, but the results were not useful because of the small sample size and the strong colinearity between the two measures. Accordingly, these results are not reported.

Table 6.3: Growth Rates for Health Care Resources and Utilization using Adopt1						
	β_1 (Standard Error)	β_1 Controlled for State Effects (Standard Error)	β_1 Controlled for State Effects and Time Trend (Standard Error)	β_1 Controlled for State Effects and Time Trend: Poor States (Standard Error)	β_1 Controlled for State Effects and Time Trend: Non-Poor States (Standard Error)	Poor State – Non-Poor State Gap in Growth Rates (F-Statistic)
Public Health Financing	Public Per Capita Spending on the Non-Social Security Population	0.006 (0.017)	0.006 (0.017)	-0.019 (0.023)	-0.044 (0.029)	2.50
	P-Value	0.70	0.72	0.41	0.13	0.11
	Federal Spending as a Percent of Total Public Spending on Health	-0.015 (0.011)	-0.014 (0.011)	-0.007 (0.016)	0.023 (0.018)	9.29
	P-Value	0.17	0.18	0.65	0.20	0.003
Facilities	Hospital Beds	0.019 (0.013)	0.021 (0.015)	-0.026 (0.022)	-0.039 (0.028)	0.03
	P-Value	0.15	0.14	0.23	0.30	0.86
	Ambulatory Care Establishments	0.013 (0.011)	0.009 (0.012)	-0.019 (0.016)	-0.013 (0.016)	0.26
	P-Value	0.45	0.45	0.21	0.40	0.61
Health Care Utilization	Doctor Visits	0.027 (0.011)	-0.003 (0.011)	-0.001 (0.02)	0.012 (0.016)	1.54
	P-Value	0.80	0.82	0.96	0.45	0.22
	Hospitalization	0.019 (0.007)	0.019 (0.007)	-0.007 (0.010)	-0.007 (0.010)	0.00
	P-Value	0.01	0.01	0.47	0.50	0.95
	Prenatal visits	-0.029 (0.010)	-0.038 (0.0010)	0.047 (0.019)	0.046 (0.019)	0.00
	P-Value	0.003	0.000	0.02	0.02	0.99

Table 6.4: Growth Rates for Health Care Resources and Utilization using Adopt2

	β_1 (Standard Error)	β_1 Controlled for State Effects (Standard Error)	β_1 Controlled for State Effects and Time Trends (Standard Error)	β_1 Controlled for State Effects and Time Trends: Poor States (Standard Error)	β_1 Controlled for State Effects and Time Trends: Non-Poor States (Standard Error)	Poor State – Non-Poor State Gap in Trajectories (F-Statistic)
Public Health Financing	Public Per Capita Spending on the Non-Social Security Population P-Value	0.025 (0.014)	0.025 (0.014)	0.041 (0.029)	0.016 (0.034)	3.01
	Federal Spending as a Percent of Total Public Spending on Health P-Value	0.09 (0.009)	0.08 (0.009)	0.16 (0.015)	0.64 (0.019)	0.08
						4.61
Facilities	Hospital Beds P-Value	0.028 (0.014)	0.028 (0.015)	-0.034 (0.028)	-0.036 (0.035)	0.03
	Ambulatory Care Establishments P-Value	0.05 (0.009)	0.07 (0.0110)	0.23 (0.015)	0.31 (0.015)	0.01
						0.92
Health Care Utilization	Doctor Visits P-Value	0.018 (0.010)	0.016 (0.009)	0.069 (0.024)	0.064 (0.025)	0.53
	Hospitalization P-Value	0.06 (0.007)	0.07 (0.007)	0.004 (0.014)	0.01 (0.013)	0.47
	Prenatal visits P-Value	0.020 (0.003)	0.020 (0.001)	-0.006 (0.068)	-0.002 (0.090)	0.31
						0.58
						0.34
						0.56
						6.51
						0.01

Table 6.5 Growth Rates for Health Outcomes using Adopt1

	β_1 (Standard Error)	β_1 Controlled for State Effects (Standard Error)	β_1 Controlled for State Effects and Time Trend (Standard Error)	β_1 Controlled for State Effects and Time Trend: Poor States (Standard Error)	β_1 Controlled for State Effects and Time Trend: Non-Poor States (Standard Error)	Poor State – Non-Poor State Gap in Growth Rates (F-Statistic)
Infant Mortality	0.052 (0.016)	0.064 (0.024)	-0.033 (0.031)	-0.054 (0.026)	-0.010 (0.051)	0.82
P-Value	0.001	0.01	0.29	0.04	0.84	0.36
Perinatal Mortality	0.001 (0.014)	0.014 (0.014)	0.010 (0.023)	0.015 (0.025)	0.004 (0.030)	0.14
P-Value	0.92	0.33	0.67	0.55	0.88	0.71
Maternal Mortality	-0.090 (0.054)	-0.084 (0.064)	-0.141 (0.118)	0.130 (0.120)	0.154 (0.151)	3.27
P-Value	0.10	0.19	0.12	0.28	0.31	0.07
Total Mortality	0.012 (0.005)	0.014 (0.005)	-0.016 (0.008)	-0.022 (0.010)	-0.009 (0.009)	0.04
P-Value	0.02	0.01	0.06	0.02	0.35	0.85
Child Mortality	-0.014 (0.004)	-0.015 (0.004)	0.015 (0.006)	0.016 (0.007)	0.014 (0.008)	0.05
P-Value	0.001	0.001	0.016	0.03	0.08	0.82
Combined Maternal, Perinatal, Nutritional, and Transmissible Disease Mortality	0.002 (0.011)	0.007 (0.011)	-0.002 (0.019)	-0.018 (0.022)	0.015 (0.022)	2.32
P-Value	0.82	0.55	0.91	0.41	0.48	0.13
Circulatory System Disease Mortality	0.011 (0.007)	0.013 (0.008)	-0.029 (0.012)	-0.036 (0.014)	-0.022 (0.014)	0.82
P-Value	0.12	0.09	0.02	0.01	0.01	0.37
Ischemic Heart Disease Mortality	-0.006 (0.011)	-0.003 (0.012)	-0.044 (0.019)	-0.063 (0.022)	-0.024 (0.021)	2.69
P-Value	0.61	0.79	0.02	0.01	0.27	0.1
Cerebrovascular Disease Mortality	0.017 (0.011)	0.016 (0.012)	-0.012 (0.020)	-0.019 (0.022)	-0.006 (0.025)	0.28
P-Value	0.15	0.19	0.53	0.39	0.82	0.6
Cancer Mortality	-0.001 (0.007)	-0.002 (0.007)	-0.012 (0.011)	-0.021 (0.013)	-0.002 (0.013)	1.98
P-Value	0.83	0.81	0.31	0.11	0.89	0.16
Liver Disease Mortality	0.006 (0.013)	0.004 (0.014)	-0.018 (0.027)	-0.046 (0.029)	0.012 (0.031)	4.24
P-Value	0.68	0.80	0.50	0.11	0.71	0.04
Diabetes Mortality	-0.013 (0.010)	-0.016 (0.010)	-0.008 (0.016)	-0.013 (0.016)	-0.004 (0.022)	0.19
P-Value	0.17	0.11	0.60	0.42	0.86	0.66

Table 6.6 Growth Rates for Health Outcomes using Adopt2

	β_1 (Standard Error)	β_1 Controlled for State Effects (Standard Error)	β_1 Controlled for State Effects and Time Trend (Standard Error)	β_1 Controlled for State Effects and Time Trend: Poor States (Standard Error)	β_1 Controlled for State Effects and Time Trend: Non-Poor States (Standard Error)	Poor State – Non-Poor State Gap in Growth Rates (F-Statistic)
Infant Mortality	0.071 (0.022)	0.074 (0.025)	-0.015 (0.026)	-0.032 (0.025)	0.003 (0.043)	0.51
P-Value	0.001	0.003	0.57	0.20	0.95	0.48
Perinatal Mortality	0.001 (0.010)	0.005 (0.011)	-0.017 (0.022)	-0.015 (0.024)	-0.020 (0.026)	0.05
P-Value	0.94	0.67	0.45	0.54	0.45	0.82
Maternal Mortality	0.055 (0.056)	0.055 (0.061)	0.068 (0.103)	0.017 (0.110)	0.122 (0.129)	0.73
P-Value	0.32	0.37	0.509	0.88	0.35	0.40
Total Mortality	0.018 (0.005)	0.019 (0.005)	-0.008 (0.010)	-0.010 (0.011)	-0.005 (0.011)	0.35
P-Value	0.000	0.000	0.045	0.35	0.68	0.56
Child Mortality	-0.019 (0.005)	-0.019 (0.005)	0.008 (0.007)	0.007 (0.009)	0.009 (0.009)	0.04
P-Value	0.000	0.000	0.28	0.46	0.32	0.85
Combined Maternal, Perinatal, Nutritional, and Transmissible Disease Mortality	0.008 (0.009)	0.009 (0.009)	0.006 (0.020)	-0.003 (0.022)	0.015 (0.022)	0.89
P-Value	0.38	0.34	0.77	0.88	0.50	0.35
Circulatory System Disease Mortality	0.024 (0.007)	0.025 (0.007)	0.001 (0.014)	0.000 (0.016)	0.002 (0.016)	0.02
P-Value	0.000	0.000	0.96	0.99	0.92	0.9
Ischemic Heart Disease Mortality	0.017 (0.010)	0.018 (0.010)	0.012 (0.020)	0.006 (0.022)	0.018 (0.024)	0.32
P-Value	0.09	0.08	0.56	0.77	0.46	0.57
Cerebrovascular Disease Mortality	0.015 (0.011)	0.015 (0.012)	-0.023 (0.024)	-0.026 (0.24)	-0.021 (0.029)	0.05
P-Value	0.17	0.19	0.33	0.28	0.48	0.82
Cancer Mortality	-0.001 (0.006)	-0.001 (0.06)	-0.016 (0.013)	-0.023 (0.013)	-0.010 (0.016)	0.96
P-Value	0.88	0.88	0.22	0.10	0.51	0.33
Liver Disease Mortality	0.004 (0.013)	0.003 (0.013)	-0.031 (0.031)	-0.051 (0.032)	-0.010 (0.036)	2.17
P-Value	0.78	0.81	0.32	0.11	0.77	0.14
Diabetes Mortality	-0.020 (0.009)	-0.020 (0.009)	-0.028 (0.016)	-0.022 (0.017)	-0.034 (0.020)	0.51
P-Value	0.03	0.03	0.08	0.20	0.08	0.47

6.3 Results

Simple descriptive statistics indicate that public health spending grew significantly faster for the non-social security population than for the population with social security. Table 6.7 shows per capita public health spending for the social security and non-social security populations in 2000 and 2009. In addition to presenting the absolute change in MX\$ and relative change, I calculate the annualized growth rate for each category.

Table 6.7: Public Health Spending 2000-2009 (in 2008 MX\$)			
	Per Capita Public Health Spending on the Social Security Population	Per Capita Public Health Spending on the non-Social Security Population	Per Capita Public Health Spending Social Security Gap
2000	2,950.43	1,367.89	1,582.54
2009	4,143.44	2,827.34	1,316.10
Absolute Change 2000-2009	1,193.01	1,459.45	-266.44
Relative Change 2000-2009	0.404	1.067	-0.168
Annualized Growth Rate 2000-2009	0.038	0.084	-0.020

While spending on the social security population increased at an annualized growth rate of 3.8 percent, spending on the non-social security population increased at a rate of 8.4 percent. This type of comparison is suggestive of an increase in spending on the non-social security population because of SP.

However, regressions results shown in Tables 6.3 and 6.4 indicate that there is no effect on the growth of public health care financing for the non-social security population after states joined the program. For example, the coefficient β_1 for public health care spending is 0.01, with a standard error of 0.02, using the *Adopt1* metric of program adoption. This means that spending growth was 1 percentage point higher after adoption.

The P-value of 0.70 indicates that this is not significantly different from zero. Inclusion of state fixed effects does not affect the estimate. When the time trend is incorporated into the regression, β_1 drops to -0.02, meaning that there was a 2 percentage point reduction in spending growth after adoption, though the P-value is still not significant. Using *Adopt2* and controlling for state effects and time trends, β_1 shows a 4 percentage point increase in spending growth after adoption, but this difference is still not statistically significant from zero. These results suggest that the increase in spending shown in Table 6.7 would have been expected to happen in the adopting states with or without the legislation.

One possible reason that changes in spending patterns have not emerged is the continued use of historical block grants. In 2000, these grants comprised the full \$2.88 billion¹⁴ of health spending to the states. By 2007, SP funding had risen to \$1.78 billion, but the historical block grants had also risen, to \$4.1 billion (Lakin 2010). It is possible that the money that has gone into SP would have simply gone into further increases in the block grants were it not for the legislation, since the growth rate in spending on the uninsured did not change after adoption.

Analysis of the federal component of health spending also showed no overall effect using either metric of joining the program, with one exception. Among poor states, there was a statistically significant 4 percentage point increase in growth for the proportion of spending that came from the federal government, following adoptions of official agreements of cooperation, as shown in the regressions using *Adopt2*.

¹⁴ In 2007 US\$

With a portion of SP's budget dedicated to improving health facilities, one measure of success would be increased growth in hospital beds and ambulatory care facilities after reform. Though there was a statistically significant increase in growth of ambulatory care facilities after states signed official agreements of cooperation, the effect disappeared after controlling for time trends. No other effects were significant. These results show that adoption of SP was not associated with an uptick in the availability of health facilities.

Since one of the largest impacts of SP on beneficiaries was broader access to free care, I expect to see growth in doctor visits or hospitalizations. Indeed, there was a 7 percent point growth in the increase in doctor visits, controlling for state effects and time trends and significant at a P-value of less than 0.01, after states signed official agreements of cooperation.

There are quite bizarre results regarding prenatal visits. After states began enrolling members, there was a significant increase in the trajectory of prenatal visits. After states signed official agreements, however, there was a significant decrease in growth for the same outcome.

For health outcomes, improvements are unlikely to appear in such a short time period. My analysis showed that most measures of mortality were unaffected by adoption. The only outcomes significant at a P-value of less than 0.05 were decreases in growth of circulatory system disease and ischemic heart disease after states began enrollment. There was a significant decrease in growth of infant mortality among poor states, but not overall or among non-poor states. There were no effects after states signed official agreements.

6.3 Conclusions

Upon scrutinizing health care data in states before and after joining SP, no clear patterns in the trajectory of outcomes following adoption emerge. While the gap in spending for the non-social security population narrowed over the decade, this trend had already begun before states joined the program. The data provide no indication that SP sparked increased spending.

The 6 percentage point growth in doctor visits per capita after states joined SP shows that the program may have spurred increased health care utilization. As this gain was concentrated entirely among poor states, which experienced a 12 percentage point increase in the growth of doctor visits after joining SP, my research provides the strongest evidence to date that SP has improved access to health care in poor states.

The lack of evidence of SP's impact on health outcomes was expected. Health insurance has a much greater effect on household financing than on health outcomes, as discussed in Chapter 5. One area where improvement in health outcomes is most likely to emerge is infant mortality, especially since SP includes funding for more health care facilities and personnel in underserved areas. However, it could be too early to see these gains, since my data for this metric extends only to 2006.

Several limitations to this analysis are worth noting. First, while I used official government epidemiological data, I have no way of independently verifying the accuracy of these data. Given that I excluded some data due to apparent changes in reporting methods, it is possible that there were other methodological inconsistencies that I did not exclude because they did not induce noticeable changes in reported data. Second, with

state-year data points available over only a short time period, my sample size is relatively small. This makes finding significant effects less likely, particularly after controlling for sources of variation. Third, I assume the counterfactual that trajectories would have continued on their previous course without SP. While this is a reasonable assumption, it is also plausible that trajectories would have changed if SP were not implemented. This limitation applies to all non-experimental studies. It is also possible that a state's decision to adopt SP was itself influenced by trends in health or health care.

Finally, my analysis focused on population-level changes, while the program has only incorporated a limited number of people. To start with, only half of the population is eligible for SP. Among the eligible households, only one third had affiliated by 2006, as noted in Chapter 4. Even if SP were to lead to significant changes among some portions of the eligible population, this would still affect a small portion of Mexicans overall.

CHAPTER 7: LESSONS FROM MEXICO

While establishing a well functioning health insurance system is laden with challenges, the Mexican experience shows that government policy aiming to reduce financial risk and improve access to care can yield significant gains for millions of people. The Mexican experience, however, also provides a clear example that effectively implementing an expansive reform can be even more difficult than designing its legislation.

Mexican policy makers balanced competing priorities when designing their reform. On one hand, they hoped to improve the equity of its health system through expansion of health insurance, following the WHO's precepts. On the other hand, policy makers wanted to design a reform that would maximize efficiency and cost-effectiveness, as promoted by the World Bank. This tension led policy makers to include family premiums in SP, but waive premiums for those in the bottom income quintile. Similarly, SP provides free care at the point of access, but limits this care to a defined set of benefits. Mexico showed that the dual pulls of cost-efficiency and equity can be balanced, but tension between the two is an inevitable aspect of health system design.

During the nationwide rollout of SP, policy makers made another set of compromises. In order to convince states to join the program, the Ministry of Health agreed to limit the defined benefits package in some poor states. The federal government has turned a blind eye toward states contributing less funding to their health systems than is required of them by law. Combined, these choices have limited the scope of expansion to health care access.

The enrollment process provides an important lesson about the importance of carefully constructing incentives. Policy makers wanted to lower the government's cost

of reform by requiring most families to pay premiums equal to 6 percent of family income. The reform, however, includes incentives for both state governments and families to ignore these premiums. At the same time, SP provides the opportunity for states and beneficiaries to dodge family contributions by letting beneficiaries self-report income levels and letting administrators approve applications without verifying income. As a result, more households claiming to be in the bottom income quintile (7.5 million) are enrolled in SP than exist nationwide (5 million).

The reason that the government has been complicit to this widespread fraud is that rigorously enforced beneficiary contributions would significantly slow enrollment. Indeed, health policy planners altered SP between the pilot program and the final law, simultaneously reducing family contributions as a proportion of income and moving from the strict verification of wealth used in Oportunidades to more easily manipulated application forms.

Even with lax enforcement of family contributions, the pace of enrollment has been much lower than the SP legislation outlined. The goal for universal enrollment had to be delayed from 2010 to 2012, and the government's definition of universal enrollment is so low that one third of states report greater than 100 percent enrollment of its households subject to affiliation.

Mexico's struggles with both premium enforcement and slow enrollment stem from policy makers' decision to make SP enrollment voluntary. The experience over the last decade suggests that this decision was a mistake. If enrollment were automatic, the government could have achieved its initial goal of universal enrollment by 2010. The phased implementation achieved through enrollment campaigns could have been

preserved by gradually enrolling regions into the program. In addition to speeding enrollment, automatic enrollment would have given the government greater control over collecting premiums at its desired level. Automatic enrollment, as enforced through an insurance mandate, is common in high-income countries, and it was the centerpiece of the United States' recent reform. Furthermore, the Mexican government incorporated automatic enrollment into SP for some Mexicans by allowing states to automatically enroll Oportunidades beneficiaries. The pitfalls of voluntary enrollment suggest that other countries should consider automatically enrolling beneficiaries when establishing public health insurance for the uninsured. If governments prefer not to charge premiums to those families who are automatically enrolled they can offset this funding through general tax revenues. Mexico should also consider expanding automatic enrollment to groups beyond Oportunidades beneficiaries, such as low-income, indigenous, and rural communities served by IMSS-Op facilities.

While the SP enrollment process has been somewhat troubled, there is strong evidence that those people who do enroll have lower risk of financial hardship. Both observational and experimental studies show a reduction in out-of-pocket and catastrophic health expenditures for SP beneficiaries. Research has also shown that enrolled households spend less money on health care and increase both savings and non-health care consumption.

Decreased financial risk is the most important accomplishment of health insurance, but the Mexican health reform also sought to improve access to health care. On this front, there is less convincing evidence of success. While observational studies suggest that SP beneficiaries are more likely to access health care than the uninsured,

these studies did not show improved control of chronic conditions, a key indicator of effective care. Furthermore, experimental evidence did not show an impact on health care utilization among beneficiaries. My own analysis found a 6 percentage point growth in the trajectory of doctor visits in states following adoption of SP, providing some evidence of improved access to care.

It is possible that there has been improved access to care for both beneficiaries and non-beneficiaries, possibly due to increased funding for the state health systems. This scenario would be consistent with my finding of increased doctor visits in states following adoption. Levels of control for chronic diseases are very low for both the uninsured and those with SP, however, suggesting that neither group is benefitting greatly from the level of health care provided at Ministry of Health and IMSS-Op facilities.

Additionally, SP's defined benefits package leaves many costly diseases, including most adult cancers, untouched by reform. One reason that the catastrophic health fund has not made a larger impact is that administrators have diverted some of its monies toward unrelated health care expenditures, such as the purchase of vaccines. Eliminating such unrelated draws on the fund could extend the reach of SP's defined benefits.

Overall, utilizing a defined benefits package to lower the cost of coverage was probably a wise choice. Even with underfunding from the state governments and households, the program has been able to cover basic health care for nearly 40 million Mexicans. The Mexican experience contrasts favorably with that of Colombia, where public insurance covers all health needs. Eight years after Colombia's reform, catastrophic health expenditures continued to affect 4.9 percent of the population —

several percentage points higher than the rate in Mexico (Amaya Lara and Ruiz Gómez 2011). This problem persists largely because Colombia's broad coverage cannot support the full population, leaving 42 percent of Colombians uninsured (Ibid).

The Mexican reform laid out an ambitious plan to tackle regional health care disparities by improving health care facilities and personnel in underserved areas. Yet large disparities persist. Significant regional variation continues for both health care resources and outcomes. By 2006, there was still a ten-fold variation in maternal mortality between some states. My analysis shows that there were not significantly larger improvements for poor states than for non-poor states in this outcome or for the bulk of other indicators. Yet poor states did see a larger growth rate in the number of doctor visits per person. Health funding disparities also continue, both geographically and between those with and without social security. The government has successfully narrowed the gap in public spending between the social security and non-social security populations, but per capita spending on the social security population is still roughly 50 percent larger than that for the non-social security population.

The pattern of enrollment has also shown relatively weak targeting of the neediest populations. National surveys have shown that households in the lowest income decile are less likely to be enrolled in SP than households in slightly higher deciles. Similarly, the most marginalized households are less likely to be enrolled than moderately marginalized households. Given states' struggles in keeping up with enrollment targets, areas with fewer facilities, which require higher start-up costs, were passed over for initial enrollment.

One of the biggest lessons that other countries should take from the Mexican reform experience is the value of rigorous evaluation. The Fox Administration was able to demonstrate reduction of catastrophic health expenditures because the government regularly conducts nationwide surveys.

Moving forward, the Mexican government should continue to evaluate whether its segmented health system is benefitting its citizens. The reform has contributed to an increase in administrative costs that were already high. As health care needs increase in coming years due to Mexico's aging population and rising rates of chronic disease, the government should consider ways of creating a more efficient, streamlined system. Whether through complete integration or an arrangement for functional integration between the social security institutions and Ministry of Health facilities, additional reform could promote greater reduction in disparities and better access to health care.

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