Lessons for Asian Countries from Pension Reforms in Chile

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Abstract

Chile's 1981 reform revolutionized pension design and created a system that was lauded and emulated widely. The main feature of the system was the creation of state-mandated, privately managed individual pension capitalization accounts based on contributions of employees. After nearly three decades of experience, there is a reassessment of the extent to which the pension system has achieved its objectives, particularly with respect to coverage and adequacy. In March 2006, the newly elected President Bachelet set up a Presidential Advisory Council on Pension Reform under the chairmanship of Mario Marcel to evaluate the existing pension system. This paper examines the rationale and the nature of the recommendations made by the Council. The analysis focuses on the structure of the proposed new pension system and risk-sharing implications of different pillars of the system, the accessibility of the existing pension system in terms of coverage, particularly for women and self-employed persons, the impact of reform on transaction costs; investment policies and management and their implications for rates of return and financial market development. The implications of the new system on pension design and policy debate in Asian countries are addressed. The paper suggests that must imbibe lessons from countries such as Chile and urgently undertake the task of constructing sustainable, robust and adequate pension systems and social safety nets.

JEL Classification: H55; G23

*Keywords***:** *Chile, Asia, Pension Reform*

List of Abbreviations

AFP	*Administradoras de Fondo de Pensiones*	Pension Funds Administrators
APV	*Ahorro Voluntary Previsional*	Voluntary Savings Account
APVC	*Ahorro Previsional Voluntario Colectivo*	Collective Voluntary Pension Plans
CASEN	*Caracterización Socioeconómica Nacional*	National Survey of Socio-economic Characteristics
DB		Defined Benefit
DC		Defined Contribution
HLSS	*Historia al y Seguridad Social*	Household Survey of Social Security
INP	*Instituto de Normalización Previsional*	Institute of Social Security Normalisation
MIDEPLAN		Ministry of Planning, Government of Chile
MPG		Minimum Pension Guarantee
PASIS	*Pensión Asistencial de Ancianidad*	Pension Assistance Program
PAYGO		Pay-AS-You-Go
PBU	*Pensión básica universal*	Universal Basic Pension
PMAS	*Pensión máxima con aporte solidario*	Maximum Pension with Solidarity Contribution
SAFP	*Superintendencia de AFP*	Superintendency of Pension Fund Administrators
SPS	*Sistema de Pensiones Solidarias*	System of Solidarity Pensions
UF	*Unidades de Fomento*	Unit of Inflation indexing

1. Introduction

The main objectives of a pension system are to prevent a steep decline in earnings after retirement by facilitating consumption smoothing over the lifetime of an individual- the consumption smoothing objective; to ensure that individuals have adequate means to satisfy their accustomed needs in retirement- the income adequacy objective; and to ensure that consumption in old age does not fall below a minimum level- the poverty prevention objective[1]. A pension system should therefore provide adequate insurance against longevity and inflation risks[2], and incorporate survivors' benefits to avoid gender bias.

However, these objectives have to be weighed against economic growth, market efficiency and flexibility, and other priorities such as health, education, and infrastructure that may have legitimate claims on public resources.

A social security system, including a pension or provident fund, must perform five core functions in a professional and effective manner[3]. These are: reliable collection of contributions, taxes and other receipts, including any loan payments (in many provident and pension fund schemes, a member is permitted to borrow for housing, education or other purposes: but the loan needs to be repaid); payment of benefits for each of the schemes in a timely and correct way; securing financial management and productive investment of provident and pension fund assets; maintaining an effective communication network, including development of accurate data and record keeping mechanisms to support collection, payment and financial activities; and production of financial statements and reports that are tied to providing effective and reliable governance, fiduciary responsibility, transparency, and accountability.

Although no single idea or system can be considered appropriate for all countries, the World Bank's multi pillar (or tier) pension framework, though theoretically not perfect, may be useful in understanding different sources (or pillars) for retirement financing from

the perspectives of a nation and of households; and the risks involved in each pillar[4] (see Figure 1). Using a multi-tiered taxonomy, Chile has provided a three-tier social security system as part of a sweeping reform of the system that was undertaken in 1981. The reform of the Chilean pension system, which was initiated under General Pinochet's military regime, has probably been one of the most widely discussed reform programs in a non-Organization for Economic Cooperation and Development (OECD) country, and the most widely emulated in Latin America.

The pension system in Chile has two first pillar components: (1) the minimum pension guarantee (MPG) and (2) a means-tested social assistance pension designed to prevent old age poverty. Government mandated defined contribution individual retirement accounts form a second pillar to facilitate consumption smoothing; and a voluntary additional savings account forms a third pillar.

Chile's 1981 pension reforms have been extensively discussed in social security literature and have had considerable influence in policy debates. The reforms resulted in a switch from a Pay-As-You-Go (PAYGO) system to a privately managed contribution system, in which contributions were made only by employees. After nearly three decades of experience with the pension system, there is a reassessment of the extent to which it has achieved its objectives, particularly with respect to coverage and adequacy.

This was reflected in the decision of the newly elected President Bachelet to set up a Presidential Advisory Council on Pension Reform in March 2006 under the chairmanship of Mario Marcel. The Council was charged with the task of evaluating the existing pension system. The report of the Council (also referred to as the Marcel Commission), which was submitted in June 2006, drew extensively from the views of economists, industry and trade union organizations, businesses and pension experts.

The Marcel Commission report indicated that although there was no systemic crisis, the pension system in its existing form would not be able to meet the retirement needs of the people adequately or efficiently. The Commission recommended potentially far-reaching

changes in the overall philosophy, governance, design and investment policies of pension funds in Chile. Most of the Commission's recommendations were accepted by the government, and were constituted into a Pension Reform Bill.

In January 2008, the Congress approved the Pension Reform Bill, thereby completing the last step of the legislative process. In March 2008, President Bachelet signed the legislation establishing the new pension scheme. Benefits under the new scheme are scheduled to commence from July 1, 2008.

The pension reform initiative is the most important change to the existing pension system since its creation in 1981. The main objective of this study is to analyze the Marcel Commission report and its implications for pension reform in developing Asia[5]. The rest of the paper is organized as follows. An overview of the Chilean economy in Section 2 sets the context for analyzing pension reform. This is followed by an assessment of the existing pension system. Section 4 describes the main recommendations of the Marcel Commission Report. Finally, Section 5 highlights possible lessons for Asian countries from the Chilean pension reforms.

2. An Overview of the Chilean Economy

Chile has a market-oriented economy with a fairly large external sector. The pension reform process in Chile was initiated by a military regime in 1980, and deepened by various democratic governments that have held power since 1990. Chile has acquired a sound reputation for strong financial institutions and political stability that have given it one of the highest sovereign ratings in South America[6].

Tables 1 and 2 provide selected macroeconomic and demographic characteristics of the Chilean economy respectively. The following observations may be made on the basis of data in these tables.

- In 2007, Chile's GDP was USD162 billion, and its population was nearly 17 million. Its per capita income was therefore US$9948.5 in 2007.
- Almost 88 percent of Chile's population lives in urban areas.
- Indicators of longevity and mortality reveal relatively high human development: Chile was ranked 40 out of 177 countries in the 2007/08 Human Development Index published by the United Nations Development Program (UNDP)
- During the period 2005-07, real GDP grew at an average rate of about 4.9 percent, and consumer price inflation remained at an average rate of 4.7 percent.

The Central Bank of Chile, in its May 2008 monetary report, has projected real GDP growth of 4 to 5 percent in 2008 in view of recessionary trends in many countries of the world. Further, owing to higher oil prices and rising food prices, consumer price inflation is expected to reach an average of 6.9 percent in 2008, though inflation is expected to decline below 5 percent by December 2008.

Table 3 presents data on selected income distribution and poverty indicators of Chile for the period 1980-2000. Data suggest that since the 1990s, per capita income has more than trebled in US dollar terms, and there has been a significant reduction in poverty. Between 2003 and 2006, the poverty rate fell from over 18 percent to about 14 percent. However,

income inequality within Chilean society remains high: the richest 10 percent of households receive 45 percent of income; while the poorest 20 percent receive only about 3.8 percent of income. A key challenge for the government is to mitigate the extreme poverty that pervades some pockets, while continuing to improve overall standards of living.

Chile is the world's leading producer and exporter of copper. Estimates of the Central Bank of Chile indicate that copper exports contributed over 58 percent of total exports in 2007; followed by food, beverages, liquor and tobacco at 11.2 percent; basic metals and chemicals and machine and equipment at 9.3 percent; and forestry, furniture, paper, pulp, and publishing at 7.2 percent. It is expected that a rise in industrial exports in the future will increase the volume of non-copper exports relative to copper exports. In the past, Chile's economic fortunes were closely linked to the price of copper – which is the country's most important commodity export and its highest export-revenue generator. In order to hedge the exchange rate from copper-price volatility, the government, in recent years, has shifted a substantial part of copper revenues into dollar-denominated assets. As a result, despite record-high copper prices in 2005-06, peso appreciation has been manageable, and the real exchange rate has been fairly stable.

Chile's macroeconomic policy framework is based on the principles of a floating exchange rate, inflation targeting, and a mandated commitment to maintaining a fiscal surplus. In 2000, Chile adopted the fiscal surplus rule that requires the government to control the structural surplus[7]. This rule shields the economy from the repercussions of volatility in the price of copper, and allows it to use copper revenues in a prudent manner.

The extremely high copper prices in 2005 and 2006 left Chile with surpluses that substantially eased its fiscal position. The budget surpluses have allowed the Chilean government to make debt prepayments, and led to a significant increase in its assets from the copper revenues. Thus the government has become a net creditor, if recognition bond liabilities are excluded[8]. Chile's healthy fiscal position is likely to reduce external borrowing requirements, as well as provide considerable spending flexibility in the

medium term. In particular, Chile has been able to maintain its competitiveness and generate fiscal flexibility for social expenditure. Table 4 highlights selected fiscal indicators.

The level of the structural budget surplus to be targeted by the government from 2008 was reduced from 1 percent to 0.5 percent of GDP in May 2007. Estimates by the IMF indicate that the change increased available government resources by approximately USD 740 million on a permanent basis. A major proportion of the additional funds released have been earmarked for the education sector; and some portion for pension expenditure. The government has adopted several measures to improve effectiveness of public expenditure such as setting up of new agencies supervising public investment and education, and the introduction of a new fiscal transparency law.

In terms of economic and financial development, business environment, technological progress, and quality of life, Chile is often the highest ranked economy in Latin America. The IMD World Competitiveness Index Yearbook 2008, as well as the World Economic Forum, ranked Chile at 26th position in their indices; and Chile was ranked among the top ten countries of the world on indicators measuring monetary policies, fiscal policies, tax compliance and opening up of the economy.

The overall quality of governance and strength of institutional systems suggests that Chile is capable of achieving its target of raising long-term growth sufficiently to match the income levels of industrialized countries. In order to further develop Chile's strengths and reduce its vulnerabilities, the government has embarked on a structural reform program that encompasses sectors as diverse as education, pensions and the financial sector. Initiatives to improve education and innovation, and increase skill sets of Chile's labor force will be critical for enhancing human capital and raising future growth prospects. Financial market reforms aim to develop domestic capital markets, strengthen corporate governance and facilitate foreign investment, while improving the integration of Chilean financial markets with global markets.

The proposed pension reform is likely to be among the most significant components of the overall reform agenda. The new pension plan will retain the basic features of the present system, but will introduce features to increase pension coverage and equity. The government estimates that the overall cost of reform will not exceed one percent of GDP, an amount that Chile can afford in view of its strong fiscal position and stable macro-economic outlook.

Pension reform is expected to have a wide-ranging impact on the economy. While its chief goal is to create a social safety net for the poorest elderly, and thus reduce poverty and income inequality; the reform is also expected to further develop financial and capital markets. For instance, the proposed widening of investment options for pension fund administrators and increase in their foreign investment limits may spur competition in local markets, enhance asset quality held by members of pension funds and further integrate domestic markets with overseas markets.

3. An Assessment of the Chilean Pension System

Chile has always been a pioneer in setting up and reforming pension systems. In 1924, it was the first country in Latin America to set up a National Insurance System with the aim of providing insurance against old age, disability and death. The system became more complex in the following decades. By the late 1970s, Chile had a pension system organized on a Pay-As-You-Go (PAYGO) basis. However, the system was financially unsustainable, politicized and highly fragmented. In 1979, there were about 35 schemes or "*cajas*" within the system with vastly different conditions of participation and entitlement. The system was subject to rampant abuse by political groups because benefits were decided through lobbying and political power, but paid out of a common pool. Thus early retirement became a popular election "promise"; with some *cajas*, such as those covering bank employees, allowing generously funded retirement after just 25 years of service[9].

Demographic changes and greater unemployment had increased the fiscal burden of the system. For example, the ratio of contributing employees to retirees had declined from 12:1 in 1955 to 2.5:1 in 1979[10]. The viability of the system was also undermined by widespread social security evasion, as both workers and employers connived to contribute at the legal minimum rate for all except the last few years of the worker's active life, when the contributions were counted for pension purposes. This situation forced the State to raise contributions, which led to even greater evasion. The State's fiscal position worsened steadily under the burden of insufficiently-funded pension benefits, and by 1980, the PAYGO system had a fiscal deficit of 2.7 percent of GDP.

While the economic unviability of the public social security system was manifest, the political will to reform was not summoned until the military dictatorship of General Pinochet. In 1980, the public system was closed and replaced by a new private system that started functioning in May 1981.

All workers joining the force after January 1, 1983 were required to join the new system. Members of the old cajas-based system were given a choice: the existing cajas were merged into a single organization – Institute of Social Security Normalisation (Instituto de Normalización Previsional or INP), and workers had the option to remain with the INP. However, there were strong incentives for many workers to move to the new system. Accumulated contributions in the old system were protected by converting them into non-tradable Government-issued "recognition bonds" (*bonos de reconocimiento*) that would be made available to the worker on retirement. Many workers switched to the new system because it gave them an immediate increase in post-tax earnings[11]. The actual reasons may be debatable, but there was a widespread movement from the INP to the AFP (the new Pension Fund Administrators) based pension system. In 1987, only about 21 percent of those who contributed to either the old or the new pension system were members of the old system, but by 1990, that figure had declined to less than 16 percent (CBO, 1999).

In 1981, even in the most advanced countries, social security was provided through partly or fully-public pension systems. Thus Chile's move to a fully privatized pension system revolutionized pension design and created a system that continues to be lauded and emulated. It should be stressed that Chile's 1981 reform long preceded its enthusiastic advocacy by the World Bank's 1994 report "Averting the Old Age Crisis". Thus, Chile's success cannot be traced to advice from the World Bank. A sociological discussion of the origin of ideas and advice that went into the 1981 reform is beyond the scope of this study[12].

3.1 Features of the Pension System

There are four key characteristics of the system: Defined Contribution (DC), non-defined benefits, individual pension accounts and private management of funds. The salient features of the system are outlined below:

(1) Individual Capitalization

Each worker has an individual pension account which commences at the start of his working life and accumulates his contributions till retirement. The retirement age is 65 years for men and 60 years for women; early retirement and withdrawal of pension is permitted only under certain conditions. Members of the pension system, also known as affiliates, have to mandatorily contribute 10 percent of their taxable earnings into this account every month[13]. Contributions made towards the pension account are tax free. Employers do not contribute towards employee pensions, thus creating an entirely self-financed contribution system. An additional 2-3 percent of salary is paid to cover administrative costs and premium payments for disability and survivors insurance[14]. All variables in the system (contributions and benefits) are measured in Unidades de Fomento (UFs) which is a monetary unit that automatically adjusts for inflation, thus ensuring that all flows are evaluated in real terms[15].

Members can voluntarily contribute an additional portion of their salary into their individual capitalization account. These contributions serve to enhance members' pensions by providing an additional avenue for savings, and also enable members to plan for early retirement. The extra contribution is tax-deductible, as long as it does not exceed 50 UF per month. These payments have the same tax advantages as the basic contribution and are not taken into account when deciding entitlement to the minimum pension.

Since August 1987, members have been permitted to save in a separate Voluntary Savings Account, also known as Account Two or the *Ahorro Voluntary Previsional* (APV) account. This account is independent of the individual capitalization account. Deposits can be made regularly or infrequently into the APV account, though withdrawals are limited to four times per year.

From 1st March 2002, Law Nº 19,768 came into force, which reformed the system for voluntary social security savings by extending the number of institutions allowed to handle it, and providing greater liquidity and higher tax benefits to savings in voluntary social security accounts. Members were permitted to opt for APV "deposits", or for deposits made in the savings plans offered by banks, life insurance companies and

managers of mutual funds, investment funds, housing funds or any institution authorized for this purpose[16].

The most important aspect of the 2002 law was that self-employed workers were given access to the benefits of voluntary savings accounts. From March 1, 2002, the tax incentives provided to Account Two holders were extended to self-employed persons[17] and members of the INP, in order to provide coverage to a larger proportion of workers, thus creating a voluntary pillar for most of the Chilean workforce. Liquidity of these accounts was improved by permitting advance non-pension withdrawals, though withdrawals made before retirement are considered as income in the year in which they take place and are subject to a special tax (except in the special case when a member transfers his voluntary account balance to his individual capitalization account).

Funds accumulated in the voluntary savings account are not considered in deciding the right to the state guarantee for minimum pension. AFPs were permitted to charge an annual percentage of the accumulated funds for managing Agreed Deposits and Voluntary Social Security Contributions as commission. This commission has fluctuated between 0.47 percent and 0.70 percent of accumulated funds in recent years.

Workers may have an agreement with their employers to deposit certain amounts into their individual capitalization account, either as a one-time fixed payment, a monthly percentage of income or a fixed monthly amount. Such deposits are independent of the mandatory and voluntary contributions, and are called agreed deposits. However, they are paid into the individual capitalization account and form part of the sub-total of voluntary contributions. Funds in the agreed deposit category are not considered as income for the worker, so that they are not taxable and are not considered in deciding entitlement to the state minimum pension. However, they are not freely available and can be withdrawn only at retirement.

As of December 2005, there were 1,478,029 voluntary savings accounts, with an average balance of 271,399 pesos[18] each. To put this number into perspective, it may be

compared with the 3,784,141 contributors to the system in that period, suggesting that the number of APV accounts was close to 40 percent of the number of contributors.

(2) Private management of funds

Funds flowing into the pension account are managed by one of several privately owned, public limited companies called *Administradoras de Fondo de Pensiones* (AFPs). AFPs are exclusively involved in management of pension funds: they collect contributions, invest them professionally and efficiently in accordance with prescribed regulations of maximizing returns, and administer and distribute benefits to affiliates. They also take out disability and survivors' insurance policies. AFPs receive a commission, usually paid directly as a percentage of affiliates' salary. These commissions currently vary between 1-2 percent of members' taxable earnings, and are paid out monthly.

An employee can choose and switch between AFPs, but frequent switching involves high costs[19]. Currently, there are six AFPs, of which the top three control over 70 percent of the market (Table 5).

AFPs are permitted to invest in both domestic and international markets, though stringent investment regulations continue to be in place. A *multifondos* or "multifunds" system was introduced in 2002 to provide greater diversification and profit-opportunities to affiliates. AFPs were required to offer five portfolio options with different risk-return combinations; the funds being differentiated by the percentage of equities and fixed-income securities that they may invest in. This reform recognizes that "members differ in age, in accumulation of savings, in aversion or predisposition to risk and in their horizon of time left for contributing and that they are therefore in positions to accept different degrees of risk when investing their savings"[20].

Table 6 shows the break-up of fund accumulations by fund type. It suggests that the majority of contributors prefer funds B and C, which are categorized as medium risk. Fund E (no equity investment) has the least participation, probably because it is the least risky and expected to generate the lowest returns. Fund C, with permitted equity investment in the range 15-40 percent appears to be the most popular across AFPs.

(3) Benefits

On retirement, the accumulated funds in an individual's account can be paid out in one of the following ways:

- Annuity – Members can use their individual account balances to purchase a life annuity from an insurance company. These annuities are inflation indexed (i.e denominated in UF) and provide survivorship benefits.
- Temporary income with deferred annuity – A portion of member funds can be transferred to an insurance company to purchase a deferred annuity, which provides a monthly income from a future date as stipulated in the purchase agreement. The remaining funds in the individual's account may be retained with the AFP in return for a monthly income until the period of commencement of the annuity income.
- Programmed withdrawal – Member can withdraw their savings over a period of time according to an actuarially determined schedule set by the Government.
- Programmed withdrawal with annuity - On retirement, a portion of member funds may be retained with the AFP for a period of time, during which a programmed pension would be paid out to the member. Simultaneously, the remaining accumulated funds would be transferred to an annuity provider, who would provide a life-time inflation indexed annuity. Thus the pensioner can obtain two kinds of pension benefits at the same time.

Early retirement is permitted if the account balance of a member allows him a pension equivalent to at least 70 percent of his average income for the past ten years and 150 percent of the minimum pension. This rule was imposed in August 2007 with a view to discourage early retirement and withdrawal from the system.

Unlike the old PAYGO system, benefits received under this system are uncertain or non-defined, and depend on factors such as the amount, frequency and continuity of contributions made into individual accounts, the returns earned on these contributions and the life-expectancy of the pensioner. The "recognition bonds" issued to members who switched from the old PAYGO system are also inflation indexed and earn an interest of 4

percent per annum, but are available only on retirement, disability or death[21] (Arenas de Mesa and Mesa-Lago, 2006).

(4) Regulation

The Superintendency of Pension Fund Administrators (SAFP) is the regulatory authority responsible for the oversight and control of the AFPs. The functions of the SAFP cover financial, actuarial, legal and administrative areas and its relationship with the Government is through the Ministry of Work and Social Security. The Superintendent of AFPs, appointed by the President of the Republic, is the Head of the Institution.[22]

3.2 System Statistics[23]

The AFPs and Insurance Companies paid pensions worth US$2.2 billion per year to 622 thousand people, while the INP paid US$1.55 billion to 813 thousand pensioners in the civilian[24] sector in August 2007. As Table 7 shows, two-thirds of these pensions were paid to retirees, though most were for early retirement. While there are about 7.9 million members in the AFP system, only about 4.3 million workers (54 percent) contribute regularly (mostly salaried employees). Those not contributing include the currently unemployed, unpaid family workers and employers, and the self-employed. In December 2007, the system had accumulated about US$111.03 billion (equivalent to 2.8 billion UF). AFPs have earned an average annual accumulated real yield of 10 percent over the period July 1981 to December 2007; so if a person started contributing in May 1981 and was still active today, three-quarters of his/her savings would come from yield. Table 8 shows basic trends in the AFP system since inception.

Pension reform has been credited with being a key reason for Chile's high economic growth[25]. However, the growth of pension funds was supported by improved policies in other areas and institutions: during 1981-2002, Chile implemented product market liberalization, and macro-economic stabilization and financial reforms, which pushed the average annual GDP growth to 4.6 percent in this period. Thus pension funds were put to good use by the government and regulatory authorities (Corbo, 2004).

When AFPs started accumulating contributions from workers in 1981, Chile had no capital markets worth mentioning, and all funds were invested in the banking sector or government securities. Gradually, as investment norms were liberalized and the capital markets developed (partly as a consequence of the availability of pension funds) the investment portfolio of AFPs diversified to include several instruments and markets. As of December 2007, only 7.8 percent of the AFP portfolio was invested in securities issued by the Government; 30.4 percent was invested in local banks; 35.6 percent abroad and 26.2 percent in shares and bonds of local companies.

Pension funds have made a significant contribution to Chile's economic development by harnessing savings and simultaneously enabling the growth of financial markets for efficient deployment of savings. Pension fund savings have become an important source of financing for the Government, for banks and for companies. Almost 100 percent of the financing of mortgage-backed securities for housing and bank bonds belongs to the pension funds; as does 45 percent of corporate bonds and 55 percent of government securities. Pension funds have contributed to financing Chile's main road and transport infrastructure projects and have invested in different sectors of the economy (Table 9).

A study by Corbo and Schmidt-Hebbel (2003) concluded that reform had resulted in significant financial deepening. They estimated that 31 to 46 percent of the increase in the ratio of financial assets to GDP (financial deepening) in 1981-2001 could be attributed to the reforms. Further, controlling for structural reform and other factors, 20 percent of the increase in Total Factor Productivity during that period was due to financial deepening. There appear to be strong links between pension reform and economic growth, transmitted through markets, stronger financial systems and larger savings and investment pool.

The Chilean reforms have been lauded as a far-sighted initiative that attempted to correct the consequences of running an unfunded social security system with rapidly growing obligations. The pension reforms made an important contribution to restoring equity in

social security burdens and benefits, improving fiscal discipline, increasing the growth of equity and bond markets and savings formation, and contributing significantly to the remarkable economic performance of the Chilean economy since the early eighties[26].

3.3 State Guarantees

The basic tenet of Chile's system is that each worker is responsible for financing his own pensions. However the State does provide some assistance for those unable to fund their retirements. This is achieved in two ways:

(i) PASIS: A publicly funded means-tested social assistance pension is provided to the poorest aged members, irrespective of their contribution history. The Government limits the number of PASIS pensions granted in order to control expenditure; thus there is always a waiting list to access these pensions.

(ii) MPG: A Minimum Pension Guarantee is provided to all individuals who have contributed to the system for at least 20 years (specifically, made at least 240 contributions) but have not accumulated enough to achieve a minimum pension. This guarantee applies only when a member does not have enough accumulations to enable him to draw down a pre-specified minimum benefit: the State simply tops up the members' accounts by an adequate amount. The minimum pension is set at approximately three-fourths of Chile's minimum wage or one-fourth of the average wage. Presently it is about US$180 per month.

There are other covert guarantees provided by the State. If an AFP goes bankrupt, the Pension Funds belonging to the members do not suffer, instead the worker simply transfers them to another AFP.

In the case of the bankruptcy of an Insurance Company, the State guarantees 100 percent of the minimum pension guaranteed by the State, plus 75 percent of the difference between the pension the pensioner was receiving and the Minimum Pension Guaranteed by the State, with a ceiling of 45 UF per month.

3.4 Fiscal Impact

Although the Chilean pension reform of 1981 transferred the responsibility of generating pensions to the workers, the State continued to bear the costs of regulation, providing safety nets and paying the transitions costs of moving from the old PAYGO system. The fiscal costs to the government include the following:

(i) Pension payments to all retirees who opted to stay under the old system
(ii) Financing of recognition bonds to retirees who switched to the new system
(iii) Guaranteed minimum pensions
(iv) PASIS payments
(v) Deficits of the public pensions of the armed forces and the police

The outflows under (i) and (ii) represent transition costs of moving from the PAYGO to the DC system and are temporary in nature. Outflows under (iii) to (v) are permanent under the DC system and will need to be paid out unless there is significant structural reform that alters its parameters completely. Arenas De Mesa and Mesa-Lago (2006) measure the fiscal costs as a percentage of GDP for each of the categories (i) to (v) over the period 1981-2004 (Table 10). The composition of transition costs has changed in the last two decades: as fewer people claim benefits under the old system and more retirees cash-in their recognition bonds, outflows under (i) have declined, while those under (ii) have increased. The deficit of the civilian system accounted for about three-fourths of the total deficit of the pension system.

Total transition costs, as measured by the sum of (i) and (ii), peaked at 5.7 percent of GDP in the 1980s and declined to 3.8 percent in the 1990s. They are projected to be about 3.2 percent of GDP in the medium term. The transition costs in Chile were relatively higher than those of other Latin American countries that undertook similar reform partly because the government opted to recognize accrued obligations under the old system on generous terms. The transition period in Chile is expected to last until 2037, when only the AFP system will be functional. At that point in time, it is estimated that the

extinction of state debt to the old system will result in a release of about 3.2 percent of GDP.[27]

In addition, Chile also has to meet ongoing fiscal costs on account of the minimum pension guarantee, which requires a government top-up of individual pension accounts. Currently, more than 11 percent of retirees receive a minimum pension guarantee benefit, which costs 0.1 percent of GDP. Soto (2005) estimated that as the system matures, more than 30 percent of participants will seek recourse to the minimum pension guarantee, resulting in a fiscal burden of about 1 percent of GDP. Estimated costs of the non-contributory pension assistance program (PASIS) are projected to be about 0.5 percent of GDP.

Chile managed its 1981 transition using a pre-reform budget surplus, and by cultivating post-reform fiscal discipline generated through a combination of tax increases, cost cutting and asset sales. The government had a fiscal surplus of 5.5 percent of GDP before the pension reform in 1980, creating a cushion that absorbed the costs of transition to some extent. In 1981, an income tax of 3 percent was introduced, but it was phased out (by decreasing it annually by one percentage point) by 1984. The share of government expenditure in GDP shrunk from 32 percent in1974-84, to 25 percent in 1985-99. The Chilean government also undertook massive privatization in 1985-89; selling off government assets worth 7 percent of GDP (Niemietz, 2007).

The purpose of fiscal tightening was to absorb transition costs and consequently, the public dis-saving that might have resulted in the absence of tightening was reduced. In fact, most of the increase in national savings in the post-reform period was a result of public saving and private corporate savings (which rose after 1984 as a result of structural tax reform). The costs of Chile's pension system are high, and will continue to be incurred by the government for some years. Chile's ability to sustain the system on the basis of fiscal discipline has been widely commended.

3.5 Outcomes of the Chilean Pension System

The Chilean model of pensions was widely expected to meet the basic objective of a pension system, providing universal (or near-universal) and adequate income in old age to enable retirees to live with dignity. By providing a clear link between worker contributions and post-retirement benefits, it was expected to impart workers with a sense of ownership of, and responsibility for, retirement savings. The extent to which these objectives have been met can be assessed by examining the following outcomes, which flow directly from the pension design: extent of coverage, contribution density, gender equality and replacement rate[28]. In addition, an accurate assessment of the effectiveness of the system can be made only by studying the market structure of AFPs. In this category, the relevant outcomes are – level of administrative costs, competition among AFPs and the regulation of investment by pension funds.

The evaluation of the Chilean pension system in this section will begin with an assessment of the AFP industry; and will be followed by an examination of other outcomes of pension reform.

(1) AFP Market Structure

Administrative Costs

The AFPs charge two types of commissions from their members: fixed and variable. Fixed commissions are levied as a flat sum, irrespective of account balances. Variable commissions are charged as a percent of taxable income, and simply added to member contributions. The variable commission includes the management cost incurred by AFPs as well as the cost of taking out a disability and survivorship insurance. As a percent of average taxable income, the average cost to a contributor in December 2006 was disaggregated as follows:

Disability and Survivorship Insurance:	1.05%
AFP Commission:	1.32%
Fixed Commission:	0.06%

Total Costs: 2.37%

Both fixed and variable commissions have declined over the years (Table 11). It is claimed by the AFPs that their management commissions have fallen by 50 percent from the early years to the present, while the cost of the insurance has tended to increase[29], resulting in only a marginal fall in total variable commissions. Despite the declining trend in fixed commissions (from a high of 885 pesos in 1988 to 410 pesos in 2005), it has been criticized for its regressive nature because the account balances and future pensions of lower income contributors are eroded to a greater extent relative to higher income contributors. The greatest negative impact of fixed commissions is on irregular contributors with small balances.

On retirement, members pay additional costs in the form of withdrawal commissions or annuity purchase fees, depending on their chosen payout option.

The high administrative costs of AFPs can be partly attributed to marketing and advertising expenses, and the costs of maintaining a large sales force in order to attract and retain members. In October 1997, the government tightened the rules for transferring between AFPs. The impact was immediate and significant. In 1997, the number of members who had notified for a transfer was at 2,125,158, and fell to 779,363 the following year as new regulations were put in place to limit inter-AFP transfers, and was at 245,787 in December 2005. The number of sales agents fell correspondingly: from 17448 in 1997 to 6343 in 1998, and to 2348 in December 2005[30]. As a result, the combined expenditure on salesmen and publicity, which formed 39.7 percent of operational expenditure of AFPs in 1997, had declined to 25.4 percent of operational expenditure by 2004[31].

A comparison of costs in Chile with other Latin American countries reveals that Chile probably has one of the least cost pension systems. Mesa-Lago (2005) reports that if managerial costs are computed as commissions plus premium paid for disability and survivorship insurance, then total managerial costs as a percentage of deductions from workers' wages that are deposited in individual accounts were about 18.43 percent for

Chile, making it the second lowest in the region (much lower than the average of 25.82 percent). Yet it is widely accepted that commissions are still "unacceptably high for a large percentage of the population", and any reduction has been achieved "at the cost of restricting individual choice and competition between pension fund administrators"[32].

Commission charges also dilute the return earned on contributions. The total average return on worker contributions during 1982- July 2002 would decline from 10.5 percent to 6.1 percent if measured net of commission charges. This demonstrates the need to consider returns actually credited to members' accounts after all expenses have been netted. The return earned by members who entered the system after 1982 is even lower, and falls below zero for those who began contributing after 1996. The average worker might have earned a higher real return simply by investing in a passbook savings account.[33]

Soto (2005) calculated the impact of commissions and administrative fees for a hypothetical average worker who enters the system in 1982 and retires in 2005. Even under very generous assumptions, he found that more than a fifth of the accumulated funds were accounted for by administrative fees and commissions[34]. In addition, at retirement, workers would need to pay withdrawal commissions or annuity purchase fees, which would further erode their accumulated balances.

Competition

AFPs do not compete with each other on price, yield or services offered; thus there is effectively no competition in the market for pension funds. When the pension system was launched, it was expected that market forces would operate through privately managed AFPs to generate competitive prices, efficient services and product differentiation. However, partly as a result of the restrictive regulations imposed by the government, and partly as a consequence of system design, the AFP market has evolved into a concentrated and non-competitive system.

The system started with 12 AFPs. Their number grew rapidly when trade unions were permitted to set up AFPs, resulting in 21 AFPs by 1994. Subsequently a wave of mergers and consolidations reduced the system to 6 AFPs. Over 70 percent of contributors are affiliated to one of the top three AFPs, and no new administrators have entered the market for several years despite the profitable nature of the industry. Clearly, there are steep barriers to entry. Some of the hurdles are regulatory in nature: for instance, the requirement of a single corporate purpose, the creation of obligatory reserves, and the mandatory minimum return that is required to be earned on investment.

But tight government regulation of fees and commissions has also created operational challenges unique to the Chilean system. AFPs are obliged to charge identical commissions from all members, levied as a proportion of wages. As a result, they are not permitted to offer differentiated (higher-priced and better quality) services to their higher-income (and therefore high-margin) members. Further, the mandatory nature of the pension product creates member apathy: most members are found to be uninterested in comparing prices and yields of competing fund administrators; many are even unaware of such differences. Pro-active members that search for low-cost, high-quality administrators are an important catalyst to competition, and one that is missing in Chile. As a result, the only way AFPs could attract and retain high-income members was through aggressive marketing and the deployment of a large sales force. Since they are not permitted to charge varying fees, AFPs have resorted to sales strategies such as gifts and discounts to attract customers. Thus there is no incentive to cut costs and prices, and conditions are not conducive to a transparent process of price identification in the market.

Existing banks, mutual funds, or insurance companies are not permitted to manage pension funds unless a separate fund management company is created for that purpose. Effectively, this regulation creates walls around the pension fund industry that protects the fund managers from competition from other financial intermediaries and products, encourages larger marketing and set-up costs, and denies the affiliates investment vehicles better suited to their needs (Shah, 1997).

Investment Regulation

The regulation of AFP investments is based on fairly rigid portfolio restrictions. For each AFP, there are investment limits for each instrument type, in absolute terms for each investment category, in terms of risk which can be accepted for assets and also for each type of authorized market in which investment is permitted. The limits for the funds put together, number more than 100[35]. The extent of regulation tends to reduce investment efficiency and flexibility, as managers are more concerned with ensuring compliance with prudential norms than maximizing investment efficiency[36].

Pension funds in Chile have to earn a 'minimum return' from their portfolio. Each AFP must guarantee that the average real return in the last 6 months is not lower than the lesser of: (1) the average real return of each fund minus 2 percentage points for the funds C, D and E (with a higher proportion of fixed income securities) and 4 percentage points for the funds A and B (with a higher equity exposure) or (2) 50 percent of the average real return of all the funds. If an AFP exceeds the average rate by 2 percentage points (or 4 percentage points in case of fund A and B) or by 50 percent of the average return of all funds, whichever is higher, then excess returns are required to be placed in a profitability fluctuation reserve, to be drawn only when returns fall below the required minimum return. An AFP must also keep 1 percent of the value of its pension funds as a separate cash reserve called *encaje*, which is used if returns fall below the mandated minimum. When the difference is not covered by the reserve of the funds, then the government has to provide compensation. Thus, the government still bears the contingent liability. It therefore has a stake in constructing a competent and prudential regulatory structure.

The chief result of this performance regulation was that most of the AFPs had similar portfolios yielding similar returns because of 'herding' behaviour. Smaller fund managers are influenced by and imitate the portfolios of larger funds. The larger funds, in turn, in the absence of 'rate-of-return' competition, may not have an incentive to strive for a return above the government-specified ceiling. This is a moral hazard problem that prevents fund managers from attaining the optimal point in the portfolio efficiency frontier. Mandating a single fund per administrator reinforces herding behavior and

homogeneity of portfolios across funds. This situation leads to another problem: if fund administrators are not competing to generate the highest return, they tend to compete through excessive marketing and advertising, the costs of which are usually passed on to members. This situation was observed in Chile during the 1990s, as described earlier in this section. An examination of the average correlation between pairs of funds in Argentina, Chile and Peru from their inception until May 1998 reveals that the correlation is extremely high: 0.98 in Chile, 0.93 in Peru and 0.87 in Argentina. Clearly, Chilean fund managers were not substantially different from each other in terms of returns generated[37]. An adverse outcome of this homogenous returns environment is that since contributions are mandatory for employed Chileans, they cannot, in the absence of a better provider, opt out of the system.

The Government has attempted to gradually liberalize investment regulations, with a view to increasing yield and flexibility. Two developments in this direction have been of great significance: the introduction of risk-differentiated pension plans, and the gradual easing of portfolio restrictions.

Since 2002, AFPs have been permitted to offer portfolios with varying risk profiles, in order to accommodate the different risk-return preferences of members. Currently each AFP offers five types of plans (A, B, C, D and E) with varying debt-equity compositions, such that the extent of equity exposure declines from A to E. Table 12 lists the permitted equity limits within the multi-funds system. Members can opt for any of the plans; except for men over the age of 55 and women over the age of 50 who are not pensioners, who are not permitted to invest in the equity-intensive fund A. Similarly, pensioners using programmed withdrawal can only choose between the three funds with least investment in equities (Funds C, D and E). Both groups may choose any of the five funds for their voluntary contributions, agreed deposits and voluntary savings account.

In May 2007, over 2.7 million people exercised their choice with respect to type of pension plan, representing about 64 percent of the contributors. In the first six months of 2007, fund B tended to be most popular choice, with 37 percent of the total preferences, followed by types A and C with 36 percent and 22 percent of the total respectively.

Almost three-fourths of new preferences between May 2007 and May 2006 were for funds A and B, a choice that is possibly driven by the relatively higher returns on these schemes (see Table 13)[38]. If a member does not expressly choose a fund, the law requires AFPs to gradually transfer him to an appropriate fund in accordance with his age-related risk tolerance. The purpose of introducing multi-fund options was to encourage active participation of members in the investment process, thereby increasing their awareness and involvement in planning for their future pension income.

When the pension reforms were launched in 1981, fund managers invested largely in government backed securities or bank deposits, not just because of regulatory requirements but also because the Chilean capital market was not liquid or well-developed. Gradually, restrictions on permitted instruments, markets and investment limits were liberalized. The purchase of shares was authorized in 1985, and foreign investment was permitted in 1992. The creation of the multi-fund system in 2002 further spurred diversification across markets and instruments. The maximum level of asset allocation in foreign instruments was raised from 20 percent to 30 percent in 2004; and a recent bill to be enacted in Parliament suggests a range of 30 to 45 percent for the maximum limit of investments of pension funds in foreign markets[39]. The asset-mix of Chilean pension funds is highly diversified and balanced, especially in comparison with other private systems in Latin America. The SAFP is often credited with modern financial practices and promoting diversification, in contrast with other countries in the region where pension funds have sometimes simply been used to fund state debt. As Table 14 shows, concentration of pension funds in public debt has reduced over the years, declining from a high of 47 percent in 1986 to about 16.5 percent in 2005. Investment in foreign assets amounts to 30 percent of funds, and 23.5 percent was used to fund the corporate sector.

Pension funds and capital markets have developed concurrently in Chile. The availability of a large pool of investible pension funds created and then deepened the market for instruments of varying risk tenor and durations. The housing mortgage market and infrastructure development projects have also benefited from pension fund financing. As

AFPs were required to insure affiliates for disability and death, insurance markets grew and evolved. A host of complementary financial services, including credit rating and risk evaluation services, have developed as a direct consequence of capital market development.

(2) Coverage

Coverage is one of the main indicators of the effectiveness of a pension system; a system might be well-designed and fiscally sound, but if it is not able to cover its target population, then it fails in its basic objective of providing income security. However, definitional differences, data issues and other biases ensure that there is no universally accepted measure of coverage. There are two phases of human life during which measurement of coverage is relevant: coverage for the working or economically active population, and coverage for the elderly. A brief discussion on the issues involved in measuring coverage in each phase follows.

Coverage for the economically active population

In countries like Chile with a mandatory defined contribution system, coverage is usually measured with reference to the economically active population; as each person in this category is expected to contribute to the system in order to secure his future pension. Official coverage data typically relies on ratios of population actually covered to population that should potentially be covered under the system, thus measuring any "gap" or population "left out" of the system. For instance, SAFP provides time-series data on the number of members in the AFP system as a proportion of the force. The association of AFPs uses the ratio of contributors to employed persons to measure coverage. The problem with this definition is a direct result of the pension design: in Chile, being a contributor need not be synonymous with being covered (in the sense of having a right to receive benefits), because the number of contributions may be insufficient to guarantee even a minimum pension. Alternately, some non-contributors may actually be "covered" by the system because they may be entitled to the minimum pension after having contributed for twenty years.

The World Bank recommends three indicators for measuring coverage among workers in the economically active phase[40] :

(i) Contributors/Economically Active Persons – known as coverage of the labor force, and is a broad measure of the extent of social security available to the force

(ii) Contributors/Employed Persons – known as occupational coverage, which is a narrower measure than (i) as it recognizes that unemployed persons are not entitled to regular pensions under Chile's DC system

(iii) Contributors/Wage Earners – called legal coverage, since contribution is mandatory for all wage earners, and this measure actually captures the extent to which national laws are being implemented

Coverage for the elderly

It is relatively easy to measure coverage for the elderly as it simply involves identifying the number of individuals among the elderly who are actually receiving pension benefits. Thus a standard measure would be the ratio of elderly population receiving pension benefits to the total elderly population. Some studies advocate a "joint coverage" measure for the elderly, which counts spouses of benefit recipients as covered persons; or a 'joint occupational coverage', which also includes among covered elderly those who remain employed and their spouses. The last measure is sufficiently broad and inclusive, and it is reasonably certain that those elderly who do not qualify as 'covered' under this measure are persons who do depend on savings or transfers for their survival.[41]

Trends in Coverage

Coverage under the current pension system has been stagnant, and not substantially better than that under the old defined-benefit system. This pattern is observed irrespective of the indicator used to measure coverage. Estimates based on the National Survey of Socio-Economic Characteristics (CASEN) show that in 2003, only 58.7 percent of the economically active population, 64.7 percent of employed persons and 78.6 percent of wage earners were contributors and so had potential pension coverage; an achievement

that does not appear to be very different from the 50-60 percent coverage attained by the old DB system during 1975-77.[42] Valdes-Prieto (2004) estimated that for the period 1990-2001, the average coverage rate was 28.7 percent for the AFP plans and 32.1 percent for the AFP and INP plans combined[43]. Official estimates of coverage are more optimistic, perhaps an outcome of using a different measurement technique. Table 15 compares coverage of economically active persons from two different sources. Data in Table 16 shows that in 2003, 63 percent of the elderly persons were covered.

In general, about 40 percent of employed persons did not or were not able to contribute towards an old age pension. This extent of non-contribution is startling: first, because in a DC system there is a direct link between contributions and pension accumulation and therefore a clear incentive to contribute, and second, because rules governing Chile's system mandates contributions from all employees.

Reasons for Low Coverage

It is necessary to study coverage data in some detail to understand the reasons for the lower-than-expected coverage. Disaggregated data reveal that coverage appears to improve with educational levels, income, and size of establishment; as well as vary with gender and residence, both for elderly and economically active persons. Persons with secondary and tertiary education, higher income, persons working in medium and large sized establishments, urban residents and men have relatively higher coverage[44]. Valdes-Prieto(2004) showed that higher fixed commissions charged by AFPs reduced coverage, perhaps because it discouraged self-employed and economically inactive people who may be considering entering the covered sector. Coverage was found to improve with economic growth.

In general, the most vulnerable in terms of low coverage are women; independent workers, which includes the self-employed as well as workers without formal labor contracts; and the very poor, especially in rural areas. An examination of the labor market structure in Chile reinforces this result (Table 17). The Chilean economy has been characterized by fairly high unemployment (8-10 percent). There is frequent movement between jobs, and between the formal and informal sectors. Some evidence of the extent

of movement between employment categories is obtained from the HLSS 2002 survey - for example, among persons who worked as salaried workers in some month, 17% also worked as self-employed (at least one month in their employment history of the last 20 years), 2.8% as employers, 5.7% as domestic workers and less than 1% as non-remunerated family members. Among those who reported having had at least one month as independent workers, 74% also worked as salaried workers[45].

As markets undergo transformation due to globalization, Chilean employees also face shorter contracts, greater job rotation and uncertain employment. As employment becomes less stable, workers are more likely to contribute irregularly, if at all, into their pension accounts. The experience of other countries shows that people contribute only when they have to; in fact, having a formal employment contract appears to be critical to participation in the pensions system. In Chile, about 95 percent of the self-employed, who constitute more than a quarter of the workforce, do not contribute. Consequently, self-employment explains most of the non-contribution from the male members of the workforce. Female participation in the formal workforce is relatively poor and characterized by long gaps that occur when women leave formal employment to care for their families.

Contribution and consequently coverage is lesser among low-income workers. Arenas de Mesa and Mesa-Lago (2006) observe that when coverage of employed persons is stratified by gender and income quintiles, the richest men and women had coverage of 77.1 percent and 84.4 percent respectively; whereas the poorest male and female workers had corresponding ratios of 53.8 and 49.8 percent. Low income which may be inadequate for consumption is in itself a disincentive for saving; but there are other reasons to expect lower participation from low-income workers. Poorer persons may expect to live shorter lives and hence may feel that they would not require pension, or may prefer to rely on traditional retirement supports such as children and family savings. Poverty is highly correlated with lower levels of education, and poor persons are more likely to be unskilled workers employed in the informal sector. Even for those in the formal sector, Chile's MPG requirements provide the wrong incentives for low-income people. Workers

whose contribution history does not make them eligible for MPG may view the contributions as a tax, and prefer to evade it. Workers who are able to make 20 years of contributions are economically better off by not making further contributions, either because the extra contributions are not expected to raise pension payments above MPG, or because the worker can generate better returns by drawing the MPG and moving into the informal system for continued employment.

(3) Contribution Density

A defined contribution system, by its very definition, can be successful only if people make regular contributions. Indicators of coverage are based on number of contributors, where a contributor is defined as an affiliate who has made at least one contribution in the preceding twelve months. A better interpretation of coverage and the probability of securing pension benefits can be obtained by measuring 'contribution density', or the number of months in which an individual has made social security contributions as a proportion of months of membership in the system.

A household survey conducted in 2002, the *Historia al y Seguridad Social* (HLSS), which surveyed 17,246 individuals affiliated to the retirement system at any time during 1981-2001, found that on an average a member contributed to the pension system in 52 percent of months[46]. This is in sharp contrast to the 80 percent level that was expected when the pension system was designed. The distribution pattern of contribution density is bimodal, rather than uniform: while 20 percent of both men and women have a contribution density of over 90 percent; contribution density is close to 0 percent for about 15 percent of the population. The survey also highlighted gender, age, education-based and income-driven differences in contribution density. On an average, the contribution density of men (59.8) was 16 percentage points higher than that of women (43.8). Members with higher education levels and income levels tended to have higher contribution density; as did those in the 45-65 years age group. Employees with contracts, those working in larger establishments, and those employed in non-agricultural sectors (secondary and tertiary sectors) exhibited higher contribution densities. The

employed showed higher contribution density (60.8%) as compared to the self-employed (45.1%). These results are consistent with trends observed with coverage indicators, and suggest that there is a need to improve contribution density, if coverage is to be enhanced among regular contributors, and increased among the others.

(4) Replacement Rate

Adequacy of pension income is an important indicator of the effectiveness of a pension system- and closely linked to coverage. Adequacy is usually measured in terms of replacement rate- or the proportion of pre-retirement remuneration provided by pension benefits. The replacement rate is calculated on the basis of the amount of funds accumulated in a member's account at retirement, which in turn depends on a member's income and the real growth of income during the contribution period, real returns on pension accumulations, fixed and variable commissions, age at retirement and contribution density. Given identical pension fund balances at retirement, women in general may receive lower pensions because they retire earlier and have a higher life expectancy.

Official Chilean projections usually assume a contribution density of 70-90 percent; an assumption that yields fairly high replacement rates (close to 75 percent), even with conservative assumptions for the other factors. It has been pointed out that an average worker who contributes for all 40 years of his working life and retires at age 65 will get a price-indexed pension that is 60 percent of his final wage, assuming his account earned a 5 percent rate of return; and if he began contributing 25 years ago when the system earned a 10 percent average rate of return it has yielded since inception, his pension would be 85 percent of his final wage[47]. However, other studies have computed replacement rate using more realistic assumptions for contribution density and found substantially lower replacement rates. A series of simulations based on HLSS survey data indicated that for an average unmarried man, an 80 percent contribution density would provide a replacement rate figure of 58 percent; but a drop in contribution density to 60 percent (which is closer to actually observed numbers) would push the replacement rate

to as low as 44 percent. The corresponding rates for an average female worker: 43 percent and 23 percent respectively are even more startling[48].

The actual situation could be even worse than the most cautious simulations, because of the widespread practice of seeking early retirement among AFP members. More than a third of the pensions are paid to members seeking early retirement; on an average, men have brought forward their retirement age by 9 years and women by 6 years[49]. Estimates of the Association of AFPs indicate that for each year that retirement age is brought forward relative to the legal age, the amount of pension available reduces by 7 to 10 percent. This phenomenon further reduces the replacement rate actually experienced in Chile. Authorities generally attribute the trend towards early retirement to factors such as unemployment and layoffs, the attractiveness of annuities and lack of information about retirement saving. However, it is being recognized now that at least some members optimize their retirement financing by exiting early from the system and drawing down the minimum pension, while simultaneously staying employed outside the system, or investing their savings in more profitable alternatives.

(5) Gender Dimensions

Gender dimensions of pension design have become increasingly important, especially in ageing societies where women are often observed to have lower access to pensions and government assistance programs as compared to men. Chile's defined contribution system, which directly links working-life contributions to retirement benefits, was expected to increase work-force participation, contributions and thus pensions across gender. However, owing to demographic differences between genders, and due to the nature of their participation in the market, women appear to be at a disadvantage as compared to men.

The participation of women in Chile's labor force is considerably lower than that of men. James, Edwards and Wong (2003) pointed out that the ratio of employed women to the working age population of Chile was only 38 percent, whereas the ratio of employed men

to working age population was 75.2 percent. Less than half of the working women were affiliated with the social security system, as compared with two-thirds of men; largely because women were more likely to be employed in part-time jobs or in the informal sector[50]. Studies have shown that women tend to earn less than men, even after controlling for age and education: the average monthly wage of a female worker, at US$245, was significantly lower than the average wage of US$335 earned by a male worker[51]. Working life patterns of women show a typical pattern: during the first 10 to 20 working years, the number of years contributed to the system shows an increasing trend across educational levels, but a steep drop in contributions is noticed at around 30 years of age for a majority of women. This indicates that many women drop out of the work force at that age to perform traditional roles of child-rearing and taking care of family. As expected, no such discontinuity is observed amongst male cohorts. Clearly, given these labor market conditions, a DC system that links retirement benefits to contributions would cover fewer women than men, and provide them with lesser end-benefits.

Women are permitted to retire five years earlier than men in Chile, a rule that further reduces accumulations in their individual pension accounts. To compound this problem, women tend to live longer than men and since AFPs adjust for this factor actuarially, it implies that women are paid lower annuities[52].

Thus women have lower contribution densities, lower pension account accumulations, and as a result end up with lower replacement rate and lower pensions. Actuarial adjustment resulting out of earlier retirement and higher life-expectancy shaves off some more from expected benefits: an additional five years of contributions can increase the pension of an average female contributor by 50 percent. As a result annuities paid out to women are only about 30-40 percent of that paid to men; and about 45 percent of women will be entitled to a pension lower than the minimum pension[53]. The worst affected women were those in the lowest income categories, those with no or minimal education, women in domestic service and those who were categorized as unpaid family workers- these groups of women had significantly lower coverage as compared their male counterparts[54].

Yet despite these obvious gender biases in the Chilean pension system, the overall impact on women may be ameliorated by public transfers, the minimum pension guarantee and design features that mandate joint annuities and provide survivors pension. Women are more likely to receive Government assistance programs and MPG top-ups, owing to their lower earning power. In fact, the twenty year contribution requirement for minimum pension might be an incentive for women to stay in the labor force. Even for women who drop out of the labor force, this system is beneficial because contributions in the early years have an increased weight relative to later contributions owing to compounding of interest.

Women tend to outlive men, and since wives are usually younger than husbands, women may face widowhood of upto 5-10 years. Some financial protection is provided to Chilean women through mandatory joint annuitization: when husbands retire they are required to purchase joint annuities or gradual withdrawals spread over both lives. The survivor gets at least 60 percent of the primary benefit. Chile's pension system permits widows to keep their pension benefits in addition to the survivors' pension derived from their spouse's contributions- an advantage that was not available in the old defined benefits scheme. Joint annuities add about 30 to 70 percent to the lifetime benefit of the average woman in all educational categories[55].

When the benefits of joint annuities are included, the average female/male ratio of total lifetime benefits rises to 60-90 percent; and for women who contribute and work full lives, this ratio exceeds 100 percent. Thus when the system is considered in its entirety, the gender gap is narrowed. In fact, women get a higher relative benefit in this system as compared to the old defined benefit scheme.

3.6 Rationale for reform: Challenges within the existing pension system

The 1981 reform created a homogenous pension system for Chilean civilians, in which each worker was responsible for building up his/her pension fund. For the first time in the history of pension reform, a publicly managed defined-benefit system was replaced by a privately-run defined contribution system at the national level. That the shift was achieved without serious fiscal imbalances, and quickly accepted by the vast majority of workers, is in itself a laudable achievement.

The individual capitalization system has worked fairly efficiently for twenty five years. AFPs collect contributions, invest them in accordance with increasingly liberal norms, and pay out pensions. Pension funds are financially sound: in twenty-five plus years of operation, there are no reports of bankruptcy or frauds.

State participation is minimal, restricted to providing a safety net for the poor and indigent elderly, and for workers with inadequate accumulations. State intervention through the regulatory body, SAFP, is carried out in order to ensure transparency and minimize risk. The development of pension funds has facilitated financial deepening, provided incentives to save and financed capital projects. Pension coverage in Chile is one of the highest in the region.

Thus there is no structural crisis in the system. Yet the Government of Chile, under the leadership of President Bachelet, introduced significant changes to the existing system. The proposed reform is widely perceived to be necessary, and in the right direction, although there is considerable divergence about the details.

In order to understand the rationale for another round of reform, we examine outcomes arising as a result of the system design, nature of the pension funds market, regulation and externalities, and consider deviations from what was expected or promised at the time of reform.

(1) Design

Chile's pension system was designed as a "multi-pillar" structure. The first pillar operates through two instruments – the minimum pension guarantee and PASIS. As is the norm worldwide, the Chilean first pillar is administered by the government and mostly funded through tax revenue. Its primary objective is to prevent poverty in no or low income cohorts. The second pillar facilitates consumption-smoothing through a privately-managed and public-mandated defined contribution scheme. Finally, a third pillar consisting of instruments promoting voluntary savings encourages additional savings for retirement.

The multiple pillar model of social security, strongly endorsed by the World Bank, has been adopted by many countries that reformed their pension systems. The model was expected to lead to greater coverage by establishing a clear link between contributions and benefits. Other positive outcomes included reductions in effective tax rates, evasion and labor market distortions[56]. Pension literature is clear about the benefits of this system: but the experience of reforming countries in Latin America suggests that the ability of the system to achieve predicted outcomes is highly dependent on country specific factors such as labor market conditions, attitudes of affiliates, efficiency of fund administrators as well as macro-economic factors.

In Chile's case, both the first and second pillars have yielded worse-than-expected outcomes. We now evaluate the challenges faced in each pillar.

Individual Capitalization Accounts and AFPs

Chile's system was designed to be predominantly contributions-driven, and it is inevitable for it to show poor outcomes if contributions are lower than expected. Thus poor and irregular contributors such as women, self-employed persons, workers in the informal economy and extremely low-income workers are the categories that are at greatest risk of not being covered by the second pillar. This outcome is largely a result of a mismatch between assumptions that were made at that time of setting up the system and actual labor market conditions.

The efficiency of pension system design is contingent upon demographic and labor market projections that are made when the system was designed. The Chilean system was designed for full time workers with steady employment and contribution histories (and thus implicitly male). An average man was not expected to live much beyond the retirement age of 65 years. Women formed less than 30 percent of the labor force and were likely to be financially dependent on their male partners. Given this demographic background, it was expected that a worker who contributes for 45 years with a contribution density of about 85 percent, would secure a replacement rate of 70-80 percent, even assuming a modest 5 percent rate of return. An extension of this assumption to the entire workforce indicated a coverage rate of above 65 percent.

However, changes in economic and social conditions have almost invalidated these assumptions. Chilean society is rapidly ageing, and more people, especially women, are living well into their eighties. force participation rate of women has increased significantly, as have the number of single-parent families. The labor market is no longer characterized by long-term employment; instead there are a large number of temporary jobs that may not have employment contracts. Women, typically, often work part-time or seasonal jobs. A 2006 Survey shows that 19.3 percent of male wage earners and 26.2 percent of female wage earners are employed without a firm employment contract[57]. It is no coincidence that women, very young workers (age group 15 to19 years) and workers in the lowest income decile were the most likely to be employed without a firm employment contract.

Low income workers are not motivated to save for old age due to various reasons, some of which were discussed in earlier sections of this paper. A comparison of employment conditions of the lowest two income deciles with the highest two reveals clearly how the poor are excluded from the system (Table 18). The lowest income households report the maximum percentages of non-contractual employment as well as employment, both conditions not conducive to pension contributions.

Job rotation, frequent retrenchments, and overall employment insecurity are established features of the labor market. There is constant movement between formal and informal sectors; and a growing tendency to take early retirement, at least from the formal, pension-linked sector. Once a worker is in the informal sector, the chances of his participation in the system decline dramatically. This is evident from the contribution record of self-employed workers: 95 percent of workers in this category are not affiliated to the system. As a result of all these uncertainties, actual contribution densities and number of years of contributions are much lower than was envisaged, and so is the replacement rate. Table 19 sums up the differences between assumed and actual features of the system. The system ends up providing a replacement rate of less than 50 percent.

Projections of pensions expected to be earned by the cohort of 2020-2025 show that only 52 percent of members are expected to have accumulated sufficient funds to generate pensions higher than the minimum pension. Of the remaining, the MPG top up program will apply to only 2 percent, and the remaining 48 percent will have to depend on own savings or handouts[58]. Owing to lower contribution density and lower participation in the labor force, the projections for women are even starker: 61 percent of women will not receive even the minimum pension.

Non-contributory pension benefits

The first pillar plays a critical role in maintaining equity, because it complements the DC pillar by preventing poverty among those who are cannot participate in, or are not adequately provided for by the contributory system. Chile's first pillar is linked with the second, because eligibility to the government's minimum pension guarantee requires twenty years of contributions into the DC system. This design feature precludes the MPG from being a "pure" social assistance instrument. More importantly, it introduces perverse incentives that distort the labor market, as members either tend to contribute just enough to qualify for the MPG, or are so discouraged by the holding period that they evade contributions. The former tendency is observed even among workers earning average and above average incomes- those who are least likely to suffer old age poverty-

and might indicate a preference for government funded poverty support, rather than mandatory saving schemes[59].

The PASIS program is the purely unfunded component of the first pillar, and is a means-tested program targeted at the elderly indigent. There are two areas of concern with PASIS. First, the amount of funds appropriated for PASIS is strictly limited by the budget, and so the number of pensions awarded is rationed. Thus all those who pass the means-test are not guaranteed to receive state support; in effect, most do not do so. Second, the PASIS benefit is itself quite low, set roughly equal to the poverty line.

Poverty in general has declined in Chile, and so has poverty among the elderly (defined here as persons above 60 years). A series of CASEN surveys reveal that overall poverty has reduced from 38.6 percent of the population in 1990 to 13.7 percent in 2006: in the same period incidence of old-age poverty declined from 20.6 percent to 7.5 percent (Table 20). Thus the decline in old age poverty is commensurate with the improvement in overall standards of living. Yet non-contributory benefits have not fully succeeded in pooling the risk of old age poverty. In 2003 up to 40 percent of the elderly poor in urban areas and 15 percent in rural areas were not supported by the system. Integrating the poorest elderly into the system is a challenge for the Chilean government.

(2) Industry efficiency

Improving pension coverage is probably the greatest task faced by Chilean authorities, but ensuring that pension funds operate efficiently is also important, especially because research shows a link between actual and perceived high commissions and poor participation in the system. If costs of securing a pension benefit are high, it is likely that those who are not mandated to participate, such as self-employed workers, and workers in informal jobs will not be motivated to contribute to the system[60]. Further, if high costs are a result of lack of competition, then coverage, costs and competition – the three most debated outcomes of Chilean reform- are linked to one another[61].

Supply Side Restrictions

There is sufficient evidence that the AFP market in Chile has low competition. The industry has reported consistent above-normal profits since inception, barring the first year of operation (Table 21). The operational profit margin of AFPs has consistently exceeded 10 percent, and has actually been higher than 25 percent since 1999. Yet there was almost no decrease in the variable commission charged in this period (As shown in the last column of table 21). In terms of return on capital, AFPs performed better than the financial system as a whole, except for a brief stretch in 1994-96 when a commercial war between AFPs triggered off some competition between existing AFPs and new entrants.

The low competitiveness of the AFP market is also indicated by the fact that no new AFP entered the market during the highly profitable period of 1996-2002. This could be because the system shows continuously declining average costs, and new entrants to the market face closure if they are not able to quickly garner a sizeable number of contributors[62]. Thus economies of scale created significant barriers to entry. The vulnerability of smaller, newer fund managers was most apparent during the early nineties, when a vigorous surge in promotional expenditure and spending in "kind" led to a sales war. It was a war in which the legal norm of homogenous pricing was never violated, but the expensive gifts given to attract contributors were equivalent to steep price discounts. Expenditure incurred on sales promotional efforts and salaries of sales personnel was as high as 36 percent of fee income in 1997. None of the new aspiring AFPs survived this war, in fact, a wave of buyouts and mergers led to further concentration. It has been argued that threat of a commercial war is itself a significant entry barrier for fund managers desirous of setting up AFPs.

Demand Characteristics

Demand for pension savings with AFPs is highly inelastic. A recent survey found that fewer than 2 percent of the respondents knew either the fixed or variable commissions in either year; and only 0.5 percent were knowledgeable about both commissions[63]. Some of the indifference is a result of market regulation, because the product offered by AFPs is

mandatory and until 2002 (when multiple funds were launched) the only decision variable was the choice of AFP. There is also widespread myopia with respect to retirement planning, which has not altered despite twenty five plus years of pension reform. An estimation of the demand curve for AFP products revealed significant price-inelasticity; demand for transfers was affected only by sales efforts and entrance premiums[64]; the financial performance, brand strength or fees of the AFP made no difference to member choices. Since AFPs continued to earn large profits, their sales expenditure was financed by maintaining fees and commissions at a high level, taking advantage of apparent member apathy to fees. Thus in the absence of competitive pressures or price elasticity AFPs do not have an incentive to reduce fees or operate at optimal efficiency levels[65].

High commission costs can significantly impact workers' returns. When returns earned on member contributions are valued net of fees and commissions, they are considerably lower than the "gross" returns that are usually highlighted. In fact, it has been pointed out that SAFP regularly overstates AFP returns by calculating them without taking into account the fixed and variable commissions paid by contributors. For instance, as on July 2002, the actual return earned by a member who entered the system in 1982 would be 6.1 percent; and not the 10.5 percent annual return that is commonly quoted by SAFP sources for that period. The adjusted "net" return numbers are so low that during some periods, a member could hypothetically earn higher returns simply by placing his funds in a bank deposit[66]. Although pension funds do not compete on costs, ignorance of such information hinders optimal choices by members, and hampers market efficiency by allowing the high-cost situation to continue.

(3) Investment Limits

Strict investment regulation has probably played an indirect role in increasing costs and decreasing competition. While limits on type of instrument and restrictions on authorized markets are being liberalized cautiously, the nature of investment continues to be excessively controlled. There are 97 limits prescribed for each fund (Table 22). Research

shows that such quantitative restrictions have significant costs. Simulations have shown that in the absence of these regulations, AFPs would have opted for riskier portfolios by investing more in equity and foreign instruments, and consequently earned higher returns. Investment regulation was found to be equivalent to an annual tax of 5 percent on the pension wealth of affiliates[67].

However, it is the ‘band of return’ rule that directly discourages competition by forcing AFPs to maintain portfolios similar to their competitors[68]. The investment herding observed among funds almost eliminates product diversity and consequently, and reduces competition.

Thus there are challenges both on the demand and supply side. On the demand side, pubic awareness on AFP services and costs needs to be improved so that affiliates can make informed choices. On the supply side, the challenge will be to reduce costs and enhance competition without compromising on service quality or prudential risk limits.

4. The Marcel Commission Report

Reform of Chile's existing pension reform was a key election promise of President Michelle Bachelet, and, upon assuming office in March 2006, it was given top priority. A Presidential Advisory Council was convened under the Chairmanship of economist Mario Marcel with the objective of assessing the current pension system and providing suggestions to overcome its weaknesses. The Council was composed of fifteen experts with different professional and political backgrounds. The report was prepared after an intense period of consultation that included 49 hearings, 73 organizations, 250 leaders and experts and three opinion surveys, in addition to thousands of comments and suggestions made through web-based interfaces. The massive number of organizations and persons who contributed directly and indirectly in generating these reform proposals, constitute one of the most complete experiences of citizen participation known in Chile around the formulation of public policies[69]. The Commission submitted its report in July 2006, with detailed proposals for reform of the social security system. The report was subsequently evaluated by an Inter-Ministerial Committee, and passed without significant modifications. In March 2008, President Bachelet signed the legislation establishing the new pension scheme**.**

The Marcel Commission proposed a system of social security that would minimize the risk of poverty by providing universal pension coverage. At the same time, the reform aimed for significant increases in replacement rate, greater participation of workers in financing their retirement, improved institutional efficiency and greater competition in the pension fund industry. It was emphasized that the reform would maintain fiscal sustainability and responsibility – the Government "promised that benefits are not granted one year if they cannot be sustained in the following years"[70].

In order to fulfill its task, the Commission carried out an exhaustive study of the Chilean pension system, identifying its strengths, weaknesses and the major challenges. The key areas of concern were the low density of contributions, especially among independent and self-employed workers, resulting in low national coverage; inequitable pension

benefits for women and poor workers; investment performance and operational efficiency of fund managers and member awareness of the pension system. From this diagnosis and based on the goals, 70 proposals of reform were elaborated, covering 11 areas as stated below:

1. New Solidarity Pillar
2. Coverage, Contribution density and compliance
3. Gender Equity
4. Competition and organization of the APF industry of AFP
5. Competition and prices
6. Investment of pension funds
7. Strengthening Contributory Pensions
8. Enlargement of the voluntary pillar
9. Education and information
10. Institutional Strengthening
11. Financial Discipline

Recommendations for reform in the above areas are elaborated below. The reform proposals are broadly grouped by the challenges discussed in section 3.6, with a view to assessing the Marcel Commission's recommendations against the system's acknowledged challenges.

4.1 Improving Coverage

A. System Design

The new Chilean pension model is to be based on a three pillared structure. The defining feature of the current Chilean system- contributions-based individual capitalization accounts- will be retained, but significant modifications are proposed for the other two pillars. The first level of social security will be provided by a government financed social safety net called the Solidarity pillar. The basic design of the contributory second pillar will remain unchanged, although its scope will be widened to cover currently excluded workers. The third pillar will be composed of additional voluntary savings for those

contributors who wish to enhance accumulations in their pension funds beyond the mandated limits.

(1) Solidarity Pillar

A new System of Solidarity Pensions (SPS[71]) will replace the existing PASIS scheme and the Minimum Pension Guarantee provided by the government. The aim of creating this pillar is to provide universal pension coverage to all Chileans and to minimize old-age poverty by supporting those with lower capacities of contributing towards their pensions.

The SPS will benefit men and women aged 65 years and above, belonging to the poorest 60 percent of the population. Additionally, in order to be eligible for SPS benefits, the applicant should have lived 20 years in Chile, in particular during the five years preceding the application. The main benefits under the SPS include the Universal Basic Pension (PBU[72]) and the Solidarity Contribution (APS). From July 1, 2008, all persons who did not contribute to the system, and have no other source of pension, will receive a minimum solidarity pension if eligible for SPS. Such persons will receive a Basic Pension amounting to CLP 60,000 (USD111) per month, which will increase to CLP 75,000 (USD 139) by 2009. Persons who have some contributory pension and are eligible under SPS, will receive a 'complementary' top up that will decline as the member's own pension increases, and will finally cease when the self-financed contributory pension reaches the Maximum Pension with Solidarity Contribution (PMAS[73]). The PMAS will be set at CLP 60,000 (USD 111) per month in 2008, and will rise to CLP 200,000 (USD371) per month by 2012. PMAS values during the five-year transition period are shown in table 23. The rate of 'withdrawal' of the complementary top up is designed in such a way that total pension always increases in response to higher contributory effort.

Figure 2 provides a geometrical representation of the proposed SPS plan. At zero levels of own pension, an eligible resident has access to the minimum pension. As his self-financed pension increases (as shown along the horizontal axis), the amount of state support provided declines (as indicated by the downward sloping line). When self-financed pension reaches the PMAS level, state support is completely withdrawn. This

strategy ensures two things: first, poverty prevention for those who are unable to save for old age or disability; and second, state encouragement for those who contribute even small amounts towards their pension, by rewarding them with complementary amounts. Thus the SPS proposal aims to improve replacement rate for lower income cohorts, and in some senses, 'smoothen' the replacement rate path across all cohorts.

Expected Outcome

The groups that would benefit most from this proposal include workers with low contribution densities; the workers with relatively volatile income, such as seasonal workers and independent workers; the people who have dedicated an important part of their active lives to unremunerated home work such as the care of children, old people or disabled relatives; less-educated workers; and old people with very low pensions.

According to projections of the Commission, when the system would start operating in 2008, 510 thousand people or about 40 percent of the population over 65 years will receive a Basic Solidarity pension. This represents an increase of 100 thousand people over the current number of beneficiaries of Assistance Pensions. By the fifth year of operation, it is expected that 60 percent of the poorest in Chile or over 1 million persons will benefit from the Scheme.

The Scheme's other advantage is that by creating a link between the smallest marginal contributions and additional pensions received, it maintains the incentive to make regular contributions. The Solidarity pension is integrated smoothly into the contributory scheme. Thus if workers contribute regularly to their individual pension accounts, the contributing pillar assures a worthy pension to them. If for some reason they do not contribute at all or do so infrequently, then they are supported by the solidarity pillar that not only guarantees a basic pension, but also assures higher pensions based on their contributions.

(2) Voluntary Pillar

The main component of the voluntary pillar of the present pension system is the *Ahorro Voluntary Previsional* (APV), which came into effect on 1 March 2002 under law Nº 19,768. APV balances have grown at an annualized rate of 35 percent between 2002 and 2005, reaching US$1.9 million in December 2005. Unfortunately, utilization of APV tends to be highly correlated with income: 26.1 percent of high-income contributors to the AFP system made APV contributions in 2005, but only 2.7 percent of low-income contributors used APV. In fact, voluntary pension-related savings are also a very small fraction of total financial voluntary savings, currently accounting for only 5.2 percent of the total.

Thus the most important reform proposed by the committee is a measure to make the APV more inclusive: currently only those independent workers who are affiliated to an AFP are permitted to contribute to an APV, this restriction is to be removed to allow access to all independent workers.

Additional proposals for strengthening the voluntary pillar can be grouped under two categories: fiscal incentives to promote additional voluntary savings within the current system; and provisions for new voluntary savings plans. The reform proposes to (i) exempt low income individuals from paying tax (at 3 percent) on early withdrawals from their voluntary accounts and (ii) abolish taxes on commissions paid to voluntary savings account providers. Further, legislation will be put in place to ensure that funds left in voluntary pension savings accounts form a part of inheritance estates. The reform bill also includes a provision for new employer sponsored voluntary pension plans, known as *Ahorro Previsional Voluntario Colectivo* (APVC), which would collect contributions from both employers and employees. Employers would be permitted to set up more than one APVC plan, if it is approved by a majority of workers. The APVC plans would be non-discriminatory, implying that the plans must be open, in equal conditions, to all the workers of the company who wish to participate in them.

The changes proposed to the APV are expected to sustain the high rates of growth demonstrated by this product since its creation, and also enable larger proportion of

workers to take advantage of its benefits. The creation of a legal framework for a collective employer-employee plan such as the APVC will provide an important alternate form of saving and broaden the Chilean pension market.

B. Integrating non-participating sections

The implicit foundation of a traditional pension system is a working man who heads his household and earns a stable wage, and contributes throughout his life to his pension account to support himself and his family in old age. But reality in Chile is quite different- personal labor histories reveal that periods of wage-earning alternate frequently with periods when the worker is independent or unemployed. Thus it becomes difficult to integrate workers who do not correspond to traditional expectations of employment and contribution into the pension system.

Coverage and contribution density is the lowest among self-employed workers and informal sector workers, and among those in the lowest income categories. The reform proposes to integrate these marginalized workers through the following measures.

- All workers classified as “non-wage earners” will be integrated into the capitalization system by granting them the same benefits and obligations as wage earners. Thus equal access will be provided for child benefits; work injury insurance, old age and disability benefits and equal tax treatment of contributions will be practiced. However, non-wage earners will be expected to compulsorily affiliate with the system, rather than participate on a voluntary basis.
- Affiliation of self-employed and informal workers will place over a transition period of, for example, five years, which will be used to (a) educate, inform and motivate independent workers to contribute (b) implement incentives and agreed mechanisms of contribution (c) develop sectoral strategies of incorporation of independent workers (d) develop suitable mechanisms of collection and (e) construct data bases that help to maintain effective control of the collection process. The Council estimates that a process of gradual transition will be

necessary to instill the concept of retirement savings among independent workers and enable them to know more about the system and its benefits so that workers would participate in a motivated and informed manner.

- In order to encourage younger workers and new entrants to participate in the individual retirement account system, the reform proposes a monthly subsidy equivalent to 50 percent of the effective monthly contributions during the first 24 months of contributions for all low income workers. The subsidy will be applicable to all workers between 18 and 35 years of age, and with an income below 1.5 times the minimum wage.

These measures when implemented will permit the individual capitalization system to incorporate workers who work in conditions of total or partial informality, under the same conditions and in receipt of the similar benefits as accessed by wage earning workers.

4.2 Gender Equity

Women have not benefited from the Chilean pension system to the same extent as men. According to results of Surveys of Social Protection, the most important reason for the gender gap is that women tend to drop out of the workforce to care for their families, followed by a tendency for women to work independently or stay unemployed. Thus recommendations of the Council that seek to improve coverage and contribution density of independent and self-employed workers will automatically help women. The establishment of the universal basic pension will also be an important step towards gender equity, because women will account for about 60 percent of the people being eligible for the new solidarity pillar. In addition, the Council has recommended some changes to the existing system in order to specifically reduce gender inequalities in pension benefits. These are summarized below:

- In case of divorce, the accumulated balance of payments in individual accounts of each spouse to be divided
- Male spouses and unmarried fathers of legally recognized children to be recognized as beneficiaries of life insurance
- Separate disability insurance contracts for women and men in order to eliminate cross-subsidy from women to men. The premium on disability insurance, which factors into commissions paid to AFPs, tends to be lower for women as compared to men due to lesser accidents and higher life expectancy of women.
- Authorize AFPs to grant discounts to the commission that the women receive, accumulating the difference in its account of capitalization.
- Allow cross-contributions within households
- Provide a maternity bonus equivalent to one year of contributions over minimum wage for each child for women belonging to 60 percent of poorest households, irrespective of their contribution history
- Evaluate the possibility of using unisex mortality tables for annuities. This will involve cross-subsidy from men to women as a group.
- Equalize maximum coverage age for disability insurance at 65 years for both men and women
- Equalize retirement age of men and women over a transition period

The objective of these proposals is to recognize the individuality and autonomy of women in the pension system, while discarding the historical idea that fixes a man at the centre and head of a household and relies excessively on intra-family transfers to provide for the needs of women. In order to ensure that the proposed system offers equal rights and obligations to both men and women, the Council proposed compensating mechanisms to correct distortions that create gender inequity. However, it was recognized that the suggested compensating mechanisms should preferably be expressed in terms of subsidies that do not distort labor markets nor create disincentives to remunerated work. Simulations carried out by the Council show that if the measures could be put in place effectively, the replacement rate of women would rise from the

present 16.3 percent to 61.3 percent, thus practically eliminating the gap between the projected replacement rates of men and women.

4.3 Industry Efficiency

A. Competition

The Marcel Commission pointed out that the AFP industry was not competitive in nature, and recommended measures for addressing challenges both on the supply and demand side. In order to allow AFPs to take better advantage of economies of scale and thereby reduce barriers to the entry, the Commission proposed some measures to re-organize the structure of AFPs.

- Remove restrictions on sub-contracting in order to separate the core fund management function of AFPs from the operational or service platform functions such as collection of contributions, account management, branch management, information disbursement. Operation and administration of AFPs is most efficient at large scales, but fund management does not benefit from economies of scale to the same extent. Hence AFPs can benefit from outsourcing large-scale activities such as back office operations and public handling, and focusing their resources on efficient investment management.

- Reinforce rules that seek to avoid conflicts of interest in the management of funds and marketing of pension services, so that when the AFP market is opened up to other agents (such as banks and financial institutions), their decisions are primarily in the interests of pensioners. Some proposals in this area include:
    - Tighten regulations against bundled sales, especially if AFP ownership is with a consumer credit supplier (for instance, a bank).
    - Commercial functions of AFPs and their controlling shareholders be strictly separated.
    - Investment and other operations between AFPs and related parties to be regulated.
    - Overall supervision of financial conglomerates to be consolidated.

On the demand side of the AFP industry, the Commission made the following recommendations with the objective of increasing price elasticity of demand, lowering barriers to entry and strengthening price-based competition

- Organize an annual tendering of AFPs for new members joining the individual capitalization scheme, such that the bid process will ensure that new members are assigned to the administrator that offers the lowest commission. Members would be required to remain with the successful AFP for a minimum of 18 months from the time of enrolment. This mechanism would allow over 200,000 workers to enter the system annually at the least cost.

- Further, the least-cost AFP would be obliged to offer the quoted price for existing members and those who enroll without participating in the bidding process. This ensures that the benefits of lower commission charges are extended to even those members who are not directly participating in the bidding process.

- Allow AFPs to offer 'fidelity-based' discounts on their commissions to members who remain with the same administrator for longer than 18 months.

- Facilitate the use of the internet to transfer between AFPs. This will reduce sales costs and generate genuine competition between administrators, as it will reduce the possibility of formation of collusive agreements.

- Fixed Commissions to be omitted.

B. Investment

The Council pointed out that effective management of pension funds was not only relevant to securing adequate future pension flows, but also critical for developing sound capital markets. Further, it was noted that the excessive detail and complexity found

currently in investment regulation restricts flexibility and puts the onus of responsibility on the authorities rather than the fund administrators. Lower yields as a result of undiversified portfolios impose implicit costs on the system and its members. Thus the proposals of the Council aim to create a regulatory framework that facilitates optimization of investment returns; by enhancing the yield on contributions to individual capitalization accounts while maintaining appropriate levels of risk. Some of the proposals are listed below:

- Simplify regulations pertaining to investment limits
- Introduce risk based limits as opposed to quantitative limits for pension fund investments
- Limit the role of legislature to establishing statutory limits on instrument eligibility and overall investment limits.
- Institute a Technical Council of Investments consisting of independent experts to deal with minor changes in portfolio limits and investment policies. This reform would reduce the need to seek government intervention for every policy change, and thus introduce flexibility in pension fund operations.
- Eliminate limits on overseas investments; and instead put in place risk-based currency exposure limits
- Change investment limits reserve requirements to allow more competition and reduce herding behaviour
- Make AFPs more accountable for investment policies

4.4 Institutional Strengthening

The present pension system in Chile is characterized by considerable dispersion of regulatory authority. The institutions involved in regulating the system include the Superintendencia de Seguridad Social (SUSESO), SAFP, Directorate of Budgets, the General Treasury of the Republic, the Ministry of Planning (MIDEPLAN), the Institute of Normalizacio'n Previsional (INP) and other Municipalities and public institutions.

Institutional responsibilities appear to be weakly delineated, and there is scope for greater cohesion and co-ordination. Though this network of institutions exists to oversee management of individual pension accounts, there is no institutional body through which individual members can express their views about the functioning of the system. Thus the Council put forward a set of recommendations to create an integrated and rational institutional structure that works with efficiency and effectiveness to meet the goals of the system.

- Unify all regulatory authorities responsible for the pension system into a single Superintendency which will be responsible for ensuring the rights of affiliates, regulating the operation of administrators, integrating member data bases and to promote knowledge about the system. This institution will necessarily need to be invested with the authority and autonomy necessary to perform its functions consistently and capably. The Superintendency of Pensions could be organized into three divisions, each dealing with one pillar of the system[74].
- Create a committee of stakeholders, with representatives of workers, pensioners, employers and fund administrators. This committee should perform the function of an overall advisory board, and simultaneously be involved in information dissemination and pension education.
- Allocate responsibility for management of solidarity pillar to a public agency that may be created by the INP.
- To establish a centralized data base with the pension contribution history of each individual, which can be used in analysis, design and implementation of policies as well as future projections of fiscal commitments.
- Develop actuarial model to evaluate the effect of changes in the demographic and financial variables, contribution trends of affiliates and impact on fiscal commitments. Such a study could be carried out every five years to continually assess the outcomes of the reformed system.

The institutional design set out by the Commission contemplates a clear demarcation of responsibilities between the organizations involved in administering benefits and those

protecting the rights of the users. This is not only expected to reduce regulatory uncertainty and thereby facilitate the entrance of new actors to the system, but also increase the legitimacy of the system for citizens of Chile.

4.5 Education and Information

The Commission perceived a need to create a public education campaign that informs the public about features, benefits and facilities available in the system. Workers should be motivated to participate in the pension system, and be fully aware of the incentives and benefits offered by the system and its requirements from workers. They should be capable of evaluating alternative lenders and decide suitably on the basis of information about costs, product quality, services and other specific features of the fund manager. With this objective, the following measures were recommended.

- Create a fund for pension education, financed with contributions from the AFPs and the state. Each AFP is expected to contribute 0.035 percent of revenues monthly towards this fund, and the contribution will be matched by the state. It is estimated that the fund will amount to 5.2 million pesos per year.
- Committee of Users will periodically prioritize the disbursement of resources into publicity, diffusion, and education aspects of the information campaign
- Develop a network of accredited pension advisors to provide professional and independent support to the public. The remuneration of these advisors will not depend on members' fund choices; with the result that member decisions will not be influenced by AFP-driven sales teams, though personal biases of advisors may influence choices.
- Induct people into the pension system at the end of secondary education; the induction would consist of educational exhibitions on the pension system. At the end of the induction, a notional contribution of 2 UF for opening an individual capitalization account would be provided by the state; this contribution would materialize only when actual individual contributions commence.

- Include information about the pension system, with special focus on the rights and responsibilities of workers in all state funded and training programs.
- Review the courses offered by Servicio Nacional de Capacitacion Y Empleo (SENCE) so that it provides more information on the pension system- currently very few of SENCE's classes inform workers about the pension system.

These proposals, once implemented, are expected to equip workers with the capacity to make informed decisions in a system that offers several choices. Further, by facilitating information disbursement and comparison between available pension options it is likely to improve the efficiency of the AFP industry.

4.6 Fiscal implications

A. Nature of Pension Flows in the Proposed System

The reforms proposed by the Marcel Commission aim to move Chilean social security away from the current system, which relies excessively on the success of the individual capitalization system; to a more balanced system, structured on the basis of three integrated pillars: the solidarity pillar, the contributing pillar and the voluntary pillar. The present system is dominated by the contributing pillar; with publicly funded benefits providing only marginal support, and coverage of the voluntary system concentrated among affiliates with higher incomes. This structure results in a situation where disincentive or inability to contribute creates discontinuous spaces that constitute "traps of poverty".

On the other hand, the model proposed by the Commission is characterized by a universal pension that supports affiliates with low or zero pension accumulations, but reduces gradually with a rise in individual accumulations. Thus discontinuities in the existing system are eliminated without disincentives to contribution; while, simultaneously, reforms proposed to increase contribution density and improve investment returns

improve the efficiency of the contributory pillar. The voluntary pillar is expected to be enhanced by the introduction of the APVC, and reform of the APV.

On the basis of the proposed structure, the flow of resources due to pensions financed with fiscal funds as well as accumulated balances of pension funds is projected for 2025, both with and without reform (Table 24). These projections reveal that in a scenario without reform, ratio of flow of pensions to GDP would be not be very different from the ratio in 2005, though the composition of pension flows would undergo a significant change.

In 2005, publicly financed pension flows including pensions of the old system, minimum pension guarantee, welfare pensions and the accrued interests of recognition bonds constitute about 2.9 percent of the GDP; and the flow of pensions financed by the AFP system is only 1.1 percent. By 2025, as pensioners belonging to the old system will pass away and the outstanding stock of recognition bonds reduces, the transition to the AFP system will be almost complete. Thus public cost will reduce significantly to 1.6 percent of GDP, while the flow of pensions of the AFP system would have grown to 2.5 percent of GDP.

However, if the proposals of the Marcel Commission are implemented, the resulting structure in 2025 will be more balanced. The contributing pillar would continue to be the main source of financing of pensions (at 2.9 percent of GDP), but the allocation of public resources towards pensions would be higher by almost 1 percent of GDP.

B. Fiscal costs

The gross incremental fiscal cost that will be incurred on implementing the Commission's reform proposals would reach about 1.1 percent of GDP by 2025. If the anticipated savings in the first pillar (arising largely from the effects of higher contribution density and improved investment yield), which are estimated to be

approximately 0.2 percent of GDP are taken into account, then the net incremental fiscal cost of the reform proposals would be 0.9 percent of GDP in 2025.

The most important component of incremental fiscal costs in the proposed system is the government's basic minimum pension, which will form around 0.75 % of GDP in 2025. Other cost components include the proposed subsidy for young affiliates, tax effects of the extension of APV and creation of APVC, bonus on each live birth, creation of a fund for pension education and inclusion of state contribution with induction of affiliate into the system (Table 25).

The additional fiscal commitment required under the proposed scheme is a direct result of the nature of fiscally financed benefits. A comparison of the probability of pensioners from each pension quintile receiving fiscally financed benefits without reform (via PMG and PASIS) and with reform (NPS) shows that the present scheme concentrates the probability of receiving state support in the first two quintiles, via PASIS, and in quintile 3, via PMG. However, with the solidarity pillar, the probability of receiving state support stays until the fourth quintile, indicating that though the magnitude of state support grows as the capacity to save and generate a self-financed pension is reduced, intermediate layers of pensioners also receive some support.

The Government expects to meet the additional fiscal commitments of the reformed system through the Pension Reserve Fund, from economic growth, the release of resources resulting from lower Government's obligations with the old pension system, and, in the first five years, making use of part of the interest received by the financial assets held by the Government today. The Ministry of Finance has estimated that no new taxes will be needed to fund the increased social security provisions.

Further, the reform will be funded in compliance with the Fiscal Responsibility Law and the mandate of maintaining 1 percent structural surplus[75]. Since 2001, Chile's fiscal policy has been guided largely by the framework established by the Fiscal Responsibility Act of 2006. This framework allocates part of the structural surplus to a Pension Reserves

Fund and an Economic and Social Stabilization Fund. The Pension Reserves fund will receive a maximum of 0.5 percent of the effective surplus from the previous year and a minimum of 0.2 percent of the effective surplus, even if the surplus is lower than that figure. The accumulations in the fund cannot be used for the first 10 years. Subsequently the fund will guarantee future pension liabilities.

Both the Pension Reserve Fund and the Economic and Social Stabilization Fund would be managed by a fund manager to be selected through an international bidding process. The funds would invest in domestic and international bonds and local and foreign currency.

The Pension Reserve Fund has recently been constituted with a US$600 million contribution. It is expected that some technical adjustments to the fund would be necessary to meet the requirements of the new system.

4.7 Summary of Goals and Measures

The proposals put forward by the Presidential Council aim to achieve the following final goals:

- To provide universal pension coverage to Chileans

  The pension system should be designed to provide pension benefits to all; and generate guarantees of continuity of income and protection against old age poverty for all persons. With this reform, social security would be transformed into an economic and social right of all Chileans; but the counterpart of this benefit - a deepening of commitments of the present and future beneficiaries with the pension system- is a responsibility that must be upheld.

- To increase the replacement rate of pensions to levels similar to developed countries

The replacement rate, measured as the ratio of available pension and the last remuneration, is an indicator of the capacity of the system to mitigate the decline in consumption spending that might result in the transition from active working life to retirement. The projections of the Council indicate that with the proposed reforms, the replacement rate of the pension system as a whole could be increased to over 70 percent.

- To eliminate the risk of old age poverty

Poverty in old age would be avoided by ensuring that the universal basic pension generates benefits that allow pensioners to maintain consumption higher than poverty levels. Although this measure would not eradicate poverty at the level of a household (due to the situation of the rest of its members), it would guarantee an elderly person the financial autonomy to satisfy his basic necessities.

- To reduce dispersion

The projections of the present pension system indicate significant differences between affiliates with respect to several benefit variables such as contribution density, accumulated balances in capitalization accounts and gender differences in replacement rate. The proposed reforms are expected to significantly address and reduce these differences.

- To sustain the proposed benefits and maintain the goals of reform

The attainment of these final goals may be judged by the ability of the proposed reforms to facilitate the attainment of six intermediate goals that tie specific reforms in different areas of operation of the system with their final results. These are listed below.

1. To structure a supporting first pillar that aspires to provide protection, fairness and cover. The proposals of the Council demand additional fiscal resources equivalent to 1% of the GDP in 2025, which is twice the fiscal commitment

that is projected to be needed to finance the minimum and welfare pensions in the present structure.

2. To increase the density of contributions- a condition that is essential to improve replacement rates and reduce the uneven dispersion of pension benefits. With the measures proposed to integrate nonwage-earning workers (independent, dismissed and inactive) into the system, the Council estimates that contribution density could be increased by around ten percentage points, from 51% to 61% in a period of five to ten years. This increase would be particularly beneficial for affiliates earning average income.

3. To intensify price competition in the pension services industry. Competition will create efficiency in fund management, prevent price-based exploitation of affiliates and provide choices to affiliates.

4. To improve financial risk management and increase the returns earned by workers on their contributions. The essence of the regime of individual capitalization is to use the contributions of workers to finance their future pensions; and the success of this mechanism depends entirely on the investment yields obtained on these contributions and on the levels of risk associated with these returns.

5. To strengthen the voluntary pillar. The voluntary savings pillar is particularly relevant for workers who use it to compensate for insufficient amounts of obligatory saving.

6. To improve transparency of the system. Since a mandatory system of pensions implicitly presumes that people do not have the foresight to save for their

retirement, it also has the obligation to operate a transparency and responsible system that reduces uncertainty about its capacity to provide old age support.

The Council has attempted to articulate a harmonious set of reforms with the objective of generating a transformation from a regime of individual capitalization to an integrated pension system. The reforms, once implemented, are unlikely to have an immediate impact. Some of the proposed measures have to be implemented gradually; the benefits of some will be apparent only after many years; and there will be associated fiscal costs that will have to be provided for by the government. The most important task in setting up an orderly transition is to ensure that Chileans understand the sequence of measures and its impact on their future well-being. A pension system does not operate in the short term, but that does not have to be excuse not to initiate a reform process.

5. Lessons for Asian Countries

The recommendations of the Marcel Commission and its implementation in Chile will be particularly relevant to governments in Asia, where countries are struggling to cope with ageing populations, albeit at different levels of criticality. At one end of the spectrum, developed countries in East Asia, such as Japan, Korea and Taiwan face such high rates of ageing that by 2025, their force is expected to start shrinking. At the other extreme are emerging economies such as India and China, with their large pools, and newly rising countries such as Vietnam which also have a substantial number of young people. Yet, although Asian countries are ageing at different rates, the challenge of caring for a growing number of elderly persons will have to be addressed by governments throughout the region.

This phenomenon is simply the result of a transition from the second to the third demographic phase- a period when both birth and death rates are low and people enjoy relatively longer lives. Western countries, which industrialized and developed earlier, are already in this phase, and it is now the turn of Asia to follow the demographic cycle. With improved access to nutrition, sanitation and health care, longevity is rising steadily. At the same time, fertility rates have declined, often falling below the replacement level of 2.1 children per woman. The decline in birth rates is largely the outcome of economic growth and related urbanization, spread of education and easier and more informed access to birth control techniques. This combination of increased life expectation and reduced birth rates has led to a rapidly ageing population, with serious consequences for labor supply.

Table 26 shows that the old age dependency ratio- the ratio of Population in “dependent” age groups (over 65 years) to population in working age groups (15-64 years) - varies widely across a sample of Asian countries, depending on the extent of ageing. Japan, Korea, Hong Kong, Singapore and Taiwan are likely to age the fastest, and consequently be the most disadvantaged in terms of availability of domestic labor. By 2050, the absolute population size in the more developed economies- Japan, Korea and Taiwan- is

forecast to shrink relative to 2005. China and Thailand will follow suit: the working population in China is expected to peak in 2010 and fall steadily after. By 2050, the old age dependency ratio in China will be about 39 percent. Vietnam, Myanmar, Indonesia and Malaysia will age at a slower pace. The lowest dependent elderly projections for 2050 are for India, and for countries such as Lao PDR, Phillipines, Cambodia and Bangladesh. For this group, the problems associated with ageing people will need to be addressed in the future.

Traditionally, Asian family structures and a predominance of rural communities led to a system where children cared for their elderly parents and the extended family provided an informal source of retirement finance. Pension systems tended to focus on public sector employees, who enjoyed generous benefits in most countries. Occupational pensions, where available, were usually limited to employees of large corporations. As a result retirees relied on a combination of family support and own savings to provide for their old age. For instance, in 1990, the income of an average Korean over 60 was disaggregated as follows: 32% from working; 55% from children, 10% from other sources; and only 3% from public and private pensions[76].

In addition to declining fertility rates and increasing longevity, Asia's fast growing markets also exhibit a trend towards rapid urbanization[77]. The proportion of the population that lives in urban areas has risen significantly over the last two decades for countries in developing Asia. For instance, in China, the proportion of population that resides in urban areas is forecast to increase from 27.4 percent in 1990 to almost 45 percent by 2010; in India, the urban population will rise from 25.5 percent in 1990 to 30.1 percent in 2010. Overall, Asia continues to be fairly rural, as only 41 percent of its population was classified as urban in 2007. However, the rate of growth of urban population in Asia, projected at 2.19 percent over 2007-2025, is much higher than that of Europe (0.18 percent), North America (1.11 percent) and Latin America and Carribean(1.38 percent)[78].

Urbanization, notably in China and India, is largely the outcome of a shift in economic activity from agrarian to industrial and services sectors. Collectively, these socio-economic changes have weakened the traditional role of the family as a provider of informal financial security to the elderly, and resulted in large numbers of urban poor and/or elderly with no formal access to income or pension.

In response, governments of Asian countries have been forced to reconsider and reform their pension systems in order to extend coverage, provide new private plans, and improve the returns provided by existing plans. There is a strong trend towards adopting defined contribution schemes, especially of a mandatory nature. Table 27 indicates the movement to DC schemes in Asia, and their broad scope. The adoption of DC schemes is driven by diverse factors- ranging from an imperative to control fiscal expenditure on publicly provided pensions to the extension of the coverage of occupational pensions. Thus, increasingly, Asian countries appear to be moving towards the multi-pillar pension system suggested by the World Bank[79]. It is in the above context that relevant lessons from Chile's reform may be drawn. These however will have to be applicable to varying degrees in each Asian country, and even then, adaptations must be made for the local context and capacities.

5.1 The Role of a DC system

Proper planning of a DC system is a formidable task. Blake, Curtis and Dowd (2008) have suggested that a DC pension structure must be designed from back to front- that is, from the desired output to required inputs, in order to achieve the objective of delivering an adequate pension with a high degree of probability. They suggest that key factors in an optimally designed system include the following:

- The consumption profile desired by the plan member in retirement (the expected present value of this equals the size of the fund that will need to be accumulated by the time of retirement)
- The vehicle for delivering the pension, either a life annuity or drawdown
- The planned retirement date

- Working backwards, the combination of contributions and investment strategy most likely to deliver the fund, taking into account the plan member's attitude to risk and the value of his human capital (the discounted present value of lifetime labor income), which is needed to determine both the required value of the fund at retirement date and the required contribution amount during the accumulation phase.

Chile's experience shows that well managed DC systems work for some segment of the population; and is capable of providing adequate replacement rates. To illustrate, a full time worker with steady employment and contribution history, who contributed for, say, 45 years, could expect to secure a replacement rate of 70 to 80 percent from his pension account, even assuming a modest 5 percent rate of return. It has been observed that contribution and coverage is highest among salaried employees who are mandated to contribute into the system: World Bank estimates show that while 64.7 percent of employed persons contributed in 2003, a considerably higher 78.6 percent of salaried persons were contributors. The most active contributors and beneficiaries of Chile's system were public sector employees, workers in large corporations, highly educated workers, high-income workers, and those working in urban areas.

The ability of the Chilean DC system to provide old age income security appears to be the least effective for those in irregular and seasonal employment, those without formal employment contracts that mandate contributions, and the lifetime poor. Thus there are "gaps", due to which some sections of society are bypassed by the system. The Marcel Commission recommended a Solidarity Pension System (SPS) to address this systemic weakness. Asian countries will need to consider how to structure their own solidarity tier (sometimes referred to as social pensions), which is equivalent to the zero tier in the World Bank's definition of the five-tier pension framework[80]. Social solidarity features are evident in the earnings-based social security system of the first tier, but these do not fully address the needs of the lifetime poor. The mandatory savings pillar therefore will not be sufficient even in the best-run system for meeting the needs of retirees.

Thus a critical lesson from Chile is that an individual capitalization regime, although very democratic and effective in theory, has to be supplemented by some social risk pooling arrangements. Recent reforms in Europe also reflect the multi-pillar trend. In Germany, for instance, reforms have introduced a voluntary funded DC tier in addition to the existing PAYG system; and demand for the second pillar products has risen considerably in recent years[81]. Specific reforms needed thus depend on the initial starting point.

There is a need to design some social risk-pooling arrangements for the lifetime poor, and to provide alternative retirement funds for those who opt out or do not have access to contributory pension schemes. In Chile, unlike many other countries, most self-employed workers are not part of the informal economy; in the sense that they are tax payers and subject to regulation. However, Asian countries such as India, Indonesia and China, which have substantial levels of informal sector employment, must address the additional challenge of poverty prevention in their large unskilled and semi-skilled, highly mobile force that works outside the formal system. Risk-pooling arrangements must be designed keeping in view the earnings capacity of informal sector workers- which tends to show large variations. Since professional, well-paid self employed persons are more likely to make voluntary contributions into a pension fund, extending an existing DC scheme to this category of workers is likely to be more effective. However, the poorest unskilled workers are more likely to benefit from social pensions and social assistance schemes, which form the zero pillar in the World Bank's five pillar framework. (Do we have a graph or a table of this? If not, put it at an appropriate place).

Many Asian countries (for instance China, Thailand and the Philippines) have experienced difficulties in implementing individual retirement accounts, whether mandatory or on voluntary basis. Developing robust annuities markets, particularly important for defined contribution pension systems, has been especially difficult for many Asian countries[82].

Wide-ranging, sweeping pension reforms have always been politically sensitive to initiate, and tend to generate discussion and dissent among potential contributors to the system.

Such reactions are more likely in Asian economies, where much of the electorate is often poor, financially illiterate and only marginally, if at all, supported by state social security programs. In this context, a program of rational pension reform, with mechanisms that adapt pension systems automatically to a changed economic and demographic environment, rather than postpone such modifications to occasional high-profile pension reforms, might be more appropriate for Asia[83]. Such a program would also permit greater flexibility in managing uncertain longevity trends. But it requires robust data bases, technical expertise, and indigenous research capabilities which may not be currently available in many non-high income Asian countries.

Gender issues are an integral part of a social security system. Asia's traditional value systems often require women to exit from the workforce in order to care for their families. Since women tend to live longer than men, and work and contribute towards their pensions for lesser number of years, they are doubly penalized by mandatory DC systems. Features such as mandatory joint pensions for married men, allowing third-party contributions into a woman's pension account and using unisex mortality tables are some reforms accepted by Chile that may be adapted by developing Asia to suit its labor force conditions.

5.2 Need for a System-Wide Perspective

Reform of the pension system cannot be carried out in isolation if it is to be effective. It has to be accompanied by policy reform in capital markets, as well as institutional and legal changes in fiscal and other spheres. An over-emphasis on needs, without making requisite efforts to improve organizational and systemic capabilities, and without increasing economic and fiscal capacities, will lead to dysfunctionalities while not meeting the needs of the elderly population. Roles of the state and the private sector must be clearly defined. Ideally, privately managed DC funds should be accompanied by a state-funded and managed social safety net. Regulation and supervision should be carried out by an autonomous and professional authority, with sufficient feedback channels to incorporate views of participating members and institutions.

In many Asian countries, a systemic approach is not given sufficient importance; instead any given component is introduced either because of a fiscal or spending crisis[84], or as a consequence of macro-economic and demographic changes[85]; and subsequently functions in isolation. A more integrated pension model that incorporates as many components of the five pillar pension framework as is possible within individual countries is best suited to delivering retirement income more effectively and efficiently. Policy planners must focus on setting up such a framework.

5.3 Costs and Risks

Even in a country like Chile with an established pension system and well-developed financial and capital markets, there is a constant need to fine-tune the design and regulatory features which lead to affordable administrative and asset-management costs. In Asia, the administration and asset management cost are already high and more efforts are needed in this direction.

As more Asian economies establish DC systems, investors will be exposed to financial market risk to a greater extent. This is particularly true of systems where contributors will have the flexibility of choosing among multiple funds with varying risk-return characteristics. Even in established markets such as Chile, awareness of costs, returns and benefits of pension schemes has been found to be very poor. Thus emerging economies in Asia will need to invest in financial education and pension awareness courses so that investors can make informed choices. Chile's plan for setting up a fund for investor education, financed jointly by fund managers and the government, may be considered for adoption (with suitable modifications) by Asian countries. However, since much of developing Asia continues to reside in rural areas, it may be necessary to involve non-government organizations and local government officers in disseminating information at a grassroots level, and to benefit from the local knowledge.

In addition, adequate institutional safeguards need to be in place to ensure sound pension fund governance. Investment regulation should be risk-based, with the aim of establishing prudential limits to protect retirement funds. Over regulation of investment, and excessive investment in sovereign and public debt, will generate sub-optimal returns and hence increase pension costs.

5.4 Policy Oriented Pension Research

Chile has encouraged a culture of solid analytical, policy-oriented indigenous research on pension issues, and has made available robust databases to undertake such research. In Latin America, Chile is perceived as a leader in pension policy in Latin America. Chile's influence preceded that of the World Bank in the region, and was in fact instrumental in influencing the views of the Bank[86]. The positive impact of the Chilean reform on savings, capital accumulation and overall evolution of the financial industry was perceived as a positive for the system. Consequently, many countries in Latin America modeled their pension systems on Chile; and in the process Latin American countries were able to build sound local capacity in pension policy analysis.

Such a tradition of pension research is lacking in many Asian countries. Accurate actuarial databases are necessary to allow pension fund companies to price longevity-risk products correctly. Existing databases on morbidity and mortality patterns need to be strengthened. Information on the behavior of individuals and firms concerning saving and retirement should be monitored and updated. Information on socio-economic characteristics of workers in the informal sector should be obtained through regular surveys, so that appropriate policies can be framed to integrate them into a pension system. The analytical rigor and robustness of data on social security in Chile matches that of the OECD countries. Non-OECD Asia would do well to lift its own data base and analytical research to the standards set by Chile and OECD countries.

Asian countries need to substantially enhance their capacity to undertake rigorous empirical-evidence based policy-relevant research on pensions and health-care issues. The challenges of ageing in Asia are too immense and complex to delay building such capacity, and not adopting a mind-set which translates research findings into timely policy measures[87].

Asian countries should consider setting up independent pension research centres; and establish an Asian forum for the National Centres to exchange information experiences and engage in policy dialogue. An Asian forum for social security deserves serious consideration. But the focus should be on learning from others and on building local capabilities and capacities to improve social security administration, coverage, and benefits, without sacrificing robustness and long term sustainability.

As Asia will get old before it gets rich, it has a vital stake in constructing sustainable, robust and adequate pension systems and social safety nets. There is an urgency for the Asian countries to develop a new social contract involving all the stakeholders, current and future beneficiaries, key policymakers, and employer representatives, and the taxpayers. A consensus on social contract will make the task of such construction more harmonious, and thereby help countries better manage the globalization challenges. The extent to which Asia succeeds in this task will have a major impact on its role in the twenty first century.

Table 1 A Snapshot of the Chilean Economy

	2005	2006	2007
			(estimates)
Gross Domestic Product (USD billions)	119	146	162.5
Real GDP growth (%)	5.7	4	5.2
Consumer Prices (Annual % change Dec on Dec)	3.7	2.6	7.8
Population (millions)	16.3	16.4	16.6
Export of goods fob (USD billion)	41.3	58.1	68.3
Import of goods cif (USD billion)	30.5	35.9	43.8
Current Account Balance (% of GDP)	1.1	3.6	3.8
Foreign Exchange Reserves excluding gold (USD million)	16960.1	19424.6	16904.7
Foreign Debt (% of GDP)	37.7	32.6	32.3
Average Exchange Rate (Chilean Pesos per Dollar)	559.9	530.3	522.7

Source: The Chilean Economy at a Glance, Central Bank of Chile, January 2008.
Downloaded from www.bcentral.cl on May 18, 2008

Table 2 Demographic Indicators	
Total Population (in millions)	16.4
Urban population (in percent of total)	87.6
Area (thousand sq. km.)	756.1
Density (per sq. km)	21.7
Life expectancy at birth (years)	78.2
Crude birth rate (per thousand)	15.7
Crude death rate (per thousand)	5.4
Infant mortality rate (per 1000 births)	8
Mortality rate (ages 1-4, per 1000)	10

Source: IMF Country Report No. 07/333, September 2007. All data pertains to 2005

Table 3 Chile Selected Macroeconomic Indicators

	Population	Inflation Rate (%)	GDP at Constant Prices	Annual growth of GDP(Const Prices)	GDP at Current Prices	GDP at Current Prices	GDP per capita current prices	Current account balance	Current account balance	Exports merchandise fob	Imports merchandise cif
	Millions of persons	Consumer Price Index	Billions of Pesos	%	Billions of Pesos	Billions of US Dollars	US Dollars	Billions of US Dollars	Percent of GDP	US$ million	US$ million
1980	11.1	35.1	18,669	7.9	1,075	27.6	2492.9	-1.8	-6.4	4705	5797
1981	11.3	19.7	19,829	6.2	1,273	32.6	2884.8	-4.7	-14.5	3837	7181
1982	11.5	9.9	17,134	-13.6	1,239	24.3	2118.4	-2.3	-9.5	3706	3989
1983	11.7	27.3	16,654	-2.8	1,558	19.8	1694.3	-1.1	-5.7	3831	3085
1984	11.9	19.9	17,634	5.9	1,893	19.2	1621.8	-2.1	-11	3651	3574
1985	12.0	30.7	17,982	2	2,652	16.5	1368.5	-1.4	-8.6	3804	3072
1986	12.2	19.5	18,988	5.6	3,419	17.7	1447.2	-1.2	-6.7	4191	3436
1987	12.5	19.9	20,237	6.6	4,586	20.9	1678.6	-0.7	-3.5	5224	4396
1988	12.7	14.7	21,712	7.3	6,037	24.6	1945.7	-0.2	-0.9	7052	5292
1989	12.9	17.0	24,015	10.6	7,577	28.4	2203.8	-0.7	-2.4	8078	7233
1990	13.1	26	24,896	3.7	9,622	31.6	2409.1	-0.5	-1.5	8373	7742
1991	13.3	21.8	26,880	8	12,720	36.4	2734.6	-0.1	-0.3	8942	8207
1992	13.5	15.4	30,180	12.3	16,123	44.5	3283.0	-1.0	-2.2	10007	10183
1993	13.8	12.7	32,293	7	19,276	47.7	3463.4	-2.6	-5.4	9199	11134
1994	14.0	11.4	34,138	5.7	23,175	55.2	3941.2	-1.6	-2.9	11604	11820
1995	14.2	8.2	37,767	10.6	28,309	71.3	5020.9	-1.3	-1.9	16024	15900
1996	14.4	7.4	40,562	7.4	31,238	75.8	5255.0	-3.1	-4.1	16627	19199
1997	14.6	6.1	43,284	6.7	34,721	82.8	5663.0	-3.7	-4.4	17870	20822
1998	14.8	5.1	44,700	3.3	36,532	79.4	5354.8	-3.9	-4.9	16323	19882
1999	15.0	3.3	44,534	-0.4	37,135	73.0	4860.2	0.1	0.1	17162	15987
2000	15.2	3.8	46,521	4.5	40,570	75.2	4943.7	-0.9	-1.2	19210	18507
2001	15.4	3.6	48,162	3.5	43,529	68.6	4451.1	-1.1	-1.6	18272	17429
2002	15.6	2.5	49,202	2.2	46,332	67.3	4314.0	-0.6	-0.9	18180	17092
2003	15.7	2.8	51,156	4	51,156	74.0	4698.2	-0.8	-1.1	21664	19322
2004	16.0	1.1	54,217	6	58,405	95.8	5992.0	2.1	2.2	32520	24794
2005	16.2	3.1	57,316	5.7	66,599	119.0	7350.8	1.3	1.1	41297	30492
2006	16.4	3.4	59,589	4	77,338	145.8	8903.4	5.3	3.6	58116	35903
2007	16.6	3.9	63,079	5.9	85,274	160.8	9697.7	5.9	3.7	58700	43840
2008	16.8	4.1	66,233	5	90,024	166.9	9948.5	3.9	2.3	53600	42600

Notes: IMF data after 2006 are estimates

Source: IMF Database and United Nations Statistics Division; Data extracted on April 25, 2008 from
http://unstats.un.org/unsd/cdb/cdb_source_xrxx.asp?source_code=26 2008 projections from IMF Country Report No. 07/333, September 2007

Table 4 Selected Fiscal Indicators

% of GDP	2003	2004	2005	2006	2007	2008
Gross Consolidated Debt of the Public Sector (central bank, non-financial public enterprises, and general government)	44.4	39.0	30.4	26.0	25.3	25.1
Of Which : Central Government Debt	13.0	10.7	7.2	5.9	5.2	4.5
Central Government Fiscal Balance	-0.2	2.1	4.6	7.7	6.0	2.9
Gross External Debt	58.2	45.4	37.8	33.1	31.0	30.1
Public	12.5	10.3	8.0	7.4	6.5	5.0
Private	45.7	35.1	29.8	25.7	24.5	24.3

Source: IMF Country Report No. 07/333, September 2007. Data for 2007 and 2008 are estimates
Note: Gross consolidated debt of the public sector does not include liabilities on account of recognition bonds that totalled 9.5 percent of GDP at end-2006

Table 5 Pension Funds in the AFP System

Pension Funds	Total (US$ million)	Proportion of Market
BBVA PROVIDA	27479.16	31.00%
HABITAT	20850.82	23.52%
CUPRUM	16471.61	18.58%
BANSANDER	10834.18	12.22%
ING SANTA MARIA	9930.05	11.20%
PLANVITAL	3065.96	3.46%
TOTAL	88631.78	100%

Source: Association of AFP Annual Report 2006
Note: All Data as in December 2006

Table 6 Pension Funds by Fund Type

Pension Funds	Fund A	Fund B	Fund C	Fund D	Fund E	Total
	(US$ Million)					
BANSANDER	2688.15	2640.41	4474.55	900.01	131.06	10,834.18
CUPRUM	4087.72	3818.20	6692.35	1593.75	279.59	16,471.61
HABITAT	3611.97	5191.01	9589.28	2074.20	384.36	20,850.82
PLANVITAL	429.19	553.50	1547.38	488.99	46.50	3,065.96
BBVA PROVIDA	4494.44	6101.43	13,241.09	3216.11	426.09	27,479.16
ING SANTA MARIA	1546.89	2070.52	4795.57	1373.62	143.45	9,930.05
TOTAL	16,858.36	20,375.47	40,340.22	9,646.68	1,411.05	88,631.78

Source: Association of AFP Annual Report 2006
Note: Data pertains to December 2006

Table 7 Types of Pensions

Type of Pension	Percentage of total pensions paid, November 2007
Early Retirement	37.0
Old Age	28.0
Widow's Pension	17.0
Orphan's Pension	8.0
Total Disability	7.0
Partial Disability	1.0
Others	2.0
Total	100

Source: Asociacion AFP, downloaded on February 10, 2008 from http://www.afp-ag.cl/ingles/sistema/02_04f.htm

Table 8 An Overview of the AFP System

Year	No. of members (Million)	No. of contributors (Million)	Real Annual Yield (%)	Value of Pension Funds# (US$ Billion)
1981	1.4	-	12.9	0.33
1982	1.4	1.1	28.5	1.05
1983	1.6	1.2	21.2	1.91
1984	1.9	1.4	3.6	2.52
1985	2.3	1.6	13.4	3.48
1986	2.6	1.8	12.3	4.55
1987	2.9	2.0	5.4	5.57
1988	3.2	2.2	6.5	6.82
1989	3.5	2.3	6.9	8.41
1990	3.7	2.3	15.6	11.14
1991	4.1	2.5	29.7	15.76
1992	4.4	2.7	3.0	17.56
1993	4.7	2.8	16.2	22.56
1994	5.0	2.9	18.2	27.23
1995	5.3	3.0	-2.5	28.95
1996	5.6	3.1	3.5	30.67
1997	5.8	3.3	4.7	33.53
1998	6.0	3.1	-1.1	34.77
1999	6.1	3.3	16.3	42.24
2000	6.3	3.2	4.4	45.49
2001	6.4	3.4	6.7	49.99
2002	6.7	3.4	3.0	53.44
2003	6.9	3.6	11.9	61.13
2004	7.1	3.6	9.1	68.55
2005	7.5	3.7	5.7	74.76
2006	7.7	4.0	17.0	88.63
2007	7.9*	4.3*	6.5*	111.04

*as at November 2007

as at December of each year

Source:

(i) Members, Contributors, Annual Yield from Asociacion AFP, downloaded on February 10, 2008 from http://www.afp-ag.cl/ingles/02_04.asp

(ii) Value of pension funds from Sistema Chileno de Pensiones, Sexta Edición, Anexo Estadístico, SAFP, 2007, Retrieved on February 10, 2008 from http://www.safp.cl/sischilpen/sexta_edicion_2007/sischilpen2007_anexo.pdf

Table 9 Pension Fund Investment Portfolio

Sector	US$ million, in June 2007	% of Total
Electricity	7144	7.1
Telecommunications	1751	1.7
Sanitation	985	1.0
Natural Resources	5624	5.6
Real Estate	4432	4.4
Infrastructure	2355	2.3
Services	4542	4.5
Investment Funds	4562	4.5
Banks	24,273	24.1
Foreign	32,816	32.6
Government	9704	9.6
Various Industries	2409	2.4
Total	100,598	100

Source: Table N.3, AFP Association Research Series No.62, August 2007

Table 10 Deficit of the Pension System in Chile: 1981-2004

Year	**Operational Deficit**	**Recognition Bonds**	**PASIS**	**Minimum Pension**	**Civilian Deficit**	**Military Deficit**	**Total Deficit**
1981	3.6	0.0	0.2	0.0	3.8	n.a	3.8
1982	6.0	0.1	0.3	0.0	6.4	n.a	6.4
1983	6.5	0.2	0.4	0.0	7.1	n.a	7.1
1984	6.9	0.2	0.5	0.0	7.6	n.a	7.6
1985	6.0	0.2	0.5	0.0	6.7	n.a	6.7
1986	5.9	0.3	0.5	0.0	6.7	n.a	6.7
1987	5.2	0.4	0.5	0.0	6.1	n.a	6.1
1988	4.6	0.4	0.4	0.0	5.4	n.a	5.4
1989	4.7	0.4	0.3	0.0	5.4	n.a	5.4
1990	3.3	0.5	0.3	0.0	4.1	1.2	5.4
1991	3.3	0.5	0.3	0.0	4.1	1.2	5.3
1992	3.2	0.5	0.3	0.0	4.0	1.1	5.1
1993	3.2	0.6	0.3	0.0	4.1	1.2	5.3
1994	3.1	0.7	0.3	0.0	4.1	1.1	5.2
1995	2.8	0.7	0.3	0.0	3.8	1.1	4.9
1996	3.1	0.7	0.3	0.0	4.1	1.1	5.2
1997	3.0	0.8	0.3	0.0	4.1	1.1	5.2
1998	3.2	0.9	0.3	0.0	4.4	1.1	5.5
1999	3.2	1.1	0.4	0.0	4.7	1.2	5.9
2000	3.1	1.1	0.4	0.0	4.7	1.3	6.0
2001	3.1	1.1	0.4	0.1	4.7	1.3	6.0
2002	3.0	1.1	0.4	0.1	4.6	1.3	5.9
2003	2.9	1.2	0.4	0.1	4.5	1.3	5.8
2004	2.5	1.3	0.3	0.1	4.2	1.3	5.5
Average from 1981 to 2004							
	3.3	0.6	0.4	0.02	4.3	1.4	5.7
Projected average from 2005-10							
	2.0	1.2	0.4	0.08	3.7	1.3	5.0

Source: Arenas De Mesa and Mesa Lago (2006), Table 2, P.5.
Note: For the years 1981-89, Operational Deficit includes military deficit
n.a: Not available

Table 11 Commissions Charged by AFPs

Year	Fixed Monthly Commission per Contribution (in pesos) (Weighted Mean)	Variable Commision (as % of Taxable Wage)
1982	29	2.66
1983	182	3.62
1984	145	3.58
1985	138	3.57
1986	131	3.40
1987	134	3.38
1988	885	3.54
1989	610	3.24
1990	460	2.93
1991	382	2.93
1992	325	2.93
1993	220	2.98
1994	180	2.99
1995	168	3.00
1996	205	2.91
1997	185	2.90
1998	406	2.61
1999	476	2.40
2000	596	2.31
2001	591	2.26
2002	575	2.26
2003	570	2.26
2004	548	2.26
2005	410	2.30

Source: Source: Sistema Chileno de Pensiones, Sexta Edición, Anexo Estadístico, SAFP, 2007, Retrieved on November 12, 2007 from http://www.safp.cl/sischilpen/sexta_edicion_2007/sischilpen2007_anexo.pdf

Note: Commissions charged for each year pertain to December of that year

Table 12 Equity Limits in Multi-Funds

	Maximum Limits For Equities	
Fund A	80%	40%
Fund B	60%	25%
Fund C	40%	15%
Fund D	20%	5%
Fund E	Not Authorized	Not Authorized

Source: Associacion AFP, downloaded on October 10, 2007 from http://www.afp-ag.cl/ingles/03_01.asp

Table 13 Real Yields of Multi-Funds

Returns in %	**Jan. 07- Sept. 07** (9 months)	**Sept. 02 - Sept. 07** (Annualised)
Fund A	12.62	17.18
Fund B	9.72	12.33
Fund C	6.89	9.15
Fund D	4.24	6.64
Fund E	1.31	3.44

Note: Yields are deflated by change in UF during the period
Source: Associacion AFP, Multifunds: Results and Trends, No.18, September 2007, P.1, Downloaded on November 12, 2007 from http://www.afp-ag.cl/ingles/estudios/multifondos18.pdf

Table 14 Pension Fund Investment by Sector

Year	State Sector	Financial Sector	Corporate Sector	External Sector	Disposable Assets
	Investment in each sector, expressed as a % of total investment, and measured in December of each year				
1981	28.07	71.34	0.59		0.00
1982	26.00	73.38	0.61		0.01
1983	44.46	53.36	2.17		0.02
1984	42.06	55.65	1.81		0.48
1985	42.44	55.97	1.11		0.48
1986	46.64	48.66	4.59		0.12
1987	41.36	49.44	8.82		0.38
1988	35.41	50.06	14.49		0.04
1989	41.58	39.21	19.19		0.03
1990	44.07	33.38	22.43		0.12
1991	38.3	26.65	34.94		0.10
1992	40.89	25.21	33.76		0.14
1993	39.3	20.68	39.36	0.57	0.09
1994	39.69	20.08	39.31	0.90	0.02
1995	39.41	23.11	37.18	0.20	0.09
1996	42.1	24.56	32.77	0.54	0.02
1997	39.59	30.13	28.96	1.25	0.08
1998	40.96	32.05	21.17	5.73	0.09
1999	34.59	33.70	18.26	13.42	0.03
2000	35.73	35.62	17.57	10.88	0.19
2001	35.02	33.08	18.49	13.35	0.06
2002	29.99	35.04	18.44	16.41	0.12
2003	24.70	27.29	24.01	23.89	0.11
2004	18.67	29.54	24.41	27.24	0.14
2005	16.45	29.74	23.25	30.41	0.16

Source: Sistema Chileno de Pensiones, Sexta Edición, Anexo Estadístico, SAFP, 2007, Retrieved on October 10, 2007, from http://www.safp.cl/sischilpen/sexta_edicion_2007/sischilpen2007_anexo.pdf

Table 15 Pension System Coverage of Economically Active Population

Year	SAFP Measure (1) Members Covered/ Workforce (in %)	World Bank Measure (2) Contributors/ Economically Active Population	(3) Contributors/ Employed	(4) Contributors/ Wage Earners
1989	56.81			
1990	58.91	62.21	67.46	80.71
1991	61.82			
1992	63.84	61.14	64.35	79.1
1993	63.82			
1994	65.11	62.26	66.2	80.42
1995	66.99			
1996	68.07	62.43	65.8	79.62
1997	68.71			
1998	68.31	58.9	64.77	78.58
1999	66.58			
2000	68.48	58.06	64.34	78.09
2001	69.00			
2002	72.59			
2003	70.72	58.74	64.71	78.65
2004	62.69			
2005	67.75			

Sources:

(1) from Sistema Chileno de Pensiones, Sexta Edición, Anexo Estadístico, SAFP, 2007, Retrieved on October 10, 2007, from http://www.safp.cl/sischilpen/sexta_edicion_2007/sischilpen2007_anexo.pdf.

Note: Members covered in (1) refers to members of the AFP System with fewer than twelve months without movement in their individual capitalization accounts.

(2), (3), (4)

From Rofman, R. and L. Lucchetti (2006), Table A4.1, P.60

Note: Economically active population includes individuals over the age of 20 who are employed or are actively seeking employment. Employed persons are defined as those over the age of 20 who are engaged in some form of work, whether paid or unpaid during the reference week of the survey, or who may not have worked (due to vacations, medical leave, etc.) but do have employment to which they are expected to return. Those who describe themselves as underemployed are also included in this category. The definition of wage earners includes workers and employees of the public and private sectors, as well as household employees.

Table 16 Pension System Coverage of the Elderly

Year	Beneficiaries / Population Age 65+		
	All	**Men**	**Women**
1990	73.04	80.11	67.49
1992	66.5	74.42	61.53
1994	68.21	78.43	60.38
1996	65.94	74.7	59.51
1998	62.17	69.08	57.01
2000	68.89	75.54	63.82
2003	62.99	71.76	56.42

Source:Rofman, R. and L. Lucchetti (2006), Table A4.1, P.60; and Table A4.4, P.61

Table 17 Average Time by Occupational Status for Men and Women

Occupational Status	**Men**	**Women**
Formal Employee	60 percent	46 percent
Informal Employee	8 percent	8 percent
Self-employed	9 percent	7 percent
Unemployed	percent	5 percent
Non-remunerative Family Work/Inactive	0 percent	35 percent

Source: Reproduced from Princeton(2007)

Table 18 Employment Characteristics by Income Deciles

	Deciles			
Percent (%)	**I**	**II**	**IX**	**X**
Salaried but "No Contract"				
2003	50.7	34.0	12.2	10.0
2006	45.0	29.4	13.1	11.0
Employed but "No Contribution"				
2003	60.0	45.1	30.4	28.3
2006	54.6	39.7	26.2	25.8

Note: Deciles are by Income of Household
Source: CASEN 2006, Trabajo e Ingreso, downloaded on December 1, 2007 from http://www.mideplan.cl/final/categoria.php?secid=25&catid=124

Table 19 Mismatch between Actual and Assumed Conditions

	Assumed	**Actual**
Coverage	Above 65%	55%
Years of Working Life	45	40
Density of Contributions	85%	52%
Fund Returns	5%	4.5% to 6.5%
Replacement Rate	70% to 80%	44%

Source: Marcel (2006)

Table 20 Incidence of Poverty and Indigence by Age (1990-2006)

Year	**Above 60 years**	**Total Population**
	As % of Respective Population	
1990	20.6	38.6
1992	16.2	32.9
1994	14.6	27.6
1996	11.0	23.2
1998	11.0	21.7
2000	7.9	20.2
2003	9.8	18.7
2006	7.5	13.7

Source: CASEN 2006, La Situacion De Pobreza En Chile, 2006, www.mideplan.cl

Table 21 Operational Performance of AFP Industry

Year	Operating Income ('000 $)	Operating Expenses ('000 $)	Operating Results ('000 $)	Operating Expense Ratio	Operating Profit Margin (%)	Variable Commission On Member Income (%)
	(1)	(2)	(3) = (1) – (2)	(2) divided by (1)	(3) divided by (1)	
1982	114788	126524	-11735	110.22	-10.22	2.66
1983	125059	110405	14653	88.28	11.72	3.62
1984	133585	118356	15229	88.60	11.40	3.58
1985	140729	117913	22816	83.79	16.21	3.57
1986	147004	116472	30531	79.23	20.77	3.4
1987	160685	123539	37145	76.88	23.12	3.38
1988	348764	311820	36944	89.41	10.59	3.54
1989	407490	331177	76313	81.27	18.73	3.24
1990	438736	346702	92035	79.02	20.98	2.93
1991	428291	322398	105893	75.28	24.72	2.93
1992	482828	381799	101029	79.08	20.92	2.93
1993	553588	437697	115891	79.07	20.93	2.98
1994	600134	492329	107806	82.04	17.96	2.99
1995	625602	512404	113198	81.91	18.09	3
1996	632059	530870	101189	83.99	16.01	2.91
1997	699537	592429	107108	84.69	15.31	2.9
1998	653758	539181	114577	82.47	17.53	2.61
1999	719925	511347	208578	71.03	28.97	2.4
2000	790225	468362	321863	59.27	40.73	2.31
2001	704622	457474	247147	64.92	35.08	2.26
2002	667968	457701	210267	68.52	31.48	2.26
2003	720988	530523	190465	73.58	26.42	2.26
2004	763800	539601	224200	70.65	29.35	2.26
2005	821448	586633	234814	71.41	28.59	2.3

Source: from Sistema Chileno de Pensiones, Sexta Edición, Anexo Estadístico, SAFP, 2007, Retrieved on December 1, 2007 http://www.safp.cl/sischilpen/sexta_edicion_2007/sischilpen2007_anexo.pdf

Note: Columns (1), (2) and (3) are reported in thousands of dollars as of December 2005

Table 22 Five Types of Limits Per Fund

Per Instrument	**19**
Groups of Instruments	**9**
Per Issuer	**46**
Groups of Issuers	**4**
Related Interests	**19**
Total	**97 limits**

Source: Berstein (2006)

Table 23 Solidarity Pension System Transition

Year	PBU		PMAS	
	CLP	USD	CLP	USD
1st July 2008	60,000	111	60,000	111
1st July 2009	75,000	139	75,000	139
1st July 2010	75,000	139	100,000	185
1st July 2011	75,000	139	150,000	278
1st July 2012	75,000	139	200,000	371

Source: Gobierno de Chile. Reforma Previsional: Protección para la vejez en el Nuevo milenio, December 2006.
Exchange rate: 59.9 CLP / USD

Table 24 Annual Financial Flows With/Without Reform

As Percent of GDP	2005	2025 (Projections)	
		Without Reform	With Reform
INP + PMG + PASIS + BR	2.9	1.6	----
Solidarity Pillar	----	----	2.5
Contributory Pillar	1.1	2.5	2.9
Total	4.0	4.1	5.4

Table 25 Fiscal Cost of Proposed Reform

	Proposal	Incremental Cost in 2025 (% of GDP)
1	New Solidarity Pillar	0.75
2	Extension of Family Support Benefits to Independent Workers	0.02
3	Equal Tax Treatment for Contributions of Independent Workers	0.05
4	State Subsidy for New Entrants to Workforce	0.08
5	Bonus accrued on each live birth	0.09
6	Elimination of legal and tax restrictions that prevent sub-contracting of AFP Services	0.01
7	Recognition of credit of first category investments of the pension funds	0.01
8	Extension of APV and APVC	0.07
9	Creation of a fund for pension education	0.01
10	Automatic induction into the pension system; including initial contribution by the State	0.01
	Total	**1.1**

Table 26 Old Age Dependency Ratios in Selected Asian Countries

Country	**Old Age Dependency Ratio**	
	2005	2050
China	11	39
Hong Kong	16	58
India	8	21
Japan	30	74
Singapore	12	59
South Korea	13	64
Taiwan	13	63
Thailand	11	38

Note: Old Age Dependency Ratio: Ratio of over 65-yr olds to 15-64 yr old persons
Source: Allianz Dresdner Economic Research, UN

Table 27 Defined Contribution Schemes in Asia-Pacific

Country	Year of Introduction of DC Scheme	Type
China	2004	Voluntary Occupational
Hong Kong	2000	Mandatory Occupational
India	2004	Mandatory for new Civil Servants/ Voluntary for all Citizens
Japan	2001	Voluntary Occupational
Singapore	1955	Mandatory Occupational
South Korea	2005	Voluntary Occupational
Taiwan	2005	Mandatory Occupational
Thailand	1997 Planned for 2008	Mandatory for new Civil Servants Mandatory Occupational

Source: Allianz Global Investors (2007)

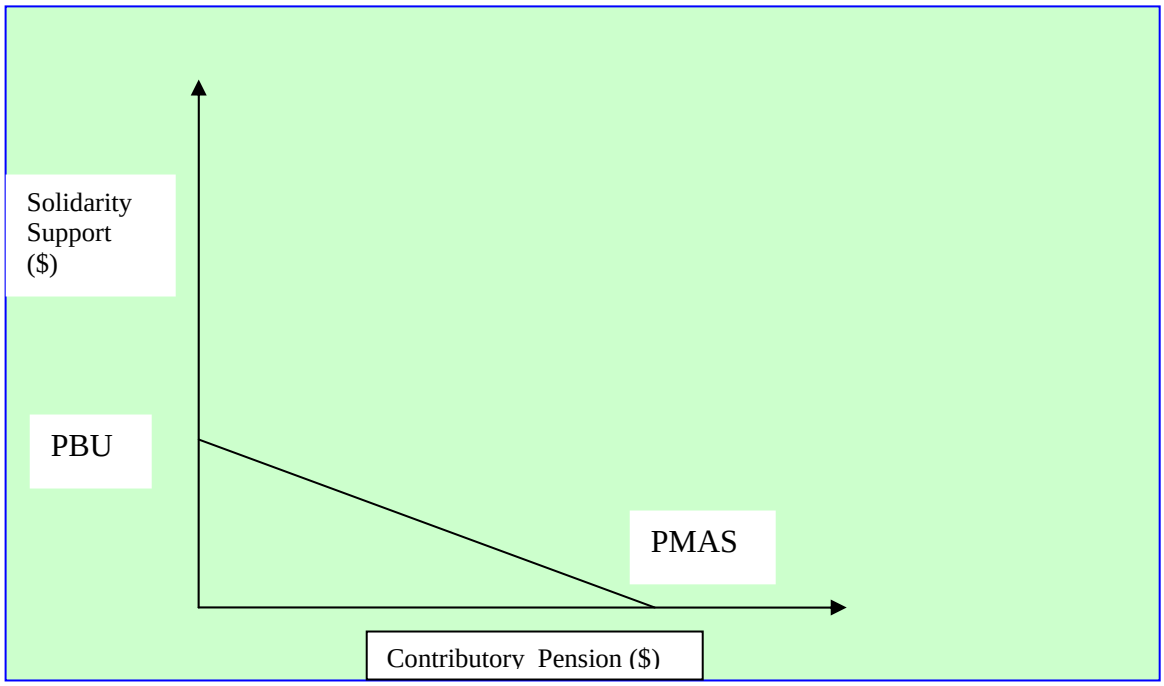
Figure 1 Multi-Pillar Pension Taxonomy of the World Bank

Pillar	Target Groups			Main criteria		
	Lifetime poor	**Informal sector**	**Formal sector**	**Characteristics**	**Participation**	**Funding/ collateral**
0	**X**	x	x	"Basic or "Social pension," at least social assistance, universal or means-tested	Universal or Residual	Budget/general revenues
1			X	Public pension plan, publicly managed, defined-benefit or notional defined-contribution	Mandated	Contributions, perhaps with financial reserves
2			X	Occupational or personal pension plans, funded defined-benefit or funded, defined-contribution	Mandated	Financial assets
3	x	X	X	Occupational or personal pension plans, funded defined-benefit or funded, defined contribution	Voluntary	Financial assets
4	x	X	X	Personal savings, homeownership, and other individual financial and non-financial assets	Voluntary	Financial assets

Note*:* The size of x or X characterizes the importance of each pillar for each target group.

Source: Holzmann, Robert and Richard Hinz, 2005, "Old-Age Income Support in the twenty first Century: An International Perspective on Pension Systems and Reform", Washington D.C.: World Bank

Figure 2 Solidarity Support for Pensions in Chile



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ENDNOTES

[1] World Bank, 2006
[2] Longevity risks concerns the probability that accumulated savings and retirement benefits may be inadequate to last until death. Inflation risk concerns the probability that value of retirement benefit may not be protected against inflation during the retirement period.
[3] Ross, 2004
[4] Holzmann and Hinz, 2005
[5] The definition of developing Asia excludes the following high-income economies: Japan, Korea, Singapore, Hong Kong and Taiwan
[6]Standard and Poor (S&P) Agency's rating A+ for long term debt Source: Ministry of Finance, Chile; Downloaded on June 16, 2008 from http://www.minhda.cl/portada.php
[7] Defined as fiscal surplus adjusted for deviations of output and copper prices from their long-term equilibriums.
[8] See Section 3 for an explanation of the concept of recognition bonds
[9] Niemietz(2007), P.5
[10] Source: CBO (1999). This decline reflected changing demographics as well as greater participation in the underground economy that reduced payroll tax receipts (CBO(1999), P.19)
[11] it has been argued that the switch was "politically imposed" on many workers by the military dictatorship that launched the reform Business Chile article July 2002
[12] See, however, Pinera (1996); Pinera (1998)
[13] Subject to an upper limit of 60 UF
[14] This being a variable percentage fixed by free competition between the various AFPs. At present, the average of the system is 2.26% of taxable earnings. This Extra Contribution covers any possible difference between the member's Capital and what is needed to pay the corresponding pension if the worker becomes disabled or dies before reaching the legal age for receiving a retirement pension. Source: http://www.afp-ag.cl/ingles/02_02.asp#4, downloaded on October 3, 2007
[15] The UF is adjusted every month according to changes in the previous month's Consumer Price Index (CPI). In Chile, the national currency- peso, is the medium of exchange and the UF is fixed in real terms. See Shiller(1998) both for an assessment of indexed units of accounts in general, as well as Chile's experience with the UF.
[16] Both avenues of voluntary saving are referred to as APV accounts
[17] As long as the self-employed are making social security contributions. This caveat is introduced to encourage them to set up pension accounts. For more details see SAFP (2006) , available online at http://www.safp.cl/sischilpen/files/chap_08.pdf
[18] In December 1989, there were 189,948 accounts with an average balance of 98,930 pesos; therefore the number of accounts has risen by almost 8 times. (Source: www.safp.cl)
[19] More than two transfers between funds in one calendar year results in an exit commission being levied
[20] http://www.afp-ag.cl/ingles/03.asp
[21] Arenas De Mesa and Mesa-Lago, 2006
[22] www.safp.cl
[23] Source: AFP
[24] The military and police pensions were not part of the 1981 reform (Arenas De Mesa and Mesa-Lago, 2004)
[25] See Pinera (1998) and research conducted by AFPs available at www.afp-ag.cl
[26] Shah (1997)
[27] Source: The AFP System: Myths and Realities, Research Department, The Chilean AFP Association, August 2004, P.6
[28] Arenas and Mesa-Lago (2006) include another outcome to this list, namely, redistributive effects, and refer to them as the "social impact of reform"
[29] Source: Research Series No. 62, August 2007, AFP Association, P.4
[30] Source: SAFP(2007)
[31] Arenas de Mesa and Mesa-Lago (2006), P.7
[32] Gill, Packard and Yermo (2005)

[33] CB Capitales (2002). This study by a brokerage firm shows that on an average, over the period 1982-July 2002, monthly contributions to an individual's AFP account grew and accumulated to an amount that was 14% lower than if the same monthly contributions were to be directed into a bank deposit. Given that the average amount of pensions and annuities paid was approximately $ 120,000 per month (UF 7.1) in 2002, a 14% increase in accumulated funds would lead to an additional monthly pension of $17,000. This is a significant impact, especially for members with low-value pensions.

[34] Soto (2005) assumes that the worker contributes 10 percent of earnings plus administrative fees and commissions to his individual pension account each year; costs of disability and survivor insurance are excluded; the contribution net of fees and commissions grows at the average rate of return realized by the pension funds each year — 10.29 real return for this period; and after 23 continuous years in the system, the individual retires. Using yearly data from 1982 to 2004, he estimated that for a worker who participated in the Chilean system from 1982-2005, retirement benefits would have been about 30 percent higher if the funds diverted to pay for fees and commissions had been deposited into the worker's account.

[35] Princeton, 2007

[36] Shah(1997) points out that regulations prescribed maximum limits on different classes of instrument, rating requirements for most interest-bearing securities, limits on maximum holding of securities of one issuer, limits on individual issue of any instrument, limits in terms of the share of the capital of the issuer in the sector and limits in terms of share of the pension fund in total pension fund assets.

[37] Srinivas, Whitehouse, Yermo (2000), P.23, Table 6. The authors provide a detailed account of effects of herding behaviour on pension fund returns.

[38] Source: Associacion AFP, Multifunds: Results and Trends, No.17, June 2007, P.4, Available online at http://www.afp-ag.cl/ingles/estudios/multifondos17.pdf. Age distribution of members in various funds supports this choice; close to 91% of members in funds A and B are 40 years old or younger, and thus naturally pre-disposed to opt for higher-risk and higher-return investments.

[39] The margin of 15 additional percentage points for investment abroad will be permitted gradually- the new limit will not be allowed to exceed 35% in the first 4 months, 40% between months five and eight and 45% as from month nine.

[40] Rofman, R. and L. Lucchetti (2006)

[41] Bertranou, Grushka and Rofman (2001), cited in Rofman, R. and L. Lucchetti (2006), P.7

[42] Cited by Rofman, R. and L. Lucchetti (2006) in Table A4.1, P.50

[43] Valdes-Preito (2004) defined coverage in terms of contributors as a proportion of population over the age of 15; as his indicator has a wider base, it is likely to be lower than indicators based on economically active popultion.

[44] Source: National Survey of Socio-Economic Characteristics (CASEN), cited in Rofman, R. and L. Lucchetti (2006), Tables A.4.1 to A.4.13, P.50-54

[45] The HLSS 2002 survey is discussed in more detail in the following section. These results are quoted from Arenas De Mesa, A.; J. Behrman and D.Bravo (2004), Table 12, P.31

[46] Arenas De Mesa, A.; J. Behrman and D.Bravo (2004). The density of contribution indicators were calculated by adding the number of months since January 1980 in which the interviewees declared having made pension system contributions and then dividing that by the number of months in which individuals were older than 15 since January 1980.

[47] James(2007). The author further emphasizes that this is much higher than the replacement rate an average full-career, middle-income worker would gets from Social Securityin the United States — about 40 percent of final wages.

[48] Arenas De Mesa, A.; J. Behrman and D.Bravo (2004), P.40, Figure 4

[49] Source: AFP, Data as on June 2007

[50] James,E.; A. Edwards and R.Wong (2003), P.44, Table 2. Data pertains to 1994

[51] Ibid, P.44, Table 2. The study examined gender differentials in wages in Chile, Argentina and Mexico, and found that at age 20, there was almost no differential; but by age 50, women were earning 60-70 percent per month of work.

[52] The life-expectancies at age 60 are as follows: Men- 19.1 years, Women- 22.8 years. When the accumulated sum in the individual accounts are divided by average life expectancies, , naturally women's pensions are lower than that of men (Mesa-Lago, 2005) .

[53] Arenas de Mesa and Mesa-Lago (2006)

[54] Detailed information on coverage of the employed labor force by sex and other categories is available in Arenas de Mesa and Mesa-Lago (2006), Table 8, P.16
[55] James,E.; A. Edwards and R.Wong (2003). The authors point out that the average widow's benefit is usually higher than the woman's own pension
[56] Gill, Packard, Pugatch, Yermo (2005)
[57] CASEN 2006. Available at http://www.mideplan.cl/final/categoria.php?secid=25&catid=124
[58] Berstein, Larrain and Pino (2007)
[59] Gill, Packard, Pugatch, Yermo (2005), P.83
[60] Valdes-Prieto(2004)
[61] Gill, Packard, Pugatch, Yermo (2005)
[62] See Valdes and Marinovic (2003) for a detailed study of the AFP market structure. The authors point out that declining average costs observed in Chile is compatible with other evidence regarding economies of scales accessed by the Social Security Administration in the United States, which, in spite of servicing over 100 million contributors, maintains decreasing average costs. (P.126). The demand curve over 1992-2001, and find that demand is driven only by sales efforts and gifts.
[63] Arenas de Mesa, Bravo, Behrman, Mitchell and Todd, 2006
[64] Valdes and Marinovic (2003) estimated the demand curve using monthly data from January 1992 to April 2002.
[65] AFP commissions have declined over the years, but very marginally. Variable commissions were at 2.44 percent in 1981, stayed in the 3.2-3.6 percent range through the eighties, and declined to 2.3 percent in 2005, only 0.14 points below the starting rate after 24 years.
[66] CB Capitale (2002)
[67] Berstein and Chumacero, 2003
[68] The details of the band of return rule are discussed in Section 3.5
[69] Marcel Commission, Executive Summary, P.3
[70] The Minister of Finance, Andrés Velasco. Quote from Ministry of Finance Press Notes, 16/12/2006, downloaded from www.minhda.cl on December 10, 2007
[71] Sistema de Pensiones Solidarias
[72] Pensión básica universal
[73] Pensión máxima con aporte solidario
[74] Solidarity pillar, contributory pillar, and voluntary pillar
[75] Press Note of the Ministry of Finance, Chile, Dated 15 December 2006, downloaded from www.hacienda.gov.cl/ on December 10, 2007
Chile's fiscal policy is based on the fiscal structural surplus rule. The income of the Chilean government is dominated by two sources: tax revenue, and revenue from copper exports- both of which are subject to cyclical fluctuations. The purpose of the fiscal rule introduced in 2000 is to protect government spending from the effects of economic and copper price cycles. This is accomplished by budgeting expenditure annually in such a manner that a structural surplus equivalent to 1 percent of GDP is generated by the Central Government. This requires the input of two key parameters – the medium term price of copper and the economy's output gap – which are estimated by two groups of independent experts in June-July each year. Subsequently the annual fiscal expenditure is set such that Structural Revenue – Fiscal Expenditure = 1% of GDP. This rule allows fiscal surpluses when government income is greater than structural revenue (e.g. when copper prices are high and/or the economy is operating above capacity); and for fiscal deficits when income is below estimated structural revenue.

[76] Kawai, 2006, Page 16
[77] During 2008, for the first time in history, the proportion of the population living in urban areas will reach 50 percent (Source: World Urbanization Prospects: The 2007 Revision, United Nations Department of Economic and Social Affairs/Population Division)
[78] Source: World Urbanization Prospects: The 2007 Revision, United Nations Department of Economic and Social Affairs/Population Division, downloaded on June 18, 2008, from http://www.un.org/esa/population/publications/wup2007/2007WUP_ExecSum_web.pdf
[79] From Holzmann and Hinz (2005), the suggested multipillar pension system consists of five basic tiers: (a) a noncontributory or "zero pillar" that provides a basic level of protection

(b) a “first-pillar” contributory system linked partially to earnings and seeks to replace some portion of income;
(c) a mandatory “second pillar” that is an individual savings account;
(d) voluntary “third-pillar” arrangements that be individual, employer sponsored, defined benefit or defined contribution but is discretionary in nature; and
(e) informal intrafamily or intergenerational sources of both financial and nonfinancial support to the elderly, including access to health care and housing

[80] Holzmann and Hinz (2005)

[81] Bo¨rsch-Supan (2007) indicates that uptake share of on-retired households with state-promoted private pensions doubled between 2002 and 2004. At the end of 2006, the uptake rate end of of all employees who also belong to the first pillar of the German pension system exceeded 23 percent .

[82] Asher(2008c)

[83] Bo¨rsch-Supan (2007) explains the analytical aspects of rational mechanisms, and discusses their limits

84 In India and Thailand, for instance, new DC schemes have been introduced to control government expenditure on existing DB schemes.

[85] China started a very comprehensive reform program in 1997 with the objective of establishing a multi-pillar system. Previously, state owned enterprises provided life time employment and generous pensions, which in some cases resulted in an average replacement rate of more than 80% of final salary. However, the opening up of the economy and rapid ageing has made this system unsustainable.

[86] Valdés-Prieto (2007)

[87] Asher(2008a)