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THE 1997 MEXICAN PENSION REFORM: GENESIS AND DESIGN FEATURES

by

Gloria Grandolini (World Bank)
and
Luis Cerda (Secretaria de Hacienda y Crédito Público)

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INTRODUCTION

This paper presents an analysis of the Mexican reform as a case study of the pension reforms taking place in Latin America. The goal is to provide insights into the rationale of the reform and attempt to identify problems that might arise during the implementation of the new pension scheme. Demographic changes, health costs, as well as an increased level of benefits not properly backed in sufficient actuarial reserves indicated that the public pay-as-you-go (PAYG) pension system operating in Mexico, would become financially unsustainable by the end of the decade. A limited and failed attempt at reform was made in 1992 by establishing a mandatory individual retirement savings account and by raising the contribution quota to the Mexican Social Security Institute (*Instituto Mexicano de Seguridad Social* - IMSS) to cover increasing financial requirements. This was done with the levying of a higher pay-roll tax that encouraged evasion among workers and employers.

The IMSS worsening financial situation, labor market distortions, unfairness linked to the benefits' scheme, and the need to generate higher domestic savings led to a growing consensus for pension reform in Mexico. In December 1995, the Mexican Congress approved legislation to reform the existing social security law and shift the pension system for workers in the formal private sector to a privately managed defined-contribution system. A second legislative package on the implementation of the reforms was approved by Congress in April 1996.

The Mexican design is based on a multipillar approach to old age security. Fundamentally, the reformed scheme consists of a publicly managed first pillar with a redistributive objective, a fully-funded second pillar with mandatory individual savings accounts and competitive but exclusive and specialized pension fund management, and a third pillar consisting of voluntary savings. The reform went into effect on September 1, 1997, it covers approximately 11.5 million private sector workers and it is estimated that approximately US$4.0 billion will flow into the system annually.

The paper is organized into five sections that discuss: (i) the initial conditions of the public pension system and the forces driving the Mexican reform, including the need, timing, and context for reform; (ii) lessons from the 1992 Retirement Savings System (*Sistema de Ahorro para el Retiro* - SAR) experience; (iii) the characteristics of the 1997 reform, including comparisons with pension reforms in other Latin American countries and the legal, regulatory, and supervisory framework for fund administration; (iv) the results of the estimation of the fiscal costs of transition; and (v) the key challenges to the reformed system.

I. MEXICO'S TRADITIONAL PAYG SYSTEM: FEATURES AND NEED FOR REFORM

The Pension System before 1997

Since 1944 the IMSS has managed, among others, the old age, severance, disability and life insurance (*Invalidez, Vejez, Cesantía en Edad Avanzada, y Muerte* - IVCM). The IMSS is the largest institution in Mexico providing social security to the population. The total number of affiliates to the IMSS is around 11 million and all affiliates are private sector workers (Table 1).

The Mexican social security system for formal private sector workers and the self-employed as it evolved for almost fifty years through 1992 consisted essentially of two elements of support:

- retirement, pensioners' health benefits, and disability pensions (IVCM) based on payroll contributions of 8.5 % of wages for formal private sector workers administered by IMSS; and

- additional retirement income from contributions to a specialized housing fund based on an employer-paid contribution of 5 % of wages for private sector employees administered by the National Workers' Housing Fund Institute (*Instituto del Fondo Nacional de la Vivienda de los Trabajadores* - INFONAVIT).

Originally, the IMSS's pension program was designed to be a collective fund financed from contributions from workers, employers and the state. The original IMSS-IVCM can be characterized as a partially-funded defined benefit scheme. However, since the very beginning, it operated as a PAYG scheme as the fund's actuarial reserves were used to finance other social insurance activities, particularly health. Until the 1970s there were no actuarial reserves to face pension liabilities. This was possible because a stable macroeconomic situation and a young population generated enough resources to finance current pension liabilities and at the same time finance health requirements.

Table 1. Distribution of Mexican Labor Force (EAP) -November 1995

by Sector	**In million**	**%**
Formal	19.8	59.1
Informal	13.7	40.9
TOTAL	33.5	100
by Social Security Scheme	**In million**	**% of covered EAP**
IMSS	***10.9***	***88.6***
Public Sector Schemes	*1.4*	*11.4*
ISSSTE, States, and Armed Forces (a)	1.3	10.6
PEMEX (b)	0.1	0.8
Total Covered	*12.3*	*100*
Not Covered	*21.2*	
Self-employed or underemployed	19.5	
Unemployed	1.7	

Sources: IMSS, PEMEX, and *Encuesta Nacional de Empleo*, 1995.

(a) Institute for Security and Social Services for Government Workers (*Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado)*
(b) The State-owned petroleum company (*Petróleos Mexicanos)*

To receive *disability* benefits, a worker had to contribute to the IVCM system for at least 150 weeks. Despite the existence of a formal process for reviewing disability requests, a striking fact is that 30% of current pensioners are receiving disability pensions. To be entitled to receive an *old age* pension, the insured was required to be 65 years old, be currently working and have contributed a minimum of 500 weeks. The same conditions applied for severance but the minimum age was 60 years. In case of *death*, the survivor's pension is paid to the widow and/or dependents, or, in case they do not exist, to the contributor's parents. The insured had to contribute at least 150 weeks.

The system contained a guaranteed minimum pension equal to the minimum wage. To address the erosion of the real value of pensions, in 1989 pensions were indexed to changes in the minimum wage. At least 500 weeks of contributions were necessary to qualify for the minimum pension. Pensions are paid according to a formula contained in the old Social Security Law which favors workers at the bottom of the wage scale. The pension base is calculated as a percentage of the average wage in nominal terms for the last 5 years, plus a fraction for each year of contribution in excess of 10. As wages are higher, the percentage of the pension base is reduced. Pensions may never be higher than the average wage a worker received during the previous 5 contributing years.

The old PAYG system appeared to be quite effective in redistributing income to low-income affiliates. However, as in many other theoretically redistributive PAYG systems, there is a considerable difference between promised and actual redistribution (Friedman, 1996; Schmidt-Hebbel, 1994; and World Bank, 1994). In the Mexican case, as a result of the eligibility requirements (10 years vesting period) and the benefit formula, the system was in fact favoring particular groups of affiliates, which were not necessarily in the lower income brackets. This perverse redistributive effect is related to:

- *The eligibility requirements*. To receive a retirement pension, workers had to accumulate at least 500 weeks of contributions (equivalent to 10 years). Women and other affiliates with high rotation could loose all rights to a pension. The redistribution then would go from those workers working less than 10 years to those working 10 years or more. Also, high-income workers who in economic terms contributed less than low-income workers could still receive a much higher pension. This could happen if the rich worker contributed only for the minimum of 10 years, while a low income worker contributed for more than 20 years.
- *The structure of the benefits and contributions*. The benefit formula in the old PAYG system allowed those people who worked for more than 10 years to receive relatively higher pensions. However, there were incentives for some workers to either work for only 10 years (since the largest part of a pension would be gained by only working this minimum time), or to belong to the formal sector for only the minimum of 10 years. In these cases, workers with longer periods of contribution subsidized workers contributing for only the minimum period required, regardless of their income. The benefit formula also created incentives to under-report income, allowing high-income workers to contribute the same as some low-income workers, and upon retirement, to receive the same pension.

The Rationale for Pension Reform

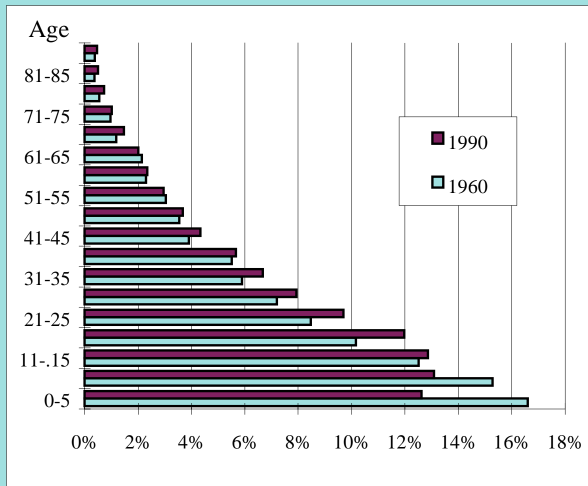
Beginning in the early 1990s, a consensus began to develop that the social security system, and in particular the IMSS system, needed to be reformed. A long debate ensued on the options for reform and the depth of the measures to be implemented. The three critical reasons for pension reform were that despite the relatively young population (nearly half is under the age of 25) the Mexican pension system was plagued by financial disequilibrium, inadequate pensions, and high evasion. These factors are the most common instigators of pension reform throughout the developing world where populations are still young, public PAYG system finances are on a downward trend, and informality and poverty are widespread (World Bank, 1994; James, 1996; and Demirguc-Kunt and Schwarz, 1996).

Demographic Trends: Avoiding Future Shocks and Taking Advantage of Present Opportunities

In 1960, Mexico's population structure was relatively young. Of 35 million inhabitants, only 5.6% were older than 60 years, while 55% of the total population was below 20 years of age (Figure 1a). Over the next several decades Mexico's population structure began to shift as the rate of population growth decreased and life expectancy began to rise (Figure 1b). By 1990, Mexico's population had more than doubled at more than 81 million inhabitants.

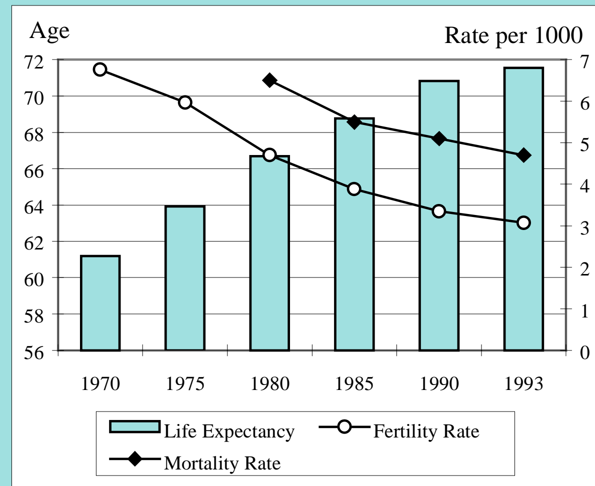
Figure 1. The Right Timing: Demographic Trends

a. Demographic Structure by Age Group



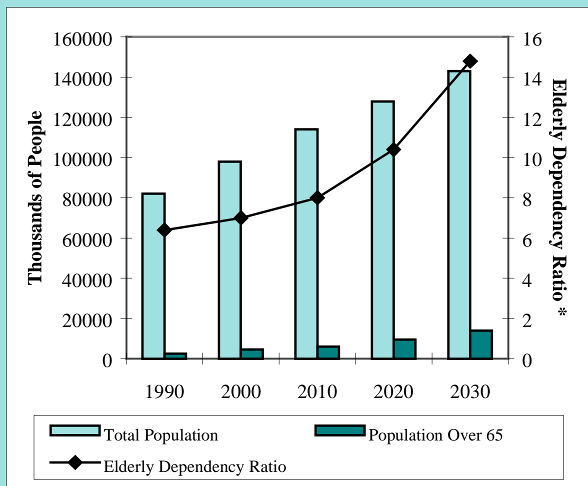
Source: SHCP.

b. Mexico's Population Statistics



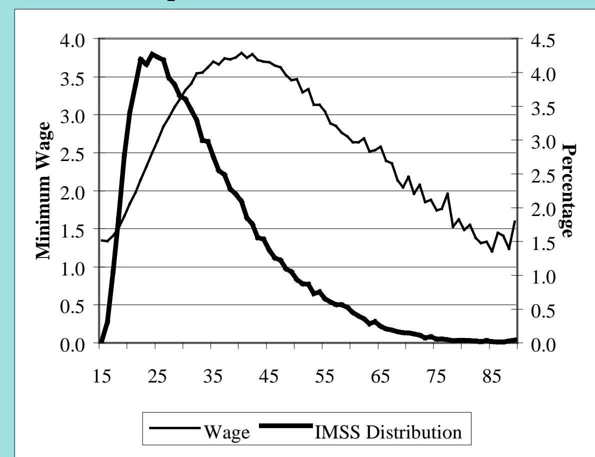
Source: 1994 Report of the President.

c. Elderly Dependency Ratio



* Elderly dependency ratio = population over 65 divided by working population. Source: OECD.

d. Average Income by Age and Population Distribution (1994)



Source: IMSS.

Although Mexico's population pyramid continued to show an important share of young people, lower population growth and mortality rates have resulted in a rapid aging of IMSS contributors. These changes in population dynamics have lead to an increasing dependency ratio in IMSS. In 1960, there were four pensioners per one hundred contributors. By 1994 this ratio had increased to 12.5 to one hundred. The expected average annual rate of growth in the number of pensioners will be 5.7% for the next 20 years, while the most optimistic forecast for growth of contributors will be around 2.6%. Concomitantly, life expectancy after 65 years has increased. Therefore, benefits after retirement will be greater in the coming years further deteriorating IMSS' financial situation.

The positive implication of these trends is that Mexico, like many developing countries, has the distinct advantage of initiating reform at a time when its demographic profile is relatively young, making the transition more affordable:

- the majority of the Mexican population is still young - in 1990 only 6.4 % of the population was above 65 (Figure 1a);
- rapid growth in aging as a result of lower fertility rates and improvements in life expectancy (Figure 1b) which will result in 10.4 % of the population above 65 years of age by 2020;
- a sharp increase in the dependency ratio; in 1960 there were four pensioners per one hundred contributors, by 1994 this ratio increased to 12.5 per one hundred pensioners (Figure 1c); and
- Mexico's current demographic structure limits the fiscal costs of pension reform. In 1994 almost 50 % of IMSS contributors were between 15 and 30 years old, while the peak of the average wage distribution is reached at about age 40 (Figure 1d); this implies that wages for the 15 to 30 year old population will increase in time enabling them to acquire a pension higher than the minimum.

IMSS: Heading toward Bankruptcy

Financial Disequilibrium. Severe financial disequilibrium was the most pressing reason why pension reform could not wait. Based on various measurement methods, the overall financial condition of the pension system would have reached crisis proportions soon. As mentioned earlier, the surplus generated by the pension program has been used to finance infrastructure requirements of IMSS and to partially finance health and maternity insurance, which has been traditionally in deficit. In fact, pension reserves were not constituted until 1960, 16 years after the establishment of IMSS. In summary, the level of actuarial reserves was not enough to finance the net present value associated with an aging population and increasing evasion.

Current contributions were insufficient in the medium and long term to finance increasingly generous benefits that had been extended to workers and their relatives. Originally, the system covered only the worker and not his family and benefits were defined as fixed nominal quantities. The minimum pension increased from 35% of the minimum wage prior to 1989 to 100 % in 1995. In other words, the IMSS changed the benefit structure 40 times between 1943 and 1995, while the structure of contributions changed only three times during the same period.

Table 2. IMSS-IVCM Present Value of Future Pension Deficits (as of 12/31/94)
1994 NP$1000 million

ASSETS		LIABILITIES	
Reserves	**3.25**	**Present value of old pensions**	**96.93**
Present value of future contributions	**683.67**	**Present value of future liabilities**	**2,390.61**
Actual affiliates	179.74	This generation	1,017.40
Future generations	503.93	Future generations	1,373.21
TOTAL ASSETS	**683.92**	**TOTAL LIABILITIES**	**2,487.54**
PV of Future Pension Deficits		**1,800.62 (141.5 % of GDP)**	

Source: IMSS.

Financial pressures from an unfair system. During the 1970s and the 1980s, pensions decreased sharply in terms of their real value, thus affecting pensioners' real income. This issue was partially corrected in 1989 by indexing pensions to minimum wages. As a consequence, a funding problem arose for IMSS since pensions, that were financed with current contributions, were periodically increased. This led to an increasing asset-liability mismatch. According to Government

calculations, IMSS' actuarial deficit (141 % of 1994 GDP in present value and for a time horizon of 75 years) was expected to result in a cash deficit by the year 2007. This would have required either a trebling of contributions or an increase in Government contributions amounting to 1% of GDP in the year 2000 and 3.75% of GDP in the year 2030.

Evasion, Inequality, and Poverty

In the PAYG system, high rates of evasion are associated with three main factors: the weak relationship between contributions and benefits, high inflation, and short vesting periods. There is almost no relation between benefits and life-time contributions, which encourages evasion, underreporting of wages and informality in the labor market. First, on average, the IMSS pays each insured worker a pension for a period of 18 years and the corresponding widow's pension for 12 more years. Together, this amounts to an equivalent pension of 30 years while in some cases the worker may have contributed to the system for only 10 years, the required vesting period. After only 10 years of contributing as little as 4% of wages, a worker becomes eligible to receive a stream of benefits equal to 17 years at not less than 100% of the minimum wage, and up to 100% of the average salary of the last 5 years. If the affiliate leaves the formal work force before pensioning, he can loose all his rights for pensioning and years of contributions unless he returns and contributes again for a year.

Second, the reference base salary to calculate the pension is based on the average of the wages earned in the last five years divided by the current minimum wage and not on the earnings for all years of service. Third, indexation of benefits to the minimum wage (rather than the general price index) introduces political risk via lags in the adjustment of the minimum wage in times of accelerating inflation. Moreover, this indexation scheme penalizes a government that adopts tough anti-inflationary policies since minimum wages can increase in real terms and result in large increases in public pension obligations. These types of problems have been documented in other countries (See Valdes, 1994 and World Bank,1994). The high inflation of the 1980s led to a significant drop in real wages, which fell by 60% between 1980 and 1994. Contributions to the IVCM system began to tail off with the fall in real wages and the real value of pensions eroded. In most cases (80% of pensioners), this has reduced pensions to the guaranteed minimum benefit, which is equivalent to the minimum wage (approximately US$90 per month).

Not surprisingly, workers have perceived the pension scheme as a payroll tax. This situation has created strong incentives for both employers and employees to avoid affiliation and under-report earnings to qualify, and over-report them to receive benefits. It has also acted as a deterrent to attract informal sector workers, who comprise mainly the poor.

II. THE 1992 SAR REFORM: HOW A PENSION REFORM SHOULD NOT BE DONE

The Second Pillar: Individual Retirement Accounts in the SAR

In a partial effort to address growing deficiencies in the first pillar, the Government introduced the SAR in May 1992 as a mandatory fully-funded savings scheme based on individual accounts. It was designed to complement the first pillar[1] and consisted of two sub-accounts:

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[1] While there are as many as 8,000 voluntary occupational plans, most of these funds are concentrated in 30 to 35 enterprises - foreign multinationals and the large parastatals - and combine a severance payment obligation (defined under Labor Law Article 165 as 90 days of minimum daily salary for each year of service) with either defined-benefit or defined-contribution schemes. Affiliation to the third pillar cannot substitute for affiliation to other pillars.

- a new mandatory 2% employer contribution on wages paid to private and public sector employees channeled into individual retirement sub-accounts. These funds are channeled to the Central Bank through the commercial banking system. The Central Bank guarantees a real rate of return of at least 2% on these retirement sub-accounts which by end-1995 totaled about US$ 2.9 billion invested in Government securities; and
- a specialized housing sub-account managed by INFONAVIT. Although the contribution remained at 5% of wages, INFONAVIT's benefit provision was changed to accumulated balances (i.e., accumulated contributions plus a real return on these) as opposed to only nominal accumulated contributions. The Banco de Mexico transfers the resources of the housing subaccount to INFONAVIT. The institute would pay interests according to the operational surplus for the corresponding year.

Table 3 summarizes overall pre-reform social security contributions for workers in the private sector, including health insurance, professional risks insurance and child care.

Table 3: Social Security Contributions as Percentage of Payroll

		Total	Employer	Employee	Government
IMSS	**IVCM**	**8.5**	70	25	5
	Old age and severance	3			
	Disability and Death	3			
	Medical services for pensioners	1.5			
	Administrative expenses	0.6			
	Social assistance	0.4			
	Health and Maternity	12.5	70	25	5
	Professional Risks	2.5	100	0	0
	Child Care	1.0	100	0	0
SAR System	**INFONAVIT**	**5**	100	0	0
	Retirement	**2**	100	0	0
Total old age and disability		**15.5**			
Total		31.5	25.2	5.25	1.05

Source: IMSS

Lessons from the SAR Experience

Substantial institutional and conceptual problems led to the failure of this first attempt to develop a complementary pension scheme to supplement the system's first pillar. The SAR's problems quickly discredited it among the population.

Slow progress and final failure of the SAR, can be attributed to:

- *lack of any consistent supervision of accounts held by commercial banks and the lack of a final regulatory framework for investment managers*. The regulatory agency - the National Commission for the Retirement Saving System (*Comision Nacional de Sistemas de Ahorro para el Retiro* - CONSAR) - was established in July of 1994, two years after the SAR began operations;
- *management problems*, including frequent management turn-over and insufficient attention to the program's technical details and operating characteristics;
- *poor accounting, coordination, and monitoring* due to the lack of a single organization responsible for SAR operations. This has caused problems in the collection of SAR contributions, in the

reconciliation of amounts received, and in the settlement of the accounts administered by the commercial banks, the Central Bank, and the social security or housing institutions;

- *multiple identification numbers for individual contributors* as a result of the use of "RFC" numbers (Taxpayers Federal Registration Code). Duplicate accounts at banks have risen to almost half of the 20 million accounts now registered. Multiple RFC's have been generated by employers, workers, and even banks. Moreover, since employees did not choose where to open their accounts, many of them ignore in which banks they have an account;
- *poor account administration and collection functions by commercial banks*, due largely to the disincentives to banks brought by low commission ceilings and the small size of SAR accounts. Banks joined the SAR in 1992 under political pressures so they have relatively little incentive to provide these services satisfactorily, particularly to smaller firms with fewer employees. This problem has been compounded by the incentive for commercial banks to maintain good relationships with corporate clients rather than enforce adequate collection of SAR contributions;
- *extremely high concentration of accounts* with 75% of the accounts held in 3 Mexican banks; and
- *INFONAVIT's financial performance* is seriously affected by the following problems which were not addressed by the 1992 reform: 42% of workers who received a housing credit have 12 or more delinquent monthly payments; INFONAVIT's personnel is excessive relative to its functions; and since workers do not have a single ID number INFONAVIT's capacity to collect credits is very limited. Table 4 highlights the negative rates of return in housing investments that INFONAVIT has given to workers between 1993 and 1995.

Table 4: SAR Balances - Private Sector Workers

	Accumulated Balances (million pesos)	
Period	Retirement	Housing
Dec. 1993	5,178	8,699
Dec. 1994	9,009	15,178
Dec. 1995	17,616	22,293
Dec. 1996	28,153	37,115
Nov 1997 a/	**37,850**	56,283

Source: CONSAR and INFONAVIT
a. Nov. 1997 exchange rate was 8 pesos per US$1.

The 1992 SAR exemplifies how a pension reform should not be done. The SAR will be remembered as a frustrated effort at building a second pillar. Nevertheless, the SAR experience contains lessons for the 1997 reform as well as for other reformers that are studying alternatives for substituting or complementing PAYG pension systems. The policy makers responsible for the 1992 reform:

- did not focus on the implementation of the system after the legislation was approved and created a regulatory agency only after two years of implementation;
- used political pressures to force banks into individual account record-keeping, controlled fees and canceled banks' profit maximization decisions upon entering (and leaving) the SAR; did not care about a proper ID number for workers and trusted existing codes plagued with problems;
- created individual accounts but the owners were not allowed to choose the account managers. Instead, they put the decision in employers' hands and simply replicated banking concentration in the SAR; and
- underestimated the need for an investment regime and left all savings in Banco de Mexico for financing public expenditure. Moreover, no action was taken to improve INFONAVIT's financial

performance. An opportunity to deepen financial markets was lost and the SAR was increasingly perceived as just another tax.

Finally, an important consideration for the consolidation of a second pillar scheme is an appropriate definition of property rights. In the case of the SAR, three problems were present from the beginning of the scheme. First, a multiplicity of accounts obscured transparency in the management of each individual account. Second, individual contributions went to the Government as a direct loan and workers did not have control on investment decision-making. Finally, employers had decision-making power on account individualization and management.

The 1997 reform eliminates the SAR scheme. The retirement sub-account is integrated to the new old age and severance insurance sub-account, whereas the housing sub-account is maintained separate. Beginning on September 1, 1997 no more contributions were made into the old SAR accounts. Under the reformed system, workers have the right to collect their SAR 92-8/97 balances in a single payment upon retirement.

III. THE 1997 PENSION REFORM

Context for Reform

Reforming pension systems is very complex because of their multi-dimensional nature and their links with fiscal and tax policy, labor markets, the health sector, the insurance sector, and financial markets in general (Arrau and Schmidt-Hebbel, 1994; Vittas, 1992). Particularly in Mexico, the design of a pension reform had to address difficult political economy issues relating to labor policies and legal issues relating to the constitutional rights of pensioners. These considerations were very important in weighing policy options for reform of the first pillar's benefit provisions because the Mexican Constitution safeguards acquired rights of pensioners to certain benefits and services provided by IMSS. It is important to note that both accumulated benefits and expectations of benefits are protected. Moreover, the reform had to be designed within the framework of a weakened financial sector following the 1994 crisis. Finally, there were important considerations relating to the macro-fiscal effects of different reform options.

These problems were compounded by the fragile political environment in which the executive branch has had to operate. Splits within the ruling *Partido Revolucionario Institucional* (PRI), as well as opposition from the other political parties and labor unions, have prevented the Government from embracing a broader reform of pensions for public employees as well as providing for a broader reform of IMSS. In the course of events, for the first time, Congress has introduced substantive amendments to legislation proposed by the executive branch, the most important of which had to do with IMSS' continued role in the collection and pension payment process, and the explicit legal prohibition on investment in foreign securities.

Along the lines of recent pension reform programs, the Mexican design is based on a multipillar approach to old age security (World Bank, 1994 and Arrau and Schmidt-Hebbel, 1994). Fundamentally, the reformed scheme consists of a publicly managed first pillar with a redistributive objective providing a guaranteed minimum pension equal to the indexed minimum wage for low-income workers, a fully-funded second pillar with mandatory individual savings accounts and competitive, but exclusive and specialized, mutual fund management, and a third pillar consisting of voluntary savings.

In December 1995 the Mexican Congress approved legislation (the new Social security law - *Ley del Seguro Social*) establishing the new system. A second legislative package on the implementation of the reforms (the Pension Systems Law - *Ley de los Sistemas de Ahorro para el Retiro*) was enacted in April 1996. Legislation was also approved in December 1996 to make the legislative framework for the housing scheme consistent with the new pension system. The reformed pension system: eliminates the old PAYG scheme; provides current IMSS affiliates with a choice at retirement between the benefits under the old system or their accumulated balances under the new system; provides a government-guaranteed minimum pension for those low-income workers whose savings are insufficient to provide a post retirement income at that level; and eliminates cross subsidies among IMSS insurance branches.

The IVCM system is separated under the reform into the Old Age and Severance insurance (*RCV - Seguro de Retiro, Cesantía en Edad Avanzada, y Vejez*), the Disability and Life Insurance (*IV - Seguro de Invalidez y Vida)*, and the Medical Expenses for Pensioners insurance (*Gastos Médicos de Pensionados*). The reform began on July 1, 1997 for voluntary contributions and on September 1, 1997 for mandatory contributions. Table 5 summarizes the main differences between the old IVCM system and the new reformed system.

Private Management for the Retirement, Old Age and Severance Funds

Individual retirement funds (SIEFORES - *Sociedades de Inversión Especializadas en Fondos para el Retiro*) constitute the backbone of the new fully-funded pension system. The SIEFORES will be administered by investment management firms (AFORES - *Administradores de Fondos de Ahorro para el Retiro*) to be established by the private sector, IMSS, and trade unions. In addition to the option for IMSS to establish a single AFORE, it will continue to be: (i) the legal enforcer of all contributions and collections; (ii) the provider of benefits to existing pensioners; (iii) responsible for delivering benefits to transition workers choosing the old PAYG system upon retirement; and (iv) the provider of the minimum pension guarantee to private sector workers.

Contributions to the new system became compulsory for all private sector workers beginning in September, 1997. The retirement age remains at 65 years. The years of contributions required to be eligible for the minimum pension guarantee (MPG) are raised from 10 to 25 years. Under the reform, each worker's individual retirement account is composed of two compulsory sub-accounts, the RCV sub-account managed by the AFORES, and the INFONAVIT sub-account. Workers have a third sub-account for voluntary contributions. Workers' contributions are automatically passed on to the designated AFORES.

Table 5: Mexico - Comparison of PAYG and Reformed Old Age Security Systems

Area	Old IVCM System	New (RCV + IV) System
A. INSTITUTIONAL RESPONSIBILITIES		
Old Age and Severance (RCV)	IMSS	• Contributions to chosen pension fund administrator (AFORE) • Benefits provided by AFORES if new system, or IMSS if old PAYG system chosen at retirement (Transition generation only)
Disability and Life Insurance (IV)	IMSS	IMSS
B.CONTRIBUTIONS (% wage)[a]	***15.5***	***16.5 - 21.0 (average 17.5)***
Old age and severance (RCV)	***11.0***	***12.5-17.0 (=11.5 + social quota): 13.5 average worker***
Disability and life (IV)	***4.5***	***4.0***
Detailed breakdown:	**IVCM (to IMSS): 8.5** Old age and severance 3.0 Disability and death 3.0 Reserves for pensioners' health 1.5 Administration expenses 0.6 Social Assistance 0.4 **SAR-Retirement (to Central Bank): 2.0** **SAR Housing (to INFONAVIT): 5.0**	**RCV Individual Accounts:** **to AFORES: 6.5[b]+Social Quota** Old age and severance 4.5 Retirement sub-account 2.0 Social quota (per day) 5.5% of 1 MW[c] **to INFONAVIT: 5.0** **IV to IMSS: 4.0** Disability and life 2.5 Reserves for pensioners' health 1.5
C. ELIGIBILITY REQUIREMENTS		
Old Age	500 weeks (10 years) and 65 years old	1,250 weeks (25 years) and 65 years old
Severance	500 weeks and 60 years old	1,250 weeks and 60 years old
Disability Insurance	150 weeks, inability to earn 50% of salary	250 weeks
Life Insurance	150 weeks	250 weeks
D. BENEFITS		
Old Age: Amount of pension	(i) benefits accrued under PAYG system (a % of the average wage of last 5 years in nominal terms plus a fraction for each year in excess of 10, with a maximum of the above mentioned average wage; *indexed to changes in minimum wage*). + (ii) accumulated INFONAVIT contributions (iii) retirement sub-account 5/92-8/97	**New workers**: accumulated balances in individual accounts (AFORES + INFONAVIT) since 9/1/1997; **Transition workers**: at retirement choose highest between: (i) current benefits (see previous column) and (ii) accumulated balances in individual accounts (AFORES + INFONAVIT) since 9/1/1997 + retirement sub-account accumulated balances 5/92-8/97 (if still in Central Bank)
Old Age: Withdrawals [d]		• Gradual withdrawals from individual account in the AFORE, [e] or • Annuity bought from an insurance company
Disability Insurance: Amount of pension	Depends on degree of disability. Provided by IMSS: a % of the average wage of last 5 years in nominal terms plus a fraction for each year in excess of 10, with a maximum of the above mentioned average wage.	• Degree of disability still determined by IMSS. • Pension provided by private insurance companies: 35% of average wage (in real terms) for the last 500 weeks of contributions
Life Insurance: Amount of pension	Widow: 90% of disability pension; Dependents: 20% of disability pension, or 30% if both parents deceased	Same as before
Minimum Pension Guarantee (MPG)	Equivalent to one Mexico City minimum wage level indexed to actual minimum wage	Equivalent to one Mexico City minimum wage on 7/1//97 indexed to the CPI [f]

a. Under IVCM contributions could not exceed 10 times the minimum wage and under the new system it is 25 times.
b. Plus the accumulated balances in the retirement sub-account (from 1993 to 8/1997) if the worker so wishes.
c. Government contribution of 5.5% of one minimum wage (MW) - in July 1997 - per day is indexed to the consumer price level. On average, this quota will be equivalent to 2.0 % of wages (considering that the average wage is approximately 2.6 times the minimum wage).
d. Lump withdrawal at retirement permitted only for balances in excess of 130 % of the cost of an annuity equal to the MPG.
e. Gradual withdrawals will consider insurance to cover probability that they live longer than expected and outlast savings.
f. Currently average wage for IMSS affiliates is 2.6 minimum wages, thus MPG is approximately 38 % of average wage.

Under the reform, contributions to old age and severance in the AFORES' individual accounts will equal 6.5 % of a worker's wage (the current 4.5% for old age and severance plus the current 2 % contribution in the retirement sub-account in the Central Bank) and a Government contribution of 5.5% of one minimum wage per day, known as the Social Quota that will be indexed to the CPI. On average, this quota will be equivalent to 2.2% of wages (considering that the average wage is approximately 2.8 times the minimum wage). It will be transferred to each worker's account to which active contributions are being made. Transition workers have the right to transfer their past SAR balances to their AFORE. Contributions to the INFONAVIT sub-account, equal to 5 % of a worker's salary, will continue to be invested in INFONAVIT housing programs. Total contributions for retirement, therefore, amount to between 12.5 and 17 % of a worker's wage - for the average worker they represent 13.5% of the wage.

Benefits under the new system fall into two groups: benefits to new workers and benefits to transition workers. *New workers* are defined as those beginning their contributions to the system after July 1, 1997. The first cohort of retirees fully under the new system is expected in approximately 20-25 years. Benefits consist of the accumulated balances in their individual retirement accounts (AFORES plus INFONAVIT accounts) or the MPG under the new system. The MPG in the new system is equal to the minimum wage in Mexico City as of July 1997, indexed to the Consumer Price Index (CPI). At retirement, workers will choose between a gradual withdrawal option or buying an annuity from an insurance company.

Transition workers are defined as those workers currently contributing to the PAYG system. Although these workers will begin contributing to their new individual retirement accounts after July 1, 1997, they will retain the right to the benefits of the old system exclusively in the case of retirement. For disability and death cases the new Law will apply regardless to which population the worker belongs. A lifetime switch option allows transition generation workers to choose at retirement the higher of the acquired benefits under the current PAYG system and the accumulated balances in their individual retirement accounts under the new system (AFORES plus INFONAVIT accounts). Accumulated balances in the INFONAVIT 92-8/97 sub-account and SAR 92-8/97 balances will be surrendered to transition workers upon retirement regardless of which pension scheme they opt for.

The Minimum Pension Guarantee (MPG), to both transition and new workers, is provided by the Government in the event that the value of the worker's capitalized savings in his/her individual retirement account is not sufficient to finance the minimum pension. The Government contribution will only be equal to the difference between the MPG and funds accumulated in the individual retirement accounts.

The Rules of Pension Fund Administration

The December 1995 Social Security Law provided that the regulatory and supervisory regime governing the revised pension system would be the subject of subsequent detailed legislation. The Pension Systems Law approved on April 26, 1996 sets out the structure and powers of CONSAR and provides guiding principles for the establishment, operation and supervision of pension fund administrators (AFORES) and specialized mutual funds for pensions (SIEFORES). The key areas for regulation and supervision of AFORES and SIEFORES are as follows:

- **Supervision of the reformed system: A strengthened CONSAR.** The Pension Systems Law grants CONSAR broad powers to set and enforce rules and standards for all aspects of operation of

the revised pension system. CONSAR has full supervisory authority over AFORES and SIEFORES, as well as supervisory authority over other participants in the pension system (such as banks and insurance companies) to the extent the activities of such entities involve the pension system. CONSAR is empowered to issue regulations, conduct examinations, impose fines and sanctions and recommend criminal prosecutions. In the event that irregularities are uncovered in the operations of any entity subject to CONSAR supervision (including AFORES and SIEFORES), CONSAR is authorized to effect an administrative or management intervention of such entity. CONSAR may revoke the authorization of any AFORE or SIEFORE found to be out of compliance with the Pension Systems Law or CONSAR regulations.

Table 6: AFOREs and their Partners

AFORE	Partners [a]
ATLANTICO	Banca Promex (25%, ME), Banco del Atlantico (25%, ME), GBM, Valores Finamex
BANAMEX	Grupo Financiero Banamex-Accival
BANCOMER	Grupo Financiero Bancomer (51%, ME), Aetna International-AFP (33%, US), Santa Maria International (16%, CH)
BANCRECER	Bancrecer (51%, ME), Dresdner Pension Fund Holdings, Allianz Mexico (49%)
BANORTE	Banorte (51%, ME), Belgica Insurance Holdings, Maatschappij Graafschap Holland N.V.
BITAL	ING America Insurance Holding
CAPITALIZA	GE Capital de Mexico, GE Capital Assurance Co.
CONFIA-PRINCIPAL	Banca Confia (51%, ME), Principal International (49%, US)
GARANTE	Banca Serfin (51%, ME), Citibank Mexico (40%, ME), AFP Habitat (9%, CH)
GENESIS	Seguros Genesis, Metropolitan Life Insurance
INBURSA	Banco Inbursa (100%, ME), Cia. de Servicios Inbursa
PREVINTER	Inverlat (51%, ME), Bank of Nova Scotia, American International Group, Bank of Boston
PROFUTURO GNP	Grupo Nacional Provincial (51%, ME), Banco Bilbao Vizcaya (25%, SP), Provida Internacional (24%, CH)
SANTANDER	Banco Santander Mexicano (100%, ME), Santander Investments (SP)
TEPEYAC	Seguros Tepeyac, MAPFRE International
XXI	IMSS, Aseguradora Hidalgo, IXE Grupo Financiero
ZURICH	Zurich Vida Compania de Seguros, Gabriel Monterrubio, Private Investors

Source: CONSAR

[a] partner listed first is either a Mexican company or the Mexican subsidiary of an international parent corporation

This partner is entitled to a 51% stake in the venture

[b] figures in millions of pesos

ME: Mexico; US: Inited States; CH: Chile; SP: Spain

- **Nature and Control of AFORES**. AFORES are single-purpose business corporations with independent capitalization. Each AFORE will maintain a minimum paid-in capital of N$25 million and a special reserve equal to the greater of N$25 million or 1% of the total assets of SIEFORES under management. The paid in capital and special reserve are required to be invested in shares of the SIEFORES managed by the AFORE. The capital of an AFORE that is a subsidiary of a financial group will not be available to meet the obligations of other subsidiaries of the same group. As an additional safeguard, financial intermediaries (including banks) or financial groups that are not in full compliance with applicable capital standards may not be shareholders of an AFORE. The establishment of AFORES requires the authorization of CONSAR, which may grant or deny authorization at its own discretion after examining the business plan, shareholding, systems, control and management of the firm. CONSAR is empowered to revoke the authorization of an AFORE or

SIEFORE that fails to meet the standards set forth in law and regulations. Seventeen AFORES have been authorized by CONSAR (Table 6).

- **Foreign Ownership.** Regulations allow for a class of AFORES majority-controlled by foreign financial institutions (but not individuals or industrial concerns). Financial institutions from NAFTA countries,[2] Colombia, Costa Rica and Venezuela may establish majority-owned AFORES. Up to 49% of the shares of such foreign-owned AFORES may be held by other foreign or Mexican shareholders. Foreign-owned AFORES receive equal treatment with Mexican-owned AFORES and are not be subject to the types of market share limitations that Mexico enforces against foreign-owned banks and brokers/dealers.
- **Conflicts of Interest**. The Pension Systems Law establishes strict limitations on permissible transactions between AFORES and affiliated financial institutions and issuers. CONSAR recognizes that given that a large percentage of pension contributions may ultimately be managed by AFORES which are subsidiaries of financial groups and/or affiliated with other financial institutions, strict supervision and enforcement of conflict of interest rules will be required to build public confidence in the system. The regulation governing the investment regime establishes that a SIEFORE may invest no more than 5% of its total assets in securities issued or guaranteed by entities that have a management or shareholding nexus with the SIEFORE.
- **Market Share Limits.** An initial 17% limit on the system accounts that may be managed by any single AFORE is set. To assure that no AFORE receives an unfair competitive advantage, CONSAR refrained from authorizing the first AFORES until it was able to grant simultaneous authorizations to a significant number of competitors.
- **Responsibility of Officers and Directors.** The Pension Systems Law provides that members of the board of directors, the general director and the compliance officer of each AFORE must be approved by CONSAR on the basis of the moral integrity and technical and management capacity of the nominees. CONSAR is authorized to remove any director, officer, compliance officer or other officer found to lack the moral integrity or technical and management capacity required for such position.
- **Publicity and Marketing.** SIEFORES must distribute prospectuses that fairly describe their portfolio and investment policies. All such prospectuses must be reviewed and approved by CONSAR. CONSAR has issued initial regulations covering the promotion and marketing of AFORES and SIEFORES and is expected to issue more detailed guidelines on the required contents and presentation of prospectuses as practice in this area develops.
- **Commissions and fee structure.** CONSAR has issued regulations which authorize each AFORE to freely set management fees based on a percentage of contributions (a front-end fee), a percentage of assets under management, or some combination of the two (Table 7).

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[2] U.S. and Canadian subsidiaries branches of financial institutions from non-NAFTA countries are treated as U.S. or Canadian institutions. Accordingly, European and Japanese financial institutions can gain access to the Mexican market through their U.S. and Canadian operations.

Table 7: AFORES Commissions on Active Pension Accounts

AFORE	Front-load (1-time)		Annual		Annual	Cost
	% of Pay	Note	% of Assets	Note	% on Real ROR	Type
Atlantico	1.40		0.00		20.00	E
Banamex	1.70	***	0.00		0.00	A
Bancomer	1.70	***	0.00		0.00	A
Bancrecer	0.00		4.75	**	0.00	B
Banorte	1.00		1.50	**	0.00	D
Bital	1.68	***	0.00		0.00	A
Capitaliza	1.60		0.00		0.00	A
Confia	0.90	***	1.00		0.00	D
Garante	1.68		0.00		0.00	A
Genesis	1.65		0.00		0.00	A
Inbursa	0.00		0.00		33.00	C
Previnter	1.55		0.00		0.00	A
Profuturo GNP	1.70		0.50		0.00	D
Santander	1.70		1.00		0.00	D
Tepeyac	1.17		1.00		0.00	D
Siglo XXI	1.50		0.99		0.00	D
Zurich	0.95		1.25	**	0.00	D

Source: CONSAR Tabulations, 8 July 1997

Notes:

* Initial rate is 0.2% of pay rising to 1.7% by March of 1998.

** Charge on assets to fall over time if participant remains in that AFORE.

*** Charge to fall over time if participant remains in that AFORE.

Memorandum: Type of Commission

A: On pay alone (7 of 17)	Av % A:	1.67	
B: On assets alone (1 of 17)	Av % B:	4.75	
C: On real returns alone (1 of 17)	Av % C:	33	
D: Mixture of A&B (7 of 17)	Av. D (pay%;asset %):	1.27	1.03
E: Mixture of A&C (1 of 17)	Av. E (pay %,ROR %)	1.40	20.00

- **Investor protection**. Each AFORE must establish a specialized unit to respond to questions and claims from workers and employers. More importantly for investor security, the law provides for submission of claims of workers and employers that are not settled by such a unit, to a system of conciliation and arbitration overseen by CONSAR.
- **Initially Single Class of SIEFORES.** The Pension Systems Law authorizes CONSAR to permit each AFORE to manage and offer to its customers a variety of SIEFORES with different portfolio compositions, provided that each AFORE offers at least one SIEFORE whose portfolio is composed “fundamentally” of securities whose returns are indexed to the Mexican CPI. Mexican legislators felt that to assure public confidence in the system, participants need to be provided with the option of investing in instruments offering a real rate of return. There are no minimum return requirements for the AFORES.

At the outset CONSAR has allowed each AFORE to establish only a single SIEFORE, "fundamentally" invested in indexed instruments. CONSAR intends eventually to permit each AFORE to offer customers a variety of equity and debt funds with distinct investment policies. This decision to restrict each AFORE to only a single debt fund at the outset reflects the government's desire to simplify supervision in the first year of pension fund operations, reduce potential confusion among the public and build public support by avoiding volatility. Article 4 of the draft investment regime regulations interprets the term "fundamentally" to require that at least 51% of the assets of the initial SIEFORES be represented by debt instruments indexed to consumer inflation.

Table 8: Portfolio Limits

UPPER LIMITS BY TYPE	Initial SIEFORES
LIMITS PER INSTRUMENT (as a percentage of Fund assets)	(as % of fund)
Government debt	100
Equity securities	0
Eligible bank debt (issued or guaranteed by a commercial bank) (1) (2)	10
Total eligible private debt (corporate and commercial bank) and development bank obligations	35
LIMITS PER ISSUER OR ISSUE	
Investment in instruments issued or guaranteed by any single issuer as a percentage of SIEFORE assets	10
Investment in instruments issued or guaranteed by any single issuer, as a percentage of the issuer's securities	10
Investment in any single issue as a percentage of such issue	10
Investment in instruments issued or guaranteed by issuers belonging to the same financial, commercial or industrial group, as a percentage of SIEFORE assets	15
Investment in instruments issued or guaranteed by affiliates of the SIEFORE as a percentage of SIEFORE assets	5

(1) Short-term obligations (less than one year maturity) must be rated in the top three rating categories by an authorized rating agency; long-term obligations must be rated in the top two categories. CONSAR's Risk Analysis Committee will establish criteria for when a rating from a single agency is inadequate and when commercial banks would be required to secure a rating from an additional agency.
(2) The securities of banks that have undergone intervention by the authorities are ineligible for investment by SIEFORES.

- **Portfolio Composition.** CONSAR is empowered to establish prudential regulations governing the portfolio composition of SIEFORES.[3] Table 8 summarizes the prudential limitations included in the investment regime regulation for the initial SIEFORES issued on June 29, 1997. The limitations to be imposed reflect CONSAR's consideration of a number of characteristics of the Mexican securities markets, including: (i) the degree of liquidity of many listed equity securities; (ii) the suitability of poorly-rated debt instruments for mandatory pension funds; (iii) the small

[3] CONSAR regulations are subject to the general requirement (Art. 43) that 100% of the portfolio be invested in cash and/or securities and the prohibition against foreign investment included in Transitory Art. 38 of the Social Security Law.

number of private issuers and the dangers of concentration of investment in related companies; and (iv) concerns about the appropriateness of excessive investment in the banking system.

Disability and Life: IMSS and Insurance Companies Living Together

The reform separates disability and life insurance coverage from the other lines of insurance which IMSS continues to manage. As a result, funds can no longer be combined. Total contributions for disability and life insurance are 2.5% of wages (an additional 1.5% will be drawn for reserves for pensioners' health expenses). Eligibility requirements for disability were increased from 150 weeks to 250 weeks. Disability and death pensions in the new system became 35% of the average wage for the last 500 weeks, computed in real terms. IMSS retains responsibility over the management of this line of insurance, but private insurance companies provide benefits through annuities. Preliminary estimates by the Ministry of Finance suggest that in 1997 private insurance companies will earn US$1.1 billion in premiums and will pay pensions in the amount of US$33 million during the same year. The relative importance of these earnings is better appreciated if we consider that direct premia in the Mexican insurance market in 1994 totaled US$6 billion.

Looking South

The reforms being carried out in Mexico, while broadly similar to those adopted in other Latin American countries, differ in several significant ways. Table 9 summarizes key comparisons between Mexico and four other countries in the region that have recently carried out pension reform.

Eligibility requirements. The number of years of contribution to be eligible for the benefits of the new system are higher in Mexico (at 25 years) than in other recent reforms. In addition, Mexico has defined a week as equal to seven working days, which, in practice, extends the eligibility period. This high eligibility requirement reduces liabilities under the Government's MPG.

Phasing out of contributions to PAYG system. Unlike the new pension systems in Chile, Argentina, Colombia, and Peru the option to continue to contribute to a PAYG scheme has been completely eliminated under the new Mexican system, even for transition workers. Transition workers will have a choice on the benefit side upon their retirement, but not on the contribution side. This approach is also different from the Colombian reform which allows continuous switching by new entrants between the two systems (every three years). Like in Chile, all vestiges of the old PAYG system will disappear with the last cohort of transition workers around 2025.

Minimum Pension Guarantee. The MPG is lower in Mexico than in other countries, equivalent at present to approximately 38% of the average wage after 25 years of contributions, a figure which is expected to decline to 25% of the average wage by the time the first cohort of new workers retires (about 2025) as real wages increase. The decrease results from the assumption that the minimum wage will grow at a lower rate than the average wage. Upon retirement, the Government covers the differential between the MPG and accumulated balances in the retired individual's account.

The Lifetime switch option. Mexico's pension reform also differs in that the Government will not issue recognition bonds (as in Chile) or compensatory pensions (as in Argentina) to explicitly value current workers' past pension contributions. Under the Mexican scheme, workers can compare the benefits of the two systems at retirement and choose the higher of the two. The Mexican Government could not issue recognition bonds or compensatory pensions because of the legal treatment of acquired

rights which made it difficult to explicitly attach a value to a worker's acquired benefits under the old PAYG system up until the time of the reform[4].

Commissions. The Mexican Law is the only one to date that allows freedom of commissions and fee structure, with discounts allowed.

V. ESTIMATION OF THE FISCAL COSTS OF THE REFORM

What is the Bill? A Summary of Results

The full benefits of a pension reform are not felt unless the fiscal costs of the existing unfunded system are made explicit to the extent possible and are funded through a credible financing plan. Governments must also define what combination of additional fiscal savings (higher revenues or lower spending) and borrowing will finance the transition costs. As part of the design of the reform, the Ministry of Finance (SHCP - *Secretaría de Hacienda y Crédito Público*) developed a model to estimate the fiscal costs of the transition, including sensitivity analyses under various assumptions. A discussion of the estimated fiscal costs of transition of the Mexican reform is summarized below.

The reform of the Mexican old age security system generates three fiscal consequences:[5]

- *the cost of providing pensions to existing pensioners before September 1, 1997* (without the income provided by the PAYG defined benefit system, since all contributions will go to AFORES starting September 1, 1997)
- *the costs of providing pension guarantees*, including the guarantee of pension benefits under the old PAYG system to transition workers resulting from the lifetime switch option at retirement, and the MPG to new workers; and
- *the costs of the Social Quota* contribution to individual accounts indexed to the CPI (the Social Quota) and Government contributions of 0.425 % of salary towards workers' pension.

Pensions for Existing Retirees. Fiscal costs for providing for existing pensioners and those receiving invalidity payments can be estimated accurately since IMSS knows the number of pensioners receiving benefits and the amount of benefits paid. These costs equal about 0.4% of GDP for 1997 and will decline rapidly over time.

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[4] A discussion of the implications of this approach is presented in section V.

[5] In addition, pension contributions can no longer support health insurance.

TABLE 9. PENSION REFORMS IN LATIN AMERICA

COUNTRY	CHILE	PERU	ARGENTINA	COLOMBIA	MEXICO
YEAR IMPLEMENTED	1981	1993	1994	1994	1997
Nature of the reform	Public defined benefit (PAYG) changed to private defined contribution (all workers)	Public PAYG changed to choice between public PAYG and private defined contribution	Public split into public PAYG and private defined contribution	Public PAYG changed to choice between public PAYG and private defined contribution	Public defined benefit changed to private defined contribution (for private sector workers only)
Transition arrangements What happens to old system?	Phased out	Continues with changes	Continues with changes	Continues with changes	Eliminated[a]
Is current labor force allowed to remain in old scheme?	Yes	Yes	Yes	Yes	No[a]
Is new system mandatory for new labor force entrants?	Yes	No	No	No	Yes
Can workers switch back to public system?	No	No (after June 1996)	No	Yes, every three years.	No[a]
Recognition bonds	Yes	Yes[d]	Yes[b]	Yes[c]	No[e]
Profile of new pension scheme What role for public pillar?	Minimum pension guarantee (MPG) Social assistance	MPG[f] Social assistance	Flat and minimum pension	MPG Social assistance	MPG Social Quota Social assistance
Total contribution rate for new system:					
for old age annuity	10	Priv: 8 (10 on 1/97) Public: 11 (max 13)	8	10	6.5 + 5.0 +(1-5.5)[h]
disabil./survivors/adm.	3	.3	3	3.5	4.0
public pillar and soc. assistance	General revenues	1	16[g]	1	General Revenues
Total contribution rate:					
before reform	19	9	27	8 (private sec.)	15.5
after the reform	13	13.3	27	13.5-14.5[i]	16.5 - 21.0
Estimated implicit PAYG debt at time of reform[j] (as % of GDP)	126% (in 1980) (through 2030)	37% (termination liability)	n.a.	61.6% (through 2025)	141.5% (in 1994) (through 2069)
Minimum rates of return of private pension funds	Benchmark relative to market average	None	Benchmark relative to market average	Benchmark relative to synthetic portfolio	None
Government guarantees on rates of return of private pension funds	Difference between balances at retirement and MPG	(Difference between balances at retirement and MPG)[f]	None	Difference between balances at retirement and MPG	Difference between balances at retirement and MPG
Maximum percentage of portfolio allowed in:					
Domestic equities	30	35	50	30	0
Foreign securities	10	5	10	15	0
Govern. securities (in 1994)	45	40	50	50	100 (in 1997)

a. Contributions to the old system cease on August 31, 1997. Transition workers can choose at retirement the higher of the benefits available under the old PAYG scheme or the new defined contribution plan.
b. "Compensatory pension" is paid upon retirement, not as a bond. The value is based on years of contribution and last ten years' earnings.
c. Workers with fewer than 150 weeks of contributions are not eligible for a recognition bond.
d. Only workers who have contributed for at least 48 months in the last 10 years and have at least 6 months prior to entering the new system.
e. Disclosure of expected current and future fiscal costs would be made on an annual basis.
f. MPG introduced with second round of reforms in 1995, but regulations have not yet been issued.
g. This is paid by the employer.
h. Social Quota indexed to the CPI and estimated between 1 and 5.5 percent depending on worker's income and on average equivalent to 2.2 % of wages.
i. The rate shown is for both private and public sector and for 1996 and following years. Contribution rate increased gradually during 1994-96.
j. Different methodologies used. Source for Colombia and Chile is Schmidt-Hebbel, 1995 (page 58) ; for Peru is Kane and Palacios, 1996 (page 38).
Sources: World Bank, 1994 (page 277); Díaz Ortega, 1996; and World Bank internal documents.

Benefits to transition workers: old age and disability. Transition workers will choose benefits under the PAYG system if the accumulated balances in their individual retirement accounts (in post-1997 AFORES retirement accounts and post-1997 INFONAVIT accounts) and the investment performance of these accounts are lower than the accrued benefits under the old PAYG system. The fiscal cost is the difference between the value of the accrued benefits under the old PAYG and the value of the accumulated balances in the worker's post 1997 individual account at retirement. This cost is uncertain. It depends on the contribution rate, the number of years transition workers contribute to the new system, the growth in real wages, and the rate of return achieved on fund investments. Under conservative assumptions (2 percent real wage growth, 3.5 percent real rate of return on AFORES and INFONAVIT accounts), the fiscal cost accounted for by these transition workers is expected to rise from 0.21 percent of GDP in 1997 to about 0.80 percent of GDP in 2025.

MPG to New Workers. This MPG is linked to the minimum wage of July, 1997 indexed to the CPI. As wage growth takes place the guarantee will gradually be reduced as a proportion of the average wage. Estimates of these costs are dependent on real wage growth and real investment performance as well as the number of workers entering the new system and the rate of inflation. It also depends on the distribution of workers within wage categories. The more workers earning close to the minimum wage, the more costly will be the guarantee. Currently, about 50% of the workers earn wages equal to or less than 2 times the minimum wage. The cost of the MPG to new workers is almost negligible in the earlier years, and increases to about 0.2% of GDP in 2025.

The real value of governmental guarantees to the transition generation will continue to be affected by inflation; since they will remain linked to minimum wage growth, their value would be lower with high inflation. Expected stabilization efforts will therefore increase the fiscal cost of the transition and induce a higher proportion of workers to opt for the old PAYG benefits rather than the benefits under the new system.

Social Quota and State Contributions. The uncertainty of this cost arises from the unknown number of workers opting for coverage under the reform. If pension funds are perceived as lucrative savings vehicles, many workers now in the informal sector may join the formal sector. The Social Quota, being indexed to the CPI, will decline as a percentage of wages through time as real-wage growth occurs. The cost of the Social Quota and State contributions is estimated at 0.33% of GDP in 1997 and is forecast to equal 0.20 percent of GDP in 2025 assuming a slight increase in coverage.

Estimated Total Fiscal Costs. The sum of the costs related to pension reform is estimated to be about 1% of GDP during the next 20 years (Table 10). The Mexican Government considers these results quite conservative, given the assumption of an average real rate of return of 3.5% for the AFORES.

Table 10. Total Estimated Fiscal Cost of Pension Reform in 1997-2025
(percent of GDP)

	1997	2015	2025
A. Pensions paid to pre 1997 Retirees	0.39	.09	0.03
B1. MPG to Transition Workers Without INFONAVIT)	0.21	0.70	0.80
(MPG to Transition Workers with INFONAVIT)	0.05	0.38	0.53
B2. MPG to New Workers	0	0	0.16
C. Social Quota and other Government Contributions	0.33	0.25	0.20
TOTAL (without INFONAVIT)	**0.93**	**1.04**	**1.19**
TOTAL (with INFONAVIT)	**0.77**	**0.72**	**0.92**

Source: SHCP.

On the methodology, two points should be noted: (i) the income distribution used in the model might underestimate the proportion of the population at the low-end of the distribution, and in turn, might underestimate fiscal costs. However, further analysis of this point provided by the SHCP, indicates that such underestimation would be no more than 10% of the fiscal cost; and (ii) fiscal costs might be sensitive to the evolution of minimum wages relative to the average wage. Under the projected scenarios the minimum wage decreases as a function of the average wage. Should they grow parallel under the projected scenarios the fiscal cost would be higher. However, preliminary calculations of this relation provided by the SHCP show that this cost would be at the most 5% of the total fiscal costs. Also, SHCP demonstrated that historically speaking the Mexican case illustrates that there is a poor correlation between the movement of the minimum wage and the average wage, and that minimum wages have shown a declining trend during the last 25 years.

Table 11 shows present value (PV) estimates of the flow projection of 1% of GDP during the next twenty years. The PV was calculated taking the flow of fiscal costs for the same period of time as the one used to calculate the PV of future pension deficits of 141.5% of GDP (Table 2) and discounting it with an average real discount rate of return of 3.5% (calculated as the difference between the nominal rate of return and the rate of inflation). Other financial assumptions were also consistent in both cases.

Table 11. Present Value (PV) of flow estimate of 1% of GDP (as % of GDP)			
Year	**PV Fiscal Cost**	**Year**	**PV Fiscal Costs**
1997	0.42	2011	0.61
1998	0.83	2012	0.60
1999	0.82	2013	0.59
2000	0.79	2014	0.58
2001	0.77	2015	0.58
2002	0.77	2016	0.57
2003	0.75	2017	0.56
2004	0.73	2018	0.55
2005	0.70	2019	0.54
2006	0.68	2020	0.54
2007	0.67	2021	0.53
2008	0.65	2022	0.53
2009	0.64	2023	0.52
2010	0.62	2024	0.52

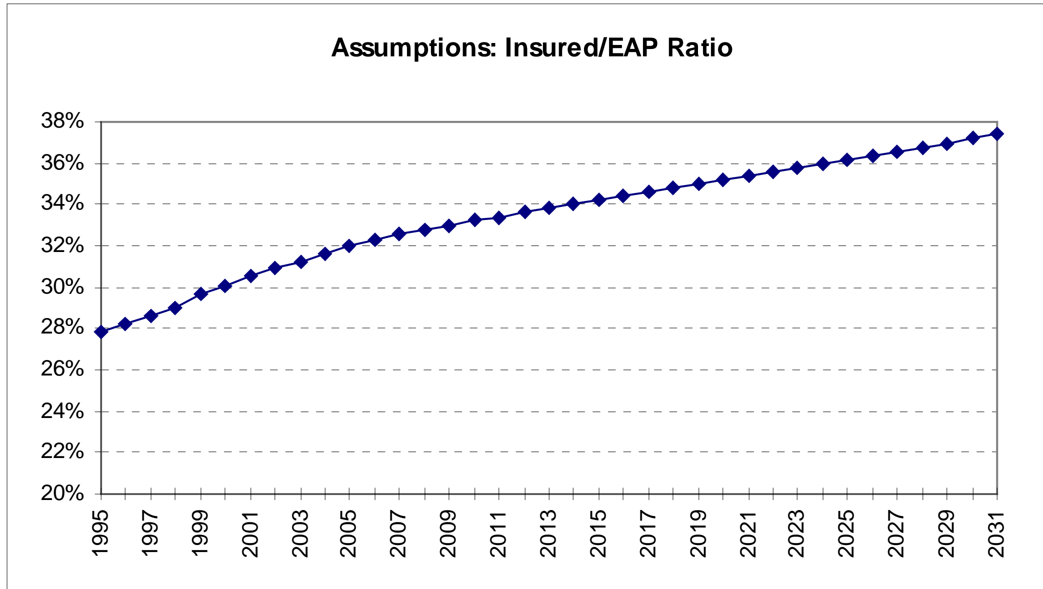
Source: SHCP.

The difference between this result and the 141.5% of GDP (in 1994) occurs because of the way the new law states that the Government will have to face the new systems' obligations as opposed to those of the old system. For instance, the new system includes new obligations such as the Social Quota, the new MPG indexed to prices as opposed to the old pension guarantee indexed to the minimum wage, and a redistribution of the former contributions to the system between the government, the worker and the employer. Another important difference has to do with the fact that pension contributions will go to individual accounts which will be capitalized at a market rate of return. As a result, fiscal costs are lower since workers who opt for benefits under the old PAYG system will have to surrender the accumulated balances in their individual accounts to the Government.

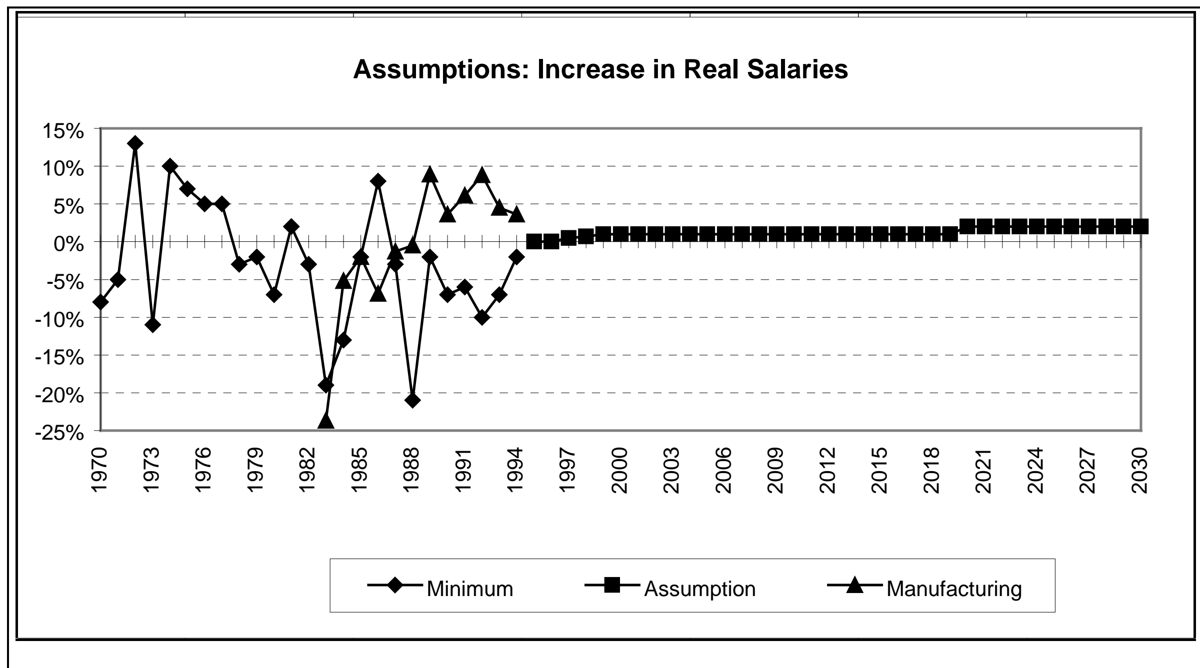
Fiscal Costs: Assumptions and Scenario Analysis

Estimating the size of contributing population. The first step in the estimation of the fiscal costs was to project the size of the future population which would enroll in the IMSS scheme. IMSS does not publish this information and demographic projections prepared recently by the Luis Donaldo Colosio Foundation were used. These projections show that, in the long run, the population affiliated to the IMSS as a proportion of economically active population (EAP) would grow from 28% to 38% by 2031.

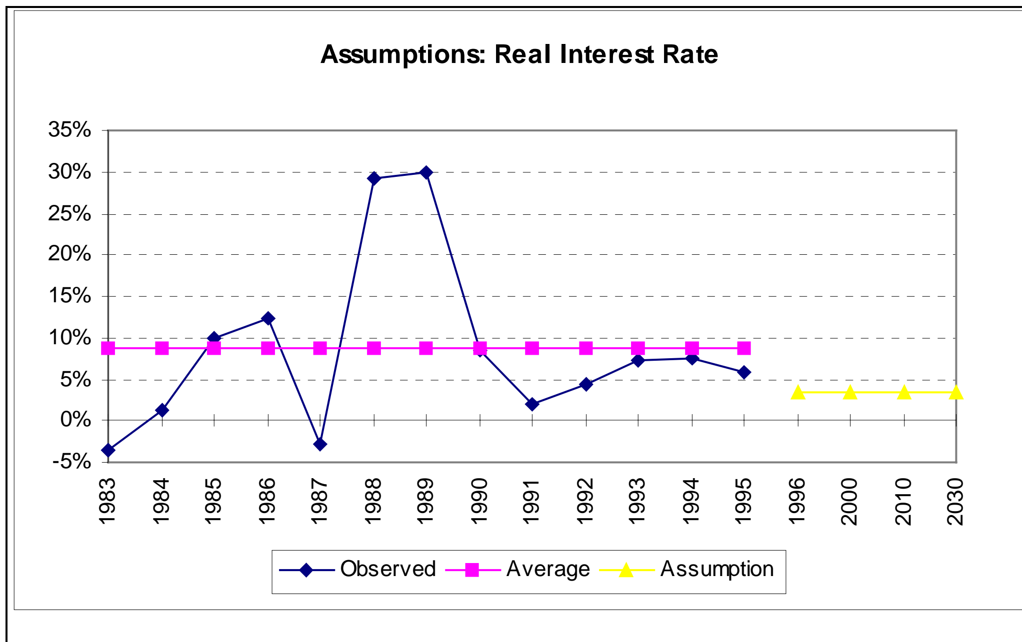
The second step was to determine the contributors´ age distribution. For the transition population this was obtained using the IMSS tables of number of affiliates (1982-1993) broken down by age. The proportion by chronological age was established by applying moving averages to the 1982-1993 data, which show very small year-to-year variation. For new entrants, IMSS' *Age Frequency Table* for new affiliates was used which shows that entrants are predominantly under 30 years old. The age distribution of the contributing population will change as function of new entrants' age. Entrants' age distribution is assumed to be the same throughout the projection period.

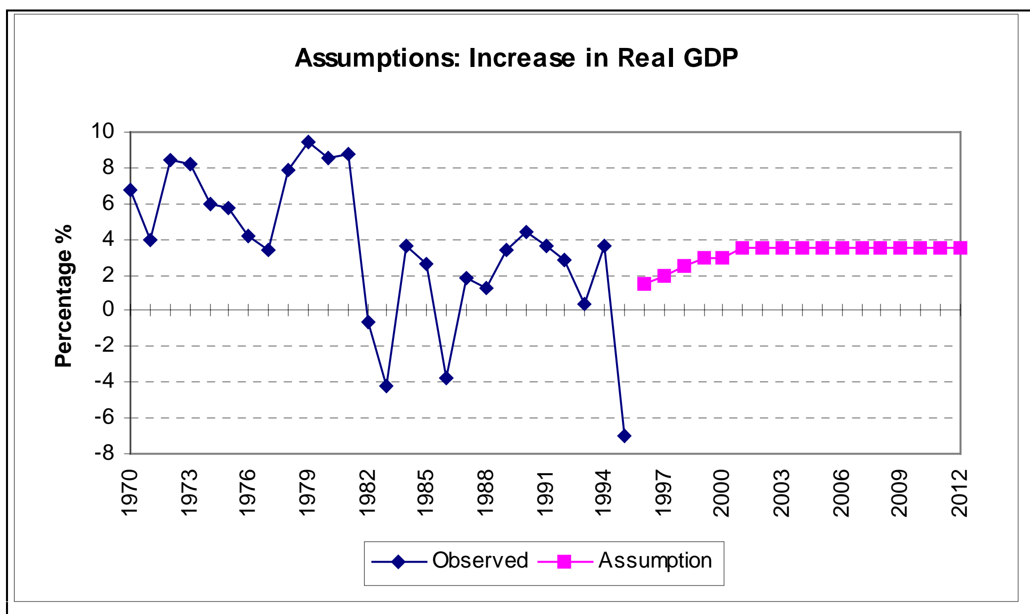


Estimating workers' salaries. The wage of a person of a given age was determined by using the data for average salary history, i.e. the average age/salary couplets recorded by the IMSS for a given year. These amounts are expressed as a multiple of the minimum wage. The available data comprised the salary histories reported for 15 years (1977-86 and 1990-94). To these observations a curve was fitted using a polynomial to describe the average salary history of IMSS members. Average salary history expressed as a multiple of the minimum wage is constant throughout the projection period but it is assumed that the minimum wage rises in real terms.



Financial hypotheses. The *real interest rate* was assumed to be 3.5% throughout the projection period. Assumption on returns are quite conservative given that the average real interest rate between 1983-1995 in Mexico was almost 9%. For sensitivity purposes, an even lower real interest rate (2%) was used for a number of scenarios. Lower returns mean lower savings in an individual's account and a higher probability of choosing benefits under the old PAYG scheme or requiring the MPG from the State.





GDP growth assumptions suggest a modest recovery for the next six years (less than projections made by the SHCP) to start with a conservative scenario. Growth after 2000 stabilizes below the rates observed during the 1970s.

Table 12. Growth Rates (Percent)		
Year	**Real GDP**	**Real Salaries**
1995	-7	0
1996	1.5	0
1997	2	0.5
1998	2.5	0.7
1999	3	1
2000	3	1
2001	3.5	1
......	......	......
2020	......	2
.....	......	......

Note: These assumptions are for modeling purposes only and can not be taken as official forecasts.

Recent observed data show an enormous variance the *real growth of wages*. In addition, minimum wages and wages resulting from bargaining between workers and firms (basic salary for contributions) have evolved differently in real terms since 1988. The best example of this are wages in manufacturing. As a result, different assumptions were made on real growth for the minimum wage and for contractual salaries. For contractual salaries, real growth rates are shown in the graph below.

For the *minimum wage* there are two series of assumptions on its evolution based on two inflation scenarios (Table 13).

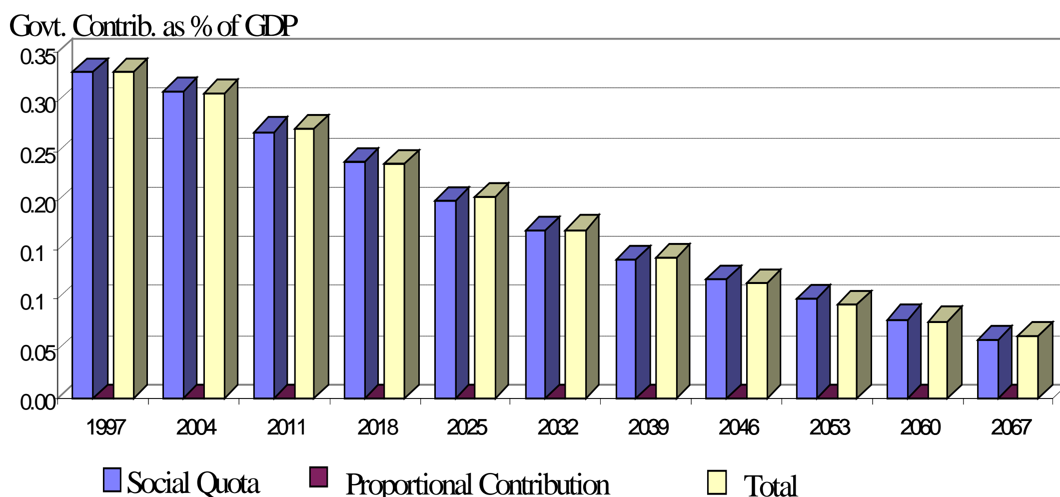
Table 13. Minimum Wage (Real Growth)		
Year	**Low Inflation**	**High Inflation**
1995	-21.05%	-21.05%
1996	-6.15%	-15.86%
1997	-3.28%	-9.42%
1998	-0.86%	-3.85%
1999	-0.89%	-3.25%
2000	-0.90%	-4.17%
2001	0.0%	-3.36%
2002	1.42%	-1.71%
2003	1.42%	0.45%
.....	......	......

Note: These assumptions are for modeling purposes only and can not be taken as official forecasts.

Inflation is especially important for the old PAYG system, since those pensions were computed taking the average of a worker's nominal wages in the previous 5 years. In a high inflation environment we can expect the fiscal costs arising from the recognition of acquired rights to fall (Table 14).

IMSS data shows *contribution density* for its affiliates is on average 0.83 (i.e., for each period of time the effective contribution period is only 83%). Years of service and contributions are affected in the model by this density factor.

Table 14. Inflation Assumptions		
Year	Low Inflation	High Inflation



Finally, regarding *operational costs*, the AFORES will be private firms whose only source of income will be commissions charged to their affiliates. Experience in Chile and Peru indicates that commissions (excluding disability insurance premiums) can reach up to 2% of workers' wages. Therefore, we have assumed that commissions charged by the AFORES to the workers will be equivalent to 2% of covered wages. This amount will not accumulate in the individual account.

Government contributions to the pension scheme. The contributions that the Government is required by law to make to the new pensions scheme are as follows:

Table 15: Government Contributions Retirement, and Involuntary Unemployment in Old Age
Social quota per worker: 5.5% of 1 minimum salary as of December 31, 1996, indexed to the CPI. *Proportional quota*: 0.425% of the worker's salary.
Disability and Death
Proportional quota: 0.125% of the worker's salary.

The social quota is the largest cost item among government contributions to the new pensions system. Its cost will be close to 0.3% of GDP in 1997 and will remain steady at that level during the first nine years of the reform. Later, it will decline as a result of GDP growth, which will predominate over that of growth in number of workers. The following graph depicts how total cost practically coincides with the cost of the social quota since the level of prorated contributions cost are minimal.

Transition workers. The transition group comprises three categories of workers:

1. All workers that at the effective date of the reform (September 1, 1997) were active and therefore acquired rights during the effectiveness of the previous law.
1. Workers that contributed to the IMSS at some time but were not active at the effective date of the reform and may later begin to contribute again.
2. Workers that were receiving an IMSS pension prior to September 1, 1997.

As discussed earlier, upon retirement workers in categories 1 and 2 may choose between the benefits under the old PAYG system and the pension benefits accumulated under the individual accounts. In the model, workers compare the net present value of each flow of payments (PAYG pension vs. benefits deriving from accumulated balances) and choose the highest[6].

Current pensioners. Pensions in course of payment will be deemed to mean those being paid by the IMSS up to December 31, 1996. Beginning when the IMSS's reserves are exhausted, which will happen during the second year, the government will assume responsibility for financing them. The margin of reliability of these estimates is all the greater in that:

- This is a closed group, i.e. its population does not grow over time;
- The number of pensioners and the amount of their pensions at the end of 1995 is known and it is necessary to estimate only the number of persons that will take this pension up to September 1, 1997. By 1995 its cost was close to 0.4% of GDP;
- These workers are not affected by the interest rate since they lack individual accounts and their pensions are funded entirely out of fiscal resources.

The estimates are, however, affected by the real growth in the minimum wage since by law their pensions have to be indexed to this variable. Since this is a closed group with an average age higher than that of categories 1 and 2, their population will disappear after 2-3 decades.

Role of the housing sub-account (INFONAVIT). Contributions to the housing sub-account, (5% of the worker's salary with a ceiling of 10 times the minimum wage) are managed by INFONAVIT. INFONAVIT operates a points system to determine which contributors are entitled to apply for a housing loan. For loan beneficiaries, the savings on this sub-account are used as a down payment to acquire a dwelling and they will be required to repay the rest of the loan through deductions from their salaries and future employer contributions. This means that there may well be workers who at the time they go on pension have a zero balance on this Sub-account. Workers who do not receive a loan are entitled to withdraw the balance of the housing Sub-account at the time they take their pension. Prior to 1992 INFONAVIT paid highly negative real rates to these funds; since the 1992 reforms, however, it has been able to offer real rates close to zero. As the 1992 reforms and additional actions to improve its financial performance are implemented, the housing sub-account resources are expected to earn a positive real return.

The decision to finance rights acquired under the old pensions scheme through the housing Sub-account is not available since a worker currently receives his or her IVCM (or working risks) pension **plus** the contributions to INFONAVIT. Nevertheless, the new CONSAR Law contains an article that establishes that contributions to INFONAVIT prior to September 1997 must be refunded to the worker, but INFONAVIT contributions from September 1997 onwards will be considered part of the individual account and must be surrendered to the State if benefits under the old pension system are chosen.

In view of all these facts transition costs for the transition population must be computed considering different scenarios (under low and high inflation scenarios):

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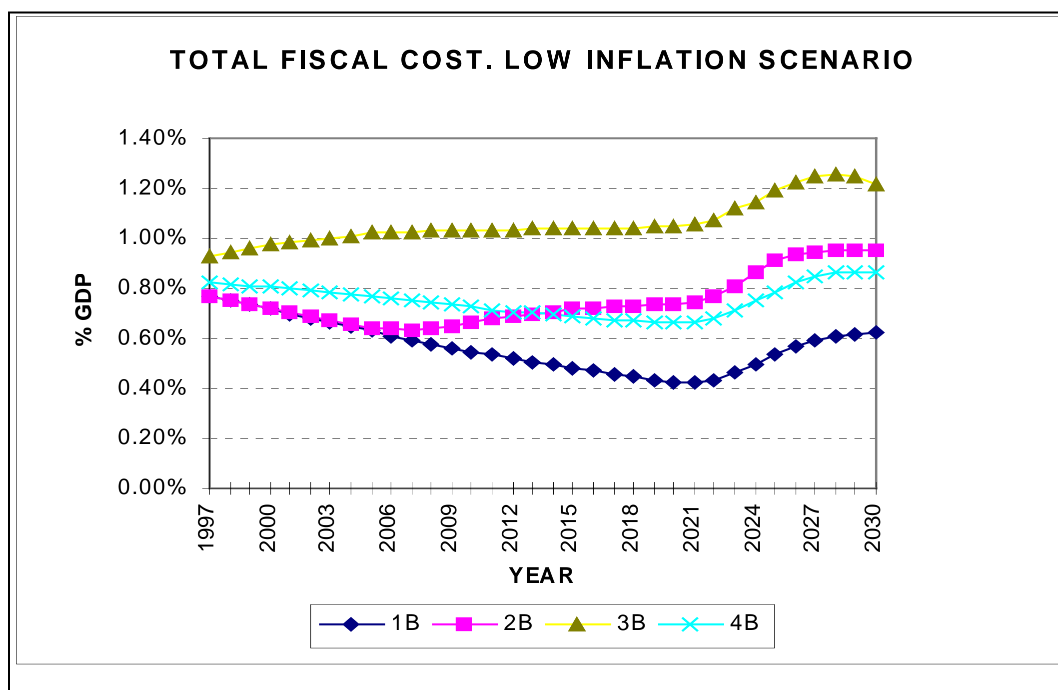
[6] Modeling workers with pre-reform acquired rights who currently are not contributing but that can return to the system is an area that lacks a proper actuarial model in Mexico. The IMSS has no model or estimated probabilities in this area

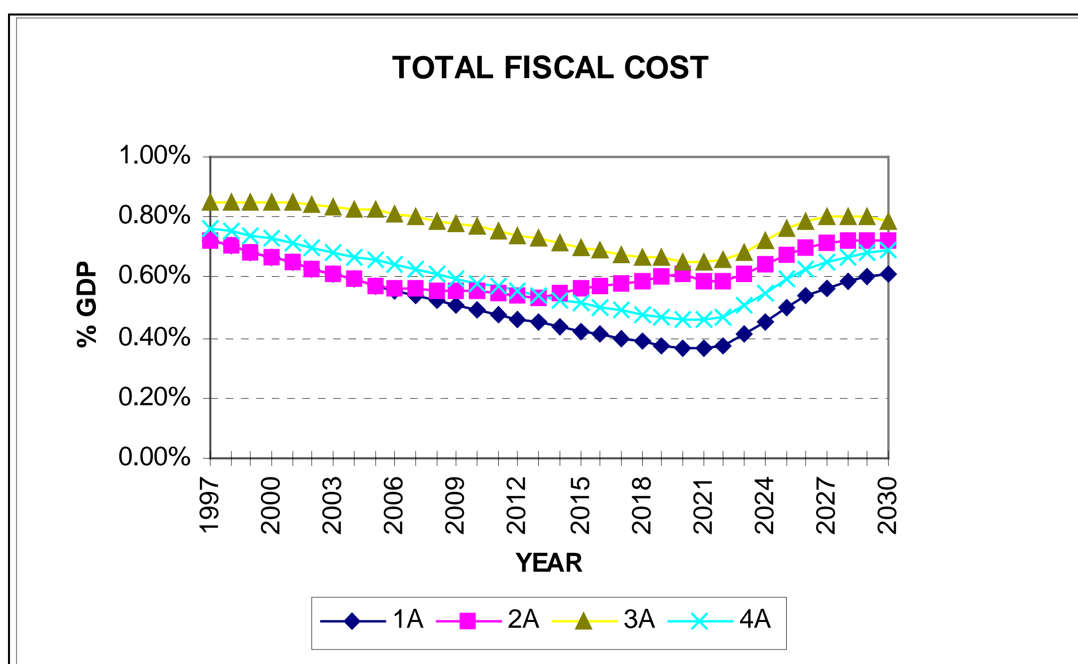
- *Scenario 1*.- INFONAVIT funds can be used to finance acquired rights. From 1997 to 2004 these funds receive a 0% real return and a 3.5% real return from 2005. AFORES' real return is 3.5%.
- *Scenario 2*.- INFONAVIT funds can be used to finance acquired rights. Nevertheless, these funds receive a 0% real return throughout the projection period. AFORES' real return is 3.5%.
- *Scenario 3*.- INFONAVIT funds can not be used to finance acquired rights. AFORES' real return is 3.5%. Since new generations do not have acquired rights on INFONAVIT funds, this scenario does not apply to them. For presentation purposes for them we will include the results from scenario 1 (the MPG) on tables belonging to scenario 3 for transition population.
- *Scenario 4*.- INFONAVIT funds can be used to finance acquired rights. Nevertheless, these funds receive a 0% real return between 1997-2004 and 2% after 2004. AFORES' real return is 2.0%.

Fiscal cost of recognizing acquired rights. This simulation does not assume a fixed contribution period for transition workers. The length of the contribution period for a worker depends on the probabilities of pensioning (having an accident or retiring). In consequence, some workers will leave the system earlier if they suffer an accident. Having reached the age of 60, probabilities of retirement become positive, nevertheless there will be workers still active even if they are 65 or older. Currently, IMSS' pensioners show an average contribution period of 22 years, so, applying current probabilities our transition population will have the same average period of contributions (some under the Old and some under the New Law, depending on the worker's age).

Results of scenario analysis. The fiscal costs of reform of the Social Security Law, for selected years and 8 scenarios (under the 4 INFONAVIT scenarios and under low and high inflation environments), are summarized in the following two graphs. Ongoing pensions (PCP) are very sensitive to the assumed inflation environment and more specifically to real increases in the minimum wage since these pensions are indexed to it according the old Law. Under low inflation assumptions (Projections Series B), ongoing pension costs represent 0.39% of 1997 GDP. By 2030 ongoing pensions decrease to 0.015% of GDP.



Assuming high inflation (Projections Series A), hence negative real growth in minimum wages, ongoing pension costs decreases to 0.35% of 1997 GDP. By 2030 it represents only 0.014% of GDP.



V. KEY CHALLENGES TO THE REFORMED SYSTEM

Mexico's pension reform strategy aims at:

- increasing the equity, efficiency, and sustainability of the old age security system and gradually lead to greater effective coverage;
- establishing a financially viable pension system;
- limiting the fiscal impact of the current pension system and ensure transparency of the fiscal costs of the transition;
- enhancing financial market development and reducing volatility by stimulating greater private financial intermediation and increasing the array of financial instruments and contracts available; and
- contributing to enhance the allocative efficiency of domestic and , in the longer-term, to raising aggregate savings.

Full realization of the objectives of the reform and the potential positive impact on savings hinge on addressing a number of concerns relating to the correction of design limitations as well as confronting implementation challenges.

Correcting Design Limitations[7]

A number of concerns relating to the basic design of the reform have been raised. While it is understood that these limitations could not be addressed prior to the beginning of the reform, they are

[7] This section incorporates on-going work by Hemant Shah (Shah, 1996) and suggestions by Dimitri Vittas, Estelle James, and Guillermo Perry from the World Bank.

highlighted here to stress that corrective measures should be considered at the earliest opportunity. There appear to be six main limitations in the current design of the reform.

Expansion of the reform to public sector workers. No changes are being currently contemplated in the ISSSTE, PEMEX, other parastatals, armed forces, and the state pension plans. Hence, the portability constraint across private and public sector workers' pension plans will remain for now an issue along with the financial disequilibrium to be faced in the future by these pension funds. Also, the partial character of the reform limits its potential positive savings impact. The primary reason for the partial reform has been limited political consensus. The successful introduction of the defined contribution scheme for the private sector employees is likely to push all the unfunded state employee pension plans in the same direction.

The Lifetime switch option and contingent fiscal costs. Overall, expected fiscal costs are lower than in other Latin American reforms. However, the variance seems much greater. As a result, some of the benefits of making fiscal costs explicit could potentially be lost in the Mexican reform. In particular, pension reform experts have strongly suggested that the Mexican government should have issued recognition bonds based on three main criticism of the current design:

- *Moral hazard concerns*. The first critique is that older workers will choose benefits under the old pension scheme, notwithstanding how much they save. This creates a moral hazard drawback by which workers getting close to retirement will tend to prefer high risk investments. This concern underscores the need for strong and flexible investment management regulations for pension funds.
- *Inter-generational equity.* A second critique has been that the lifetime switch option may lead to an unfair treatment of the transition generations compared to the issuance of recognition bonds. In countries which opted for recognition bonds or compensatory pensions the transition generation at retirement gets both the value of the bond and the accumulated balances in the individual account, while in the Mexican system the worker choosing the new system will only get the accumulated balances. Nonetheless, under the new Mexican system it is guaranteed that everyone will do at least as well as they would have done under the old system, and they have the possibility of doing even better[8].
- *Fiscal risks and implications on the sustainability of the reform.* Third, on the fiscal side, the Mexican plan is more risky than the approach followed in other Latin American countries because the Government's liability is uncertain. Public pension debt accrued on account of the liabilities corresponding to the transition generation is not accurately measured, nor is it completely provided for. There is no individual calculation of actuarial reserves demanded as it has been done with the

[8] To compare the inter-generational equity and the fiscal costs of the lifetime switch to the recognition bond calculation, assume that for a Mexican worker the MPG at retirement is 100 as calculated under the old PAYG both pre and post-reform. If at retirement the worker has accumulated 101 in the individual accounts (AFORES + INFONAVIT) he will choose the benefits under the new system and the Government saves the pension benefits which the worker had accrued during the pre-reform period. If the worker has accumulated only 60 in the individual accounts he will choose the benefits under the old PAYG (100) - but the Government pays only 40, i.e. the difference between the individual accumulated balances and the accrued benefits under the PAYG system both pre and post-reform. In both scenarios the Mexican transition worker gets at least as much as he would have accrued if he had continued contributing to the old PAYG. In the first scenario, a comparable Chilean worker - who at the time of the reform had 40 in accrued benefits - would get 141 (of which 40 in recognition bonds plus 101 from AFPs) but the Government would still have to pay the 40 in accrued benefits. In the second scenario, the Chilean worker gets 100 - the same as the Mexican worker - of which 40 in recognition bonds plus 60 from AFPs.

scheme of recognition bonds employed in other pension reforms (Chile and Colombia). Mexican fiscal costs, as compared to Chile's, for example, could be (i) higher, if returns on individual contributions (AFORES + INFONAVIT) are not high enough to ensure that a large number of transition workers choose, at retirement, the new system rather than the accrued benefits under the old PAYG, but could be (ii) lower, because Mexico is saving the cost of recognition bonds if the market value at retirement of individual accumulated balances exceeds accrued benefits under the old PAYG system.

The Government's daily Social Quota partially recognizes the Government's potential liability. However, the potential fiscal burden could be further reduced by funding this expected liability separately and collectively rather than through the social quota, which subsidizes even workers who would have in any event retired above the minimum pension.

Implications of the failure to restructure the PAYG system. The Government did not restructure the current PAYG system as part of the 1997 reform. Because the reform program allows for a lifetime switch between the old and new system for every transition worker, what happens to the benefits under the old system becomes a very important parameter of the program. The failure to restructure the old system reflects the political realities of Mexico, but the old system continues to be a nominal system with many structural weaknesses that make the results of the reform program very sensitive to the future rate of inflation.

The choice of benefits, as well as its fiscal cost, will depend on variables such as inflation, the real return on transition workers' post-1997 contributions and the real rate of growth of the minimum wage. Higher inflation will lead to less people choosing the former pension, since it was computed from the retiring worker's average nominal wage. Higher earnings and rates of return will lead to higher individual savings and higher pensions under the new law. Should real returns be higher than expected, more transition workers will take their benefits under the new program, thereby reducing fiscal costs.

For transition workers, the minimum guarantee is grandfathered from the old system, because of legal constraints related to acquired rights. For them, the minimum guarantee continues to be: (i) based on an average of their last 5 years' nominal wages, or (ii) equal to the minimum wage at their point of retirement, indexed to the minimum wage thereafter - whichever is higher. If inflation becomes very low, the first clause will be operative and the fiscal costs could be large. If inflation is high the second clause is operative, as it is now for 80% of retirees. In this case, all transition workers would be entitled to 38% of the average wage, indexed to (minimum) wage growth-still a high guarantee. It will be even higher if the minimum wage is raised faster than the average wage. This is very likely because the minimum is now at a historical low relative to the average and political pressure from workers and prospective pensioners could easily push it up to 50 or 60% of average. This would have immediate fiscal implications and might compromise the long-run sustainability of the reform. Notwithstanding this warning, it should be noted that as a result of the appropriateness of the timing of the reform, the estimated fiscal costs are so low that even if there are setbacks to the reform program as a result of design limitation, the fiscal costs arising from the pension system reform are expected to remain below 2% of GDP per year.

Limited funding of AFORES and the role of INFONAVIT. AFORES will manage, in individual accounts, between 7.5 and 12% of workers' salaries, depending on salary level, before fees

and commissions. Fees and costs are currently approximately 2% of salary, leaving at most 5.5-10% in the AFORES investment accounts. This amount itself is insufficient for a reasonable retirement pension for most workers. The rest would have to come from the housing fund contribution (5%) managed by INFONAVIT. Hence, under the reform, contributions to INFONAVIT will represent between 30 and 40 % of total contributions to pension accounts. It is critical that INFONAVIT earn a positive real rate of return, assuring better pension benefits for workers and reducing the fiscal costs of the reform.

The ramifications of INFONAVIT not earning positive real rates of return include: (i) higher fiscal costs as a poor financial performance by INFONAVIT lowers total returns on individual accounts and increases the probability that younger transition workers will choose the old PAYG over the new system or that the Government will have to provide for a MPG for new workers; and (ii) the loss of potential retirement income by workers just entering the new system which could lead to continued evasion.

Impact of Administrative Costs[9]. In Mexico, each AFORE has selected its own approach to the setting of commissions, since the government does not regulate the level nor the form of commissions. Commissions charged by Mexican pension managers are currently in line with, or slightly lower than, those computed for defined contribution plans in other Latin American countries. In the near future there will be pressure to reduce these commissions, in order to boost investment returns on pension contributions. Better returns are imperative to reduce fiscal costs for transition workers and to improve retirement benefits for new workers to a level above the government minimum guarantee.

The typical pattern is for the AFORE to charge a one-time up front fee; in fact, 7 of the 17 plans have imposed a frontload charge averaging 1.67% of covered pay. But as Table 2 shows, another 7 plans impose both a one-time pay-based charge totaling 1.27% of pay and an additional annual 1.03% of assets. The remaining three plans charged either an annual percent of assets alone (4.75%), a fraction of annual real returns alone (33%), or a commission levied on both contribution amounts and returns. It should be noted that these commissions correspond to first-year rates only. In most cases, the pension plans indicate that they will reduce commissions charged to participants who remain in that AFORE for a longer period of time. The declining commission pattern is intended to discourage workers from moving their money into a new AFORE, as soon as cross-fund transfers are permitted in September 1998 for the first time.

[9] This section is based on on-going work by Olivia Mitchell (The Wharton School) financed by the World Bank.

The data presented compares administrative cost figures for the Mexican pension commissions (affiliate-weighted) expressed as a single, one-time, front load, with those of four other Latin nations..

Table 16
Commission Structures in Five Latin American Defined Contribution Pension Systems

Country	% of Cov. Pay
Argentina	2.410
Chile	2.291
Peru	2.294
Uruguay	2.070
Mexico	**1.919**
Simple Av.	*2.197*

Source: CONSAR (1997), p. 19-20.
Note: Mexican data affiliate-weighted as of 1 April 1997
All computations assume commission is a 1-time frontloaded fee.

Another challenge to the Mexican reform lying in the months ahead is the problem of AFORE agents aiming at “switching” affiliates among AFOREs. In Chile, Argentina, and other countries, prevailing fee regulations induce “armies” of AFP agents, a torrent of account transfers, and a considerable increase in operation costs.

Moral hazard concerns. All privately run pension systems with mandatory contributions suffer from some general moral hazard. However, the Mexican reform may induce two additional sources of moral hazard. First, the government guarantees a MPG irrespective of the aggressiveness of the investment strategy chosen by the workers. This could encourage near-retirement workers whose investments have significantly under-performed to "bet the bank" at the government’s expense. This effect is compounded by the lack of a minimum return requirement. Second, the implications of the life time switch option. Nevertheless, these sources of moral hazard are mitigated by three factors: (i) the majority of transition workers (65 %) are under 32 years of age; (ii) workers will have their own individual retirement accounts as opposed to a hypothetical Government guarantee; and (iii) initially the investment regime will be quite restrictive.

Confronting Implementation Challenges

On the implementation side, the key challenges ahead to realize the full potential of the 1997 reforms include:

- *ensuring a flexible regulatory and supervisory framework with strong enforcement capacity by CONSAR to* protect the pension rights of participants in the mandatory system while ensuring adequate rates of return;
- *ensuring a smooth and efficient operation of new centralized system for collection, individualization of accounts, and record-keeping;*
- *implementing parallel financial sector reforms* to ensure an adequate supply of quality financial assets available for pension fund investment; and
- *building public support and confidence in the new pension system* so as to avoid evasion and attract informal workers.

Supervision and enforcement: strengthening CONSAR

Regulatory challenges[10]. Regulation of pension funds will have major consequences for the success of the reform and for its impact on savings in the long term. Though justifiable as initial conditions or explained by the fragility of the financial sector and political constraints, some features of the initial regulatory framework may limit the most productive long term investments and/or require more flexibility as the system evolves.

There is an initial emphasis on the exclusive and specialized investment management by AFORES, under strict regulation by CONSAR, which seeks to insulate the reformed pension system from existing weaknesses in the financial sector. This limits the entry of other potential providers (like mutual fund managers) and restricts the range of available pension and insurance products into the business of managing mandated retirement savings. It also creates an artificial separation from voluntary retirement savings management which are already sizable, and available for the same general purpose. The potential long term impacts of these restrictions are reduced risk-return possibilities and containment of the expansion of the saving culture. There are also several major restrictions on investment available to AFORES which will not be beneficial in the long run neither workers, nor for national savings. Major examples are the prohibition of investment in foreign assets and in equities. The critical variable will be the flexibility of the system in eliminating these restrictions to respond to changing conditions and the growth of fund assets.

Supervision and enforcement. The Pension Systems Law pointedly did not adopt the governance and supervisory framework applicable to Mexico's mutual fund industry. Legislators and the administration felt that since a handful of financial groups control the bulk of the Mexican banking, securities and mutual funds industries, the legal regulatory framework for a mandatory contribution system should impose stricter rules for independent decision-making and avoidance of conflicts of interest. A strong CONSAR with ample authority and human and other resources necessary to supervise and enforce compliance was essential.

From the outset, the Government has recognized the need for a strong regulatory authority for the pension system, with both the legal authority and the human and other resources required to assure compliance with law and regulations. The Pension Systems Law grants CONSAR broad powers to set and enforce rules and standards for all aspects of the operation of the reformed pension system. CONSAR has full supervisory authority over AFORES and SIEFORES, as well as supervisory authority over other participants in the pension system (such as banks and insurance companies) to the extent that the activities of such entities involve the pension system..

CONSAR has prepared an institutional development plan to provide itself with the resources commensurate with its new responsibilities. The annual budget of the CONSAR is expected to increase substantially. Over the next eighteen months, the plan envisages the installation of a new computer system, a substantial increase in staff, public education programs, the upgrading of key systems and the training of personnel. Two-thirds of the new staff will be mid- and high-level personnel. The annual budget at CONSAR is expected to increase by approximately 60%. The priorities of the plan in the areas of systems and personnel include: development of actuarial standards and methodologies of analysis; implementation of on-site and off-site supervision programs; drafting of examination manuals

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[10] Based on on-going work at the World Bank by Hemant Shah and Mike Lubrano.

and training of examiners; implementation of systems and software to monitor trading activity and detect irregularities; development of methodologies for measuring risk and assessing the effectiveness of private securities ratings; installation of systems and preparation of staff to produce a regularly issued statistical bulletin providing key data on the performance of the pension system.

Operation of new centralized system for collection and individualization of accounts

Mexico has decided to follow a centralized scheme for contributions collection and information gathering. Despite its theoretical advantages, the Argentinean experience has shown that this kind of scheme might lead to operation and incentive problems. The Mexican version of this process faced a critical problem in the worker's ID number - which was one of the key factors behind the failure of the SAR 1992 reform. There are other risks present in the Argentinean scheme that may appear in Mexico, increasing operation costs and reducing the workers' balances: delays in the flow of money and information due to excessive operations or identification problems in the national data base (*PROCESAR*) and inefficiencies in *PROCESAR* given that in the short run will face no competition.

The enactment by the Assembly on October 28, 1996 of legislation postponing the implementation of the social security reform from January 1 to July 1 for voluntary contributions (and September 1 for mandatory contributions), sought to address this concern. The reform was postponed for two main reasons: (a) the Government was not ready with the unique identification system, which is essential to avoid evasion, ghosting etc; and (b) the Government was not ready with systems for collection of contributions by IMSS and their transfer to the AFORES. These actions improved the design of the system and greatly lowered implementation risks. At that time, the Mexican authorities decided that it was necessary to install a more powerful system for individualization of accounts and to move towards a centralized and more reliable and accountable computer-oriented scheme for the payment of contributions.

The objectives of the integrated collection system are to guarantee the quality of the information in the individualized accounts; integrate collection of all social security payments (including INFONAVIT contributions) in a unique contribution payment system; facilitate payment by employers; and facilitate conciliation and control by social security institutions. In fact, in a fully funded DC system, information is as critical as the actual funds - a payments without the correct information will not be deposited in the workers' account. This required an efficient system with a high level of computerization and transparency.

Long Run Funds for a Thin Financial Market

A major justification for developing a fully funded pension system in Mexico was that it could contribute significantly to the development of the domestic financial system, which would increase the efficiency of the allocation of savings, both those generated domestically and those resulting from capital inflows. There are two aspects to financial system development. The first is increasing the diversity of financial institutions operating in the market, and the second is deepening the market for financial securities. The evidence shows that Mexico has relatively developed markets for government securities, but that its institutional structure is, like most other major markets in Latin America, bank dominated.

Successful development of Mexico's privately-managed mandatory pension system depends on the implementation of complementary financial market reforms. *Inter alia*, reforms to facilitate the development of an adequate supply of quality financial assets for pension funds to invest in.

Accordingly the Government has initiated a number of financial market modernization reforms, including: (i) efforts to strengthen the banking system; (ii) actions to address deficiencies in the regulatory and supervisory framework for mutual funds and voluntary pension plans; and (iii) actions to facilitate the deepening of the insurance market for the provision of life and disability insurance coverage and annuities.

The Mexican strategy of creating mutual funds to manage pension contributions is a necessary first step in developing broad markets for financial securities because these institutional investors will potentially be active traders of securities. The market also is of sufficient size to generate liquidity. The remaining challenge is to provide adequate incentives for the development of a diverse investor base for securities. This includes clarification of the legal standing of investors during borrower restructuring. In addition, investors must gain confidence that the accounts provided by issuers are sufficiently transparent to permit a meaningful evaluation of their financial prospects. Recognizing the importance of account transparency, the new Mexican Pension System Law allows pension funds to invest only in securities rated by well recognized private rating agencies and approved by CONSAR. This would provide incentives for borrowers wishing to access resources from pension funds to improve their accounting and disclosure standards.

As pension funds expand in Mexico, this will create opportunities to strengthen capital markets that are not available now. Mexico has several advantages over other Latin American countries. First, the market, with almost 90 million people, is far larger than any other Latin American country except Brazil. Second, many Mexican companies had access to U.S. and Euromarket capital markets before 1995. If these firms can return to these markets, international investors might provide the liquidity needed to prevent sharp drops in the price of securities that pension funds must sell when an issue's rating falls below that which is permissible.

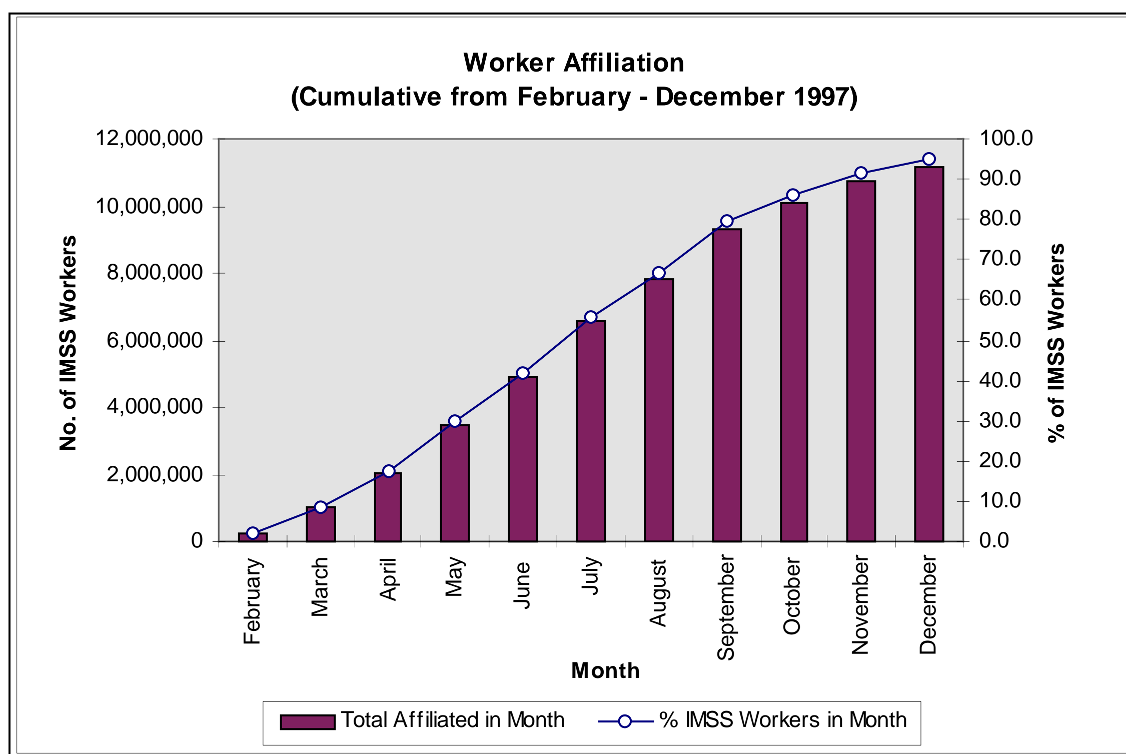
Creating mutual funds for pension investment is only a first step towards building deep capital markets in Mexico. The Mexican Government is undertaking reforms to encourage the development of credit performance records and to encourage improved supervisory procedures in the allocation of credit. It is also reforming the legal structure to protect bondholder rights in restructuring. As a further step toward the development of capital markets, the Government needs to encourage the development of private placement bond and long-term loan markets similar to those used by insurance companies in the U.S. and institutional investors in Japan. Developing an annuity market, while an important part of the overall strategy, will have a limited contribution in the near term because of the relatively young age structure of the population.

Navigating in a Sea of Skepticism

Prior to the initiation of the reform, there was concern regarding the lack of public confidence and the low level of financial sophistication across a broad spectrum of the population as key factors hindering the growth of institutional savings. This stems from a public perception that the government management of funds or provision of services has been both inefficient and often corrupt. The public is skeptical that contributions to government and private savings schemes will result in later benefits to them. Instead the public fears that contributions will be used for excessive public expenditures rather than for investment in economically viable and desirable public projects. Moreover, the proposed investment regime for the unique SIEFORE will not help to dissipate this perception, since most of the pension money will initially be invested in Government debt securities. In addition, government or

private savings schemes have often not defined individual accounts clearly, and the quality of information disclosed to individual savers has been poor, further reducing confidence.

To address these concerns, the Government has initiated a public awareness campaign to bolster support for the reform and to encourage participation in the new pension system. It should be also highlighted that there has been an extremely positive initial response to the new system - as demonstrated by the affiliation of over 95% of potential workers by December 1997.



CONCLUSIONS

The Mexican reformed pension system has a basic design which creates the potential for effective income security provision as well as protection against old age poverty, in a manner that is compatible with both savings accumulation and economic growth. The reform package established in 1995-96 provides the first real opportunity to shift the old pension system to a defined-contribution model and to expand and deepen domestic capital markets through the creation of a new class of institutional investors. This is a reality, although in the short-term the impact on capital markets will be limited by the need to give priority to the security of pension funds' investments.

The reform also provides for what is likely to be an irreversible shift toward private intermediation for the bulk of domestic investible funds. Private pension funds have the potential to become the single largest financial industry within a decade. Their efficiency and investment returns will profoundly affect the welfare of retirees, the savings rate, government finances, and the development of capital markets. Thus, further work in this area should focus on encouraging efficiency, economies of scale, and confidence. Moreover, IMSS will face important competition as a provider of social insurance services that will increase pressure for further reform of IMSS since failure to do so will lead to a greater role for private insurance companies

A key characteristic of the Mexican reform has been the appropriateness of its timing. The existing system has a very young age structure and great potential for an increase in coverage. Furthermore, it has taken place after the inflationary impact of the eighties and the recent financial crisis which eroded the absolute real value of old pensions, the acquired pension rights of the transition generation, and the minimum pension established at the minimum wage level. This means that, provided returns on the invested contributions are high enough, a significant part of the transition generation will opt for the defined contribution alternative over the benefits of the old PAYG. This would release the government from fiscal responsibilities arising from pension liabilities, other than the minimum pension guarantee for the new affiliates.

Mexico designed the new pension system within a difficult political and economic environment. The reform package established in 1995-96 represents a radical reform effort, notwithstanding the design limitations, particularly its limited scope to private sector workers, the continued role of the housing fund component, and the moral hazard implications of the life-time switch option. The critical challenges to ensure the longer-term success of the reformed pension system will be the technical capacity and political will of the supervisory agency to enforce the legal and regulatory framework and the flexibility of the system to adapt to changing circumstances.

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