

SP
Superintendencia of Pensions

**CHILE 2008:
A SECOND-GENERATION
PENSION REFORM**

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PROLOGUE

This book was put together on the basis of a collection of documents produced by professionals at the Superintendence of Pension Fund AFPs (SAFP), now the Superintendence of Pensions (SP), which formed part of the diagnosis underlying the most important Reform made to the Chilean Pension System since it was set up in 1980.

The main aim of this publication is to put together a series of the Superintendence's internal documents that served as support to the debate, both inside the Council for Pension Reform and later, in the Bill's passage through parliament. Each of the aspects contained in the Reform to the Pension System, embodied in Law 20,255 on 27th March 2008, was the result of deep analyses, most of which have been incorporated either totally or partially in this book. Therefore, this compendium constitutes a significant contribution that may be of use for similar processes in the future, both in Chile and in other countries.

It is important to emphasise that this work relied in turn on a large quantity of previous studies and on the experience of supervision accumulated during the 26 years of the SAFP's existence. It is also directly related with the reinforcement of the Studies Division of the Superintendence and the creation within it of a Research Department in the year 2003. Guillermo Larraín, who was Superintendent at that period, launched this process of reinforcement, which benefited from the knowledge of the pension system's institution and the contribution of top-level economists who joined the research department to analyse this information, making it possible to produce working papers and internal minutes on those analyses. In the case of the working papers, these have been presented at local and international seminars which have endorsed their technical thoroughness. It was in part this material that made it possible to uphold the Reform that is being implemented today. The diagnosis concerning the pension system was also built up gradually over the years with the contribution of economists such as Salvador Valdés, Jorge Tarziján and Augusto Iglesias, among other experts, both local and foreign. An important landmark was the Seminar in November 2004, organized by the SAFP and the Centre of Public Studies (CEP). At that Seminar, these and other authors presented a series of articles prepared specially for the occasion, which dealt with the areas of coverage and competition in the Pension System.¹

Another source that provided information and analysis about the system was a series of papers commissioned by Expansiva, which were then presented at a discussion forum that made it possible to share and debate opinions on the future of the Pension System. The papers presented on that occasion included proposals and analyses for improving the coverage, competition and fairness of the system, among other topics.²

¹ See documents in www.spensiones.cl/573/propertyvalue-1832.html

² The documents, available in <http://www.expansivaudp.cl>, were the following: "Tres Exigencias Mínimas para la Reforma Previsional", Manuel Riesco; "Trabajadores Independientes: ¿Incentivarlos u Obligarlos a Cotizar? Una Tercera Opción", Solange Berstein, Gonzalo Reyes and Francisco Pino; "Pensiones para Todos: Análisis de Alternativas para Extender la Cobertura del Sistema Previsional Chileno", Eduardo Fajnzyblber; "Mejores Pensiones para las Mujeres: Una Evaluación de Políticas", Solange Berstein and Andrea Tokman; "La Cobertura Previsional y el Acceso a la Pensión Mínima Legal", Jaime Ruiz-Tagle; "Licitaciones: Imprimiendo Competencia al Sistema de AFP", Guillermo Larraín, Pablo Castañeda and Rubén Castro; "Alternativas para Aumentar la Competencia entre las AFP", Salvador Valdés; "Ideas para Aumentar la Competencia en el Mercado de AFP", Jorge Tarziján.

During the intensive work of the Advisory Council for Pension Reform called by President Michelle Bachelet, the diagnosis was consolidated, finally giving rise to a comprehensive Pension Reform. The Council was chaired by Mario Marcel and its members were Harald Beyer, David Bravo, Axel Christensen, Regina Clark, Alvaro Clarke, Rosanna Costa, Martín Costabal, María Margarita Errázuriz, Alejandro Ferreiro, Augusto Iglesias, Alejandra Mizala, Andrea Repetto, Jaime Ruiz-Tagle and Andras Uthoff. This work took about four months and during that period an international seminar was organised by CIEPLAN and the SAFP. Important foreign researchers were invited to it to give their views on the Chilean System and ways in which it could potentially be improved. Experts such as Truman Packard, Fabio Bertranou, Olivia Mitchell, Estelle James, Nicholas Barr, Carmelo Mesa Lagos, Zvi Bodie, Michael Cichon and Juan Yermo spoke at this Seminar.³

A very important contribution to the Council's work was also that provided by representatives of different sectors of society at "hearings". In this way it was possible to discover the views of bodies such as organizations of employed and self-employed workers, groups of women and pensioners, actors in the industry, business organizations, international organizations and research institutes, plus individuals whose experience and knowledge were particularly relevant, such as former Superintendents of AFPs, former Ministers of Labour, academics and independent professionals.

The Council for Pension Reform presented President Michelle Bachelet a complete report containing concrete proposals, most of which were included in the Bill. In order to produce this Bill, a Committee of Ministers was formed, chaired by the Minister of Labour, Osvaldo Andrade. Its members were the Finance Minister, Andrés Velasco, the Minister-General of the Government, Ricardo Lagos Weber, the Minister in charge of the National Service for Women, Laura Albornoz, and the Minister-General of the Presidency, Paulina Veloso.

This committee had the support of a Technical Secretariat that was chaired by the Budget Department Director, Alberto Arenas. The Superintendence had an active participation in this Technical Secretariat. The team worked out the details contained in the Bill, while the wording of it was the responsibility of the Budgets Department, particularly in those matters affecting the budget; the Undersecretary of Social Security on institutional issues and the SAFP in those related with the design of the pension system. Staff from the Legal Department and Research Division participated on behalf of the Superintendence, also supported on many occasions by the other Divisions at the Superintendence. At this stage the roles of the Legal Advisor, Alejandro Charme and the Head of the Analysis Department at the Research Division, Marcia Salinas, were of fundamental importance.

Although the final Bill basically contained the Council's proposals, the Ministerial Committee also included other elements, such as the subsidy on youth contributions, the single provider for the disability and survivorship insurance and improvements in the corporate governance area. The first, in order to bring these workers into the formal sector and improve their future pensions, since early contributions are crucial in a capitalization system. In the case of the Disability and Survivor Insurance, the main aims of the change in design are related with making its cost more transparent,

³ See program of the seminar in www.spensiones.cl/573/articles-3104_programa.pdf

contributing to competition in the system by reducing barriers to entering the industry and achieving better control of the risks involved in providing this insurance. Finally, with regard to corporate governance, the figure of the autonomous director is introduced to reinforce the AFPs' fiduciary role; among other measures with this same aim in view.

Later on, the Bill sent to Congress also underwent important modifications in both the Chamber of Deputies and the Senate. These, while keeping the line of the original Bill, improved it. For example, a reinforcement of Voluntary Pension Saving for the middle class was included while the Bill was in the Chamber by introducing a bonus system for those who save in this way and do not benefit from the tax exemption because they pay a low rate of taxation or none at all. Another of the important modifications at this stage was the inclusion of additional tools to encourage employers to pay contributions, by means of automatic declaration with not payment, for example. In the Senate, meanwhile, modifications were introduced to reinforce competition in the industry, such as the tax credit for value added tax paid in the case of outsourced functions. With regard to the retirement stage, the programmed withdrawal pension option was also improved, to make the payment profile provide better coverage for longevity risk. During the parliamentary processing of the Bill, the contribution of the staff from the Ministry of Finance, Ministry of Labour and from the Superintendence of Pensions was vital, with the presence of the Ministers of Finance and Labor, the Budget Office Director and the Superintendent at each and every session.

All things considered, the Pension Reform now in its implementation stage is the fruit of a lengthy task, of which this book shows only a part. For the SAFP, this Reform meant a considerable effort during the past few years and now, as Superintendence of Pensions⁴, it is tackling the implementation of the various measures contained in the Reform. This is the start of a new stage for this institution and this book is the evidence of the completion of a task upon which we now have to build.

Solange Berstein Jauregui
Superintendent of Pensions

⁴ In the book the Superintendence is referred to as Superintendence of Pensions and not of AFPs, since it has been its legal continuator since July 2008.

GENERAL INDEX

PROLOGUE	4
CHAPTER 1. INTRODUCTION	11
CHAPTER 2. PENSION SYSTEM COVERAGE	16
2.1.- DIAGNOSIS OF COVERAGE IN THE CHILEAN PENSION SYSTEM	17
2.1.1.- The poverty-prevention Pension Pillar	17
2.1.2.- Coverage of the Mandatory Contributory Pillar	22
2.1.3.- Coverage of the Voluntary System	29
2.1.4.- Income in old age	32
2.1.5.- Pension projections	36
2.2.- COVERAGE RELATED MEASURES INCLUDED IN THE REFORM	37
2.2.1.- Strengthening the poverty-prevention Pillar	37
2.2.2.- Reinforcing the Mandatory Contributory Pillar	43
2.2.3.- Reinforcing the Voluntary Contributory Pillar	50
2.2.4.- Measures designed to improve equal gender treatment in the pension system	53
CHAPTER 3. COMPETITION IN THE PENSION SYSTEM	60
3.1.- DIAGNOSIS OF INDUSTRIAL ORGANIZATION AND COMPETITION	60
3.1.1.- History of the Industry	63
3.1.2.- Reasons for the Low Competition	69
3.2.- MEASURES CONTAINED IN THE REFORM IN THE AREA OF COMPETITION	75
3.2.1.- Responsiveness of the demand: auctioning for new members	76
3.2.2.- Separation of Functions	87
3.2.3.- Separation of the Disability and Survivorship Insurance	91
3.2.4.- Modifications to the structure of fees charged by the AFPs	96
CHAPTER 4. PENSION FUND INVESTMENTS	98
4.1.- DIAGNOSIS OF PENSION FUND INVESTMENTS	98
4.1.1.- Developments in investment regulation	98
4.1.2.- Developments in investment portfolios	100
4.1.3.- Evaluation of the regulation and its impact on investments	103
4.1.4.- Investment regulation in other countries	112
4.2.- MEASURES ON INVESTMENT ISSUES CONTAINED IN THE REFORM	116
4.2.1.- Structure of Investment limits	117
4.2.2.- Investment Regime	117
4.2.3.- Technical Investment Council	117
4.2.4.- Corporate Governance and new responsibilities for the AFPs	118
4.2.5.- Investment abroad	121
4.2.6.- Authorized securities	123
4.2.7.- Risk-Rating Commission	124
4.2.8.- Minimum yield and yield fluctuation reserve	126

4.3.- EXPECTED RESULTS	128
CHAPTER 5. PENSION BENEFITS	129
5.1.- DIAGNOSIS	129
5.1.1.- Pension Options	129
5.1.2.- Disability Pensions	133
5.1.3.- Survivorship Pensions	134
5.2.- MEASURES CONTAINED IN THE REFORM CONCERNING BENEFITS	135
5.2.1.- Interest Rate of Programmed Withdrawal	135
5.2.2.- Longevity Risk	136
5.2.3.- Modifications in the area of disability pensions	138
5.2.4.- Modifications to survivorship pensions	139
5.2.5.- Other improvements in the benefits area	139
5.3.- EXPECTED IMPACTS ON THE DISABILITY AND SURVIVORSHIP INSURANCE	140
5.3.1.- Measures that modify the organization of the Disability and Survivorship Insurance	141
5.3.2.- Measures that modify the definition of beneficiaries and members covered by the insurance	143
5.3.3.- Measures that modify the calculation method or the amount of the benefits	144
CHAPTER 6. INFORMATION IN THE PENSION SYSTEM	148
6.1.- DIAGNOSIS OF MEMBERS' KNOWLEDGE	148
6.2.- MEASURES IMPLEMENTED PRIOR TO THE PENSION REFORM	151
6.2.1.- Redesign of Yield and Costs Appendices	151
6.2.2.- Personalised Pension Projection	152
6.2.3.- AFPs' Service Quality Index	154
6.2.4.- Pension Fund Volatility Index	156
6.3.- MEASURES CONCERNING INFORMATION CONTAINED IN THE REFORM	157
6.3.1.- Pension Education Fund	157
6.3.2.- Users' Commission	158
6.3.3.- Pension Advisors	158
CHAPTER 7. REGULATION AND SUPERVISION OF THE NEW PENSION SYSTEM	161
7.1.- THE PRE-REFORM DIAGNOSIS	161
7.1.1.- Role of the institutions making up the pension system	161
7.1.2.- Evaluation of the task of supervision and regulation	162
7.2.- MEASURES CONTAINED IN THE REFORM CONCERNING THE INSTITUTIONAL FRAMEWORK	166
7.2.1.- New tasks for the Superintendence of Pensions	167
7.3.- INSTITUTIONAL CHALLENGES OF IMPLEMENTATION	170
7.4.- ORGANIZATIONAL STRUCTURE OF THE SUPERINTENDENCE OF PENSIONS	172
7.4.1.- Considerations for defining the Superintendence of Pensions' organizational structure	173

7.4.2.- Organizational structure of the SAFP	177
7.4.3.- Organizational structure for the Superintendence of Pensions	179
CHAPTER 8. CONCLUSIONS AND CHALLENGES FOR THE FUTURE	181
8.1.- A COMPREHENSIVE REFORM	181
8.2.- EXPECTED IMPACT ON PENSIONS	185
8.3.- FUTURE OF THE NEW SYSTEM	187
REFERENCES	190
GLOSARY	194

INDEX OF INSETS

CHAPTER 2. PENSION SYSTEM COVERAGE	
Inset 2.1: Description of self-employed workers	25
Inset 2.2: Longitudinal data for measuring densities: Developed from EPS and HPA	28
Inset 2.3: Coverage and density of contributions among young people	28
Inset 2.4: Gender Issues in the Pension System	35
Inset 2.5: Elements of design of the pillar for preventing poverty in old age	38
Inset 2.6: Residence requirements for the new Solidarity Pillar	40
Inset 2.7: Default options and contribution of self-employed workers	44
Inset 2.8: Expected effect of youth subsidy	47
Inset 2.9: Automatic Declaration with no Payment	49
Inset 2.10: Expected effect of the Grant per Child	54
Inset 2.11: Effect of proposed division of balance	56
Inset 2.12: Estimated impact of transferring the SIS premium on women's pensions	58
CHAPTER 3. COMPETITION IN THE PENSION SYSTEM	
Inset 3.1: Role of sales personnel in AFP transfers	65
Inset 3.2: Effects of the auctioning process for members	83
Inset 3.3: Mean Cost and Variable Fee of a Potential AFP	86
Inset 3.4: Impact of Fixed Fee on Accumulated Balances	96
CHAPTER 4. PENSION FUND INVESTMENTS	
Inset 4.1: International Experience	113
Inset 4.2: Methodological proposal for measuring financial risk of pension funds	120
CHAPTER 5. PENSION BENEFITS	
Inset 5.1: Advantages and disadvantages of longevity insurance alternatives	132
Inset 5.2: Proposals for modifying the interest rate of programmed withdrawal	135
Inset 5.3: Actuarially Fair Factor for Solidarity Pillar benefits	137
CHAPTER 6. INFORMATION IN THE PENSION SYSTEM	
Inset 6.1: AFPs' Service Quality Index	155
CHAPTER 7. REGULATION AND SUPERVISION OF THE NEW PENSION SYSTEM	
Inset 7.1: Main elements of Risk-Based Supervision	163
CHAPTER 8. CONCLUSIONS AND CHALLENGES FOR THE FUTURE	
Inset 8.1: Description of Pension System Projection Model	186

CHAPTER 1 INTRODUCTION

The key to the Pension Reform, defined by Law 20,255, is its all-embracing character. Its design deals with the various different areas of our Pension System, which until then had been operating without an approach that provided coherence to its functions and structures.

This was the orientation that it was decided to give the Reform, also bearing in mind the importance of having a reliable Pension System, not least in a worldwide context of increasing population longevity, from which Chile is not excluded. If this increase in longevity is to be good news, it is necessary to improve quality of life during the retirement stage.

The new Reform preserves the Pension Fund AFPs (AFP) system as the axis of the pension system, but introduces a series of measures aimed at improving the poverty-prevention pillar, improving gender equality in the pension system, intensifying competition in the industry of AFPs and making the investment scheme that regulates them more flexible.

The modifications concentrate on meeting a series of objectives identified as being of prime importance in the diagnosis drawn up prior to the Reform:

- To increase the level of the system's coverage through the poverty-prevention pillar
- To increase the level and quality of coverage through the mandatory contributory pillar
- To improve the quality of the coverage provided through the voluntary pillar
- To bring about gender fairness in the pension system
- To increase competition and efficiency in the AFP industry
- To optimise the risk-return ratio of the pension savings managed by the AFPs
- To improve the quality of the benefits by solving issues of unfairness in the granting of old-age, disability and survivorship pensions
- To improve the population's levels of participation, information and education with regard to pensions
- To improve the pension system's institutional structure.

The diagnosis that gave rise to these objectives is the result of long-term work that reaps research carried out by professionals, both Chilean and foreign, during the 26 years of experience. These analyses were used as the basis for the Pension Reform Commission's report, for the Bill that followed it and, finally, for the work of Congress which fine-tuned that Bill and converted it into Law. Added to all these efforts are those made by the SAFP, now the Superintendence of Pensions (SP), which produced an important part of the diagnosis that supported the reform which is now expressed in Law 20,255.

The remainder of this book is structured in seven chapters: six on specific subjects and one containing conclusions. In each of the chapters of this book, an analysis is made of the different diagnostic elements prepared prior to the processing of the bill, in addition to the main measures contained in Law 20,255. The subjects covered include pension system coverage, competition among AFPs, investment of pension funds, specific

aspects concerning pension benefits, provision of information for members and regulation and supervision of the new system. In some cases, “Insets” present the results of estimations on the expected effects of the modifications introduced, as well as aspects developed in more detail after the enactment of the Law, particularly when changes in regulations arisen from the reform.

Table 1.1 below summarises the main contents of the Pension Reform enacted in January 2008, classified on the basis of the objectives that they seek to meet. The following sections describe in greater detail the main motivations and contents of the various measures.

Table 1.1.- Main Measures of the 2008 Pension Reform

Chapter	Objective	Measure
Chapter 2 Coverage	To increase coverage through the poverty-prevention pillar	<p style="text-align: center;">Creation of the new Solidarity Pillar</p> <ul style="list-style-type: none"> • Provides a Basic Solidarity Pension (PBS) to individuals without other pensions who belong to the poorest 60% of the population • Provides a Solidarity Pension Payment (APS) to individuals with low pensions and that belong to the poorest 60% of the population.
	To increase coverage through the mandatory contributory pillar	<p style="text-align: center;">Mandatory contribution for self-employed workers</p> <ul style="list-style-type: none"> • Following a transition period, self-employed workers in certain tax categories will be forced to pay contributions into the Pensions Funds AFPs (AFP) system, via their annual income tax declaration.
		<p style="text-align: center;">Subsidy on hiring and contributions of young workers with low incomes</p> <ul style="list-style-type: none"> • The first 24 contributions of workers between the ages of 18 and 35, with earnings lower than 1.5 minimum wage, will be partially subsidised and an additional subsidised payment will be made into the pension accounts of these workers
		<p style="text-align: center;">Additional tools for supervising contribution payments</p> <ul style="list-style-type: none"> • Each time the employer fails to pay contributions and does not inform the termination of the contractual relationship, these will be taken as contributions that have been declared and not paid. To facilitate supervision, electronic contribution payment will be deferred, payment by this means being allowed until the 13th day of each month instead of the 10th.

Table 1.1 (cont).- Main Measures of the 2008 Pension Reform

Chapter	Objective	Measure
<p>Chapter 2 Coverage</p>	<p>To improve quality of coverage through the voluntary pillar</p>	<p>Legal Framework for Collective Voluntary Pension Saving (APVC)</p> <ul style="list-style-type: none"> Firms are offered tax incentives to create plans in which voluntary contributions of workers would be matched by employer contributions conditional on a certain vesting period. <hr/> <p>Tax Incentives for middle earnings workers</p> <ul style="list-style-type: none"> As an option, tax exemption is allowable both when entering and when withdrawing voluntary pension saving, depending on the alternative that is more convenient for the worker. This is for individual and collective contributions. State subsidy to low-earnings workers who make voluntary individual or collective payments.
	<p>To encourage gender fairness in the pension system</p>	<p>Subsidy for women for each live birth</p> <ul style="list-style-type: none"> For each live birth, the State will deposit a subsidy in the woman's account or increase the value of her PBS. The subsidy is equivalent to 18 months' contributions based on the minimum wage, plus the real average yield of the pension system between the time of the birth and the point when the woman reaches 65 years old. <hr/> <p>Additional payment to women</p> <ul style="list-style-type: none"> Women and men will be charged the same premium for the disability and survivorship insurance (SIS) but men are expected to have higher risk rates. The difference will be deposited in the women's account. <hr/> <p>Redistribution of balance in case of divorce</p> <ul style="list-style-type: none"> The judge may order the redistribution of the balance accumulated in the mandatory accounts of both spouses, as an economic compensation, with an upper limit of 50% of the amount accumulated while they were married. <hr/> <p>Symmetrical treatment of men and women</p> <p>Entitlement to a survivorship pension for male spouses.</p>
<p>Chapter 3 Competition and Efficiency</p>	<p>To increase competition and efficiency in the AFP Industry</p>	<p>Auctioning of new members</p> <ul style="list-style-type: none"> The Superintendence of Pensions will organize an auction process every two years: the AFP that offers the lowest fee will automatically receive all the new members joining the system for a period of 2 years. <hr/> <p>Incentives for outsourcing of functions</p> <p>Outsourcing is authorized for most functions Tax disadvantages to outsourcing are eliminated.</p> <hr/> <p>Separation of the Disability and Survivorship Insurance (SIS)</p> <ul style="list-style-type: none"> The AFPs must jointly auction for the SIS contract. Nowadays, every AFP arranges its own contract. <hr/> <p>Simplification of fees structure</p> <ul style="list-style-type: none"> Comparison among AFPs is simplified by imposing a single fee (percentage of the worker's covered earnings) <hr/> <p>Entry of new actors</p> <ul style="list-style-type: none"> Insurance companies are allowed to set up AFP subsidiaries, provided the exclusive corporate purpose required by D.L. 3,500 is respected.

Table 1.1 (cont).- Main Measures of the 2008 Pension Reform

Chapter	Objective	Measure
<p>Chapter 4 Investments</p>	<p>To optimize the risk/return ratio of pension savings</p>	<p>More flexible AFP investment scheme</p> <ul style="list-style-type: none"> • Only structural limits remain in the Law: other limits will be fixed in secondary regulation with the support of the Technical Investment Council (CTI) • Greater flexibility will be offset by greater answerability on the part of AFPs, which must set up an Investment and Conflicts of Interest Committee and produce explicit investment policies. • Limits may possibly be complemented by risk measurement and control.
		<p>Raising maximum limit on investment abroad</p> <ul style="list-style-type: none"> • Maximum limit increases to 80%, the Central Bank being able to fix it within the range 30-80%
<p>Chapter 5 Pension Benefits</p>	<p>To improve the quality of benefits by solving situations of unfairness</p>	<p>Modifications to the programmed withdrawal Option</p> <ul style="list-style-type: none"> • Change in the interest rate formula of programmed withdrawal so that it is better adapted to a forecast of future yield. • Introduction of an adjustment factor to provide better protection against longevity risk.
		<p>Improvement of Disability Benefit</p> <ul style="list-style-type: none"> • Change in the formula for calculating the base-reference earnings, reducing the possibility of opportunistic behaviour and increasing coverage of those who have contributed while young. • Granting total disability status on a first decision, while maintaining the 3-year temporary status for partial disability. • Including the member's medical advisor to provide support during the evaluation process.
		<p>Improvement of Survivorship Benefit</p> <ul style="list-style-type: none"> • Increase in coverage for beneficiary children who are studying. • Limit on temporary beneficiary benefit to reduce unfair treatment compared with other heirs. • Elimination of gender asymmetry, granting coverage to non-disabled male spouses.
<p>Chapter 6 Information</p>	<p>To improve participation, information and education</p>	<p>Creation of Users' Committee for the AFP System</p> <ul style="list-style-type: none"> • Representatives of workers, pensioners and AFPs will carry out evaluations and propose improvements to the system. <p>Creation of Fund for Pension Education</p> <ul style="list-style-type: none"> • Funded by state transfers and donations. • Funds to be invested in education campaigns selected through open calls. <p>Creation of Pension Advisors</p> <ul style="list-style-type: none"> • Offer independent advice on the various options individuals face, funded out of the individual's fund with maximum life-time limit.

Table 1.1 (cont).- Main Measures of the 2008 Pension Reform

Chapter	Objective	Measure
<p>Chapter 7 Regulation and Supervision</p>	<p>To improve institutional structure of pensions</p>	<p style="text-align: center;">Creation of new institutions</p> <ul style="list-style-type: none"> • Social Pension Institute (IPS) is set up, the continuation of the Pension Normalization Institute (INP), in charge of the new Solidarity Pillar and of the old system. • Comprehensive Pension Advice Centres (CAPRI) are set up all over the country to receive applications to the new Solidarity Pillar. • The Superintendence of Pensions replaces the SAFP, with powers to supervise and regulate both public and private actors.
		<p style="text-align: center;">The foundations are laid for Risk-Based Supervision (SBR)</p> <ul style="list-style-type: none"> • The SP is given the possibility of having two Deputy Chairs that allow the agency to be organized in two broad areas, Regulation and Supervision • The Superintendence of Pensions is granted additional powers. • The Law mentions specifically that the regulations should include the risk variable.

CHAPTER 2 PENSION SYSTEM COVERAGE

Pension systems around the world are designed as mechanisms to provide income in those circumstances where people lose their ability to produce income themselves, due to advanced age (old-age benefits), permanent disability (disability benefits), or the death of one of the main sources of a family's earnings (survivorship benefits).

In the Chilean case, the pension system is organized around a scheme of three basic pillars: a poverty-prevention pillar, a contributory pillar of mandatory nature and a voluntary savings pillar. The combination of these components seeks, on the one hand, to guarantee people the possibility of maintaining a standard of living similar across the active work and retirement stages and, on the other, to eliminate the incidence of poverty among the elderly.

Prior to the 2008 reform, the poverty-prevention pillar was based on two components: a program of welfare pensions (PASIS), which was non-contributory and subject to a means testing; and the program of minimum pension guaranteed by the State (PMGE), which was guaranteed by the Government for those individuals who had paid contributions for at least 20 years but were unable to finance a minimum pension.⁵

The mandatory contributory pillar was drastically reformed in 1980, replacing the former system – based on a pay-as-you-go, defined-benefit scheme, made up of multiple institutions associated with different types of workers – with a single nationwide funded scheme with individual accounts managed by private companies with a single corporate purpose: the AFPs.⁶ This is a defined contributions scheme, in other words where the contribution rate remains constant and benefits are calculated using actuarial formulae on the basis of the balance accumulated by each individual at the moment of retirement.⁷

In order to complement the mandatory saving carried out through the AFP system, there are tax incentives to encourage people to make voluntary contributions through various financial instruments: voluntary pension savings accounts managed by the AFPs themselves, mutual funds, life insurance products that include savings, etc. The scheme is designed in such a way that savings allocated to these products are not liable for income tax in those years in which the deposits are made. The return of these savings is also tax-free, but the pensions funded with these resources are considered as income for income-tax calculation purposes. People may withdraw their voluntary savings before reaching retirement, by paying the corresponding taxes with a surcharge for early withdrawal.

From the beginning of this decade, consensus began to arise about the need to reform the system, due to its limited capacity to meet the basic coverage objectives fully: to

⁵ It might be argued that there is at least one additional component forming part of the social protection network for the elderly: the free, guaranteed health programs for elderly people in situations of poverty. This subject is not discussed in this chapter, which focuses on pension programs.

⁶ Only the Armed Forces were left out of the AFP system. They are still managing their pay-as-you-go, defined-benefit schemes (CAPREDENA and DIPRECA).

⁷ For a detailed description of the AFP system, see “El Sistema Chileno de Pensiones” (2010), available in the publications section of the web page www.spensions.cl.

offer individuals a similar standard of living between the active work and retirement stages and prevent the existence of poverty among the elderly.

The main elements of that diagnosis may be summarized as follows:

- A large proportion of individuals present a low density of contributions to the mandatory savings system, meaning inadequate levels of savings for old age.
- The poverty-prevention pillar offered limited coverage to individuals excluded of the formal labour market or with very little participation in it.
- Levels of voluntary saving seemed insufficient, especially among workers with medium and low earnings, for whom the system of tax exemptions did not represent a strong incentive.
- There are considerable related gender asymmetries arising, to a large extent, from differences in participation and insertion in the labour market but also associated with elements of the design of the pension system itself.

This chapter, reviews the diagnosis of the coverage situation in the Chilean pension system prior to the 2008 reform and presents the main measures included in the reform aiming to reinforce the protection offered by the system and bring about fair gender treatment in pension matters. Finally, a presentation is made of the estimated cost and impact of the reform on future pensions.

2.1.- Diagnosis of coverage in the Chilean pension system

2.1.1.- The poverty-prevention pension Pillar⁸

Prior to the 2008 reform, the Chilean social pension system included two non-contributory programs of protection against poverty in old age. They were funded out of the public budget and managed in parallel by various Government bodies. These programs were designed to meet the minimum needs of those elderly adults in conditions of poverty who had not paid contributions into the contributory pillar or had done so inadequately.

On the one hand, the PASIS program was managed until June 2008 by regional governments and municipal authorities, paid through the Pension Normalization Institute (INP) and supervised by the Superintendence of Social Security (SUSESO). This program provided welfare pensions to poor old age people non-eligible to a pension in any pension scheme. On the other hand, the PMGE was channelled through the AFPs⁹, overseen by the SP and guaranteed a minimum floor to the pension provided by the AFPs for those pensioners who had accumulated contributions for at least 20 years.¹⁰

A description of the basic design of the two programs is given below, in addition to some statistics about their scope and cost. A discussion of the theoretical aspects of the incentives that they produced is also presented.

⁸ For further details of the non-contributory pillar in Chile, see Fajnzylber (2006).

⁹ The PMGE are also channelled through Life Insurance Companies that provide pensions in the form of annuities.

¹⁰ As will be discussed further on, while the PMGE program has continued to function on a temporary basis after the reform the PASIS program has been replaced by the new Solidarity Pillar.

The PASIS program¹¹

Until the system of solidarity pensions introduced by the Reform came into force (July 2008), the PASIS were non-contributory benefits given to people over 65 years of age, disabled people over the age of 18 and mentally-ill people of any age, who met a series of requirements.¹² In the case of PASIS for Old Age, the basic requirements were¹³:

- To be 65 years of age or more
- To lack resources (without personal income of more than 50% of the minimum pension established in article 26 of Law N° 15,386 and with an average family income below that amount)
- Not to be a beneficiary of the social pension system, in other words, not to be receiving any type of retirement pension from the INP, an AFP or other pension system.

A fundamental element in determining eligibility for a PASIS was its utter incompatibility with pensions from any of the pension schemes, grace pensions or annuities provided by insurance companies. In other words, a PASIS was a substitute for self-funded pensions. An individual who had accumulated funds in his/her individual pension savings account and was not entitled to a PMGE, would in principle have to deplete his/her funds before applying for a PASIS.¹⁴

Once granted, a PASIS could be received until the person died, provided that the requirements continued to be met. The PASIS benefit was close to 50% of the minimum pension, meaning that an individual who had access to the latter would have no incentive to apply for a PASIS (since they were incompatible).

The following table shows the stock of PASIS up to June 2008, the point at which that program was replaced by the new Solidarity Pillar described in the next section of this chapter. As of June 2008, almost half a million people were receiving a Welfare Pension. As may be seen, most of these correspond to old-age pensions, followed very closely by the number of disability pensions. It is worth mentioning that the program of Welfare Pensions in cases of mental handicap was modified by the reform, giving rise to the program of subsidies for mentally-ill people, exclusively for people under 18 years of age.

¹¹ Most of the descriptive analysis of this section was taken from Gana (2002). The reader is referred to this article for further details about Welfare Pensions in Chile.

¹² The PASIS had a contributory component when they were introduced such that the benefit increased with the period during which contributions were paid into the contributory scheme. This feature was eliminated by Law N° 18,611 in 1987.

¹³ There are other requirements, such as having resided continually in the country during the 3 years prior to the application. According to Law 20,102, enacted on 24th April 2006, all those people who meet the requirements listed will receive a PASIS. In order to obtain the PASIS benefit, the applicant must hand in his/her application to the Municipality corresponding to his/her residence. A socio-economic evaluation is then carried out on the applicant and his/her household, using the Social Protection Record (Ficha de Protección Social).

¹⁴ The PMGE and its requirements are described further on.

Table 2.1
Welfare Pensions, PASIS, as of June 2008

	Number	Average Monthly Amount
Old-Age	236,204	\$52,309
Disability	214,879	\$48,765
Mentally Ill	46,068	\$48,016
Total	497,151	\$50,379

Source: Authors' calculation based on statistics from the SUSESO.

The PMGE program

In the Chilean individually funded system, an individual who has retired on grounds of old age can apply for a minimum pension, which will be paid monthly for life, provided the applicant meets the following requirements:

- To have claimed a pension
- To have reached legal retiring age (60 years for women and 65 for men)
- To have depleted the funds in the mandatory individual account
- To have paid at least 240 contributions (20 years, not necessarily continuous) into the mandatory pension system.

The amount of the minimum old-age pension as of December 2007 was \$96,390.73 for members under 70 years of age, \$105,395.85 for members aged between 70 and 74 and \$112,453.82 for members aged 75 and older. Alongside to the minimum pension guarantee for old-age pensions, there are similar guarantees for those retired on disability grounds, for widow's and orphan's pensions and for the originator's parents.

In March 2008 92,934 PMGE were paid, equivalent to 13.7 million dollars. That amount represents an increase of 5.2% compared with the same month one year earlier. Of the total, 9.9 million dollars are in the programmed withdrawal option, 2.1 million dollars in annuity and 1.7 million dollars in those covered by insurance, bankruptcy and first payments. The distribution per pension type is 5.4 million dollars on old age, 2.4 million dollars on disability and 5.9 million dollars on survivorship.¹⁵

The higher share of the state minimum pension guarantees of survivorship pensions may be associated with the fact that women live longer and are generally younger than their spouses. Further, the eligibility requirements are less strict, especially if the spouse dies being already a pensioner.

The above figures draw attention regarding the government expenditure on pensioners with annuities with the state guarantee, though annuities should not decrease in real terms during the pensioner's lifetime. This is basically a result of the steady rise in the amount of the minimum pension in real terms during the decade 1990-2000.

Through its design, the PMGE sought to guarantee a minimum level of pensions for individuals with enough participation in the system. In practice, it can be seen that this program has a double role. On the one hand, the PMGE is a subsidy program that concentrates on workers in relatively stable work situations (contribution densities of around 50% of the working life), to provide insurance for this segment of the population

¹⁵ Panorama Previsional, May 2008, www.spensiones.cl.

against eventualities such as poor AFPs' returns, small-amount contributions or contributions paid late in the working life. On the other hand, the PMGE is a way of compensating women, provided they have enough contributions, for the lower level of their self-funded pensions due to their disadvantaged position in the labour market, lower retirement age and higher life expectancy. (See Inset 2.1).

To see these effects, the following tables show the various ways in which men and women can achieve a self-funded minimum pension.¹⁶ Each column represents a combination of parameters that result in a balance at retiring age that makes it possible to fund an annuity equivalent to 75 thousand pesos per month. It is worth noting that in all the simulations, the years of contribution are distributed evenly throughout the person's working life. It is easy to demonstrate that in an individually funded system, the point at which the contributions are deposited (throughout the active life) is fundamental in the amount of pension that can be funded. By way of example, a contribution made at age 20 is 4 times more important than one made at age 60.

Table 2.2
How can a woman self-fund a minimum pension?¹⁷

	Woman contributes until age 60			Woman contributes until age 65		
	Monthly earning	120,000	120,000	203,000	120,000	120,000
Return of the fund (%)	5.00	7.10	5.00	5.00	5.95	5.00
Years	33.9	20.0	20.0	26.3	20.0	20.0

How can a man self-fund a minimum pension?

	Single man			Married man (wife 2 years younger)		
	Monthly income	120,000	120,000	103,300	120,000	120,000
Yield of the fund (%)	5.00	5.29	5.00	5.00	5.95	5.00
Years	22.8	20.0	20.0	26.3	20.0	20.0

From these tables it is possible to see the following highly important aspects:

- a) In the current situation, in which most women retire at about 60 years of age, women who receive the minimum wage and achieve 20 years of contributions will find themselves far from able to self-fund a minimum pension. Unless they pay contributions for far more years (up to a total of 34 years of contributions), yields

¹⁶ These calculations were made on the basis of minimum pension figures in force in 2004. See Fajnzyblber (2006)

¹⁷ According to the regulations prior to the reform, women do not leave survivorship pensions to their husbands, unless the latter are disabled. For this reason we do not distinguish between single and married women. By making the regulations the same as those for men, the self-funded pensions would be lower, though to a lesser extent than the difference between single and married men, mainly because men are usually older than their wives and therefore the capital needed to fund their survivorship pensions is lower.

are extremely high (at least 7.1%), they achieve monthly wages of over 203,000 pesos or their periods of contribution are distributed more towards the beginning of their working life, these women will be eligible for the state minimum pension guarantee.

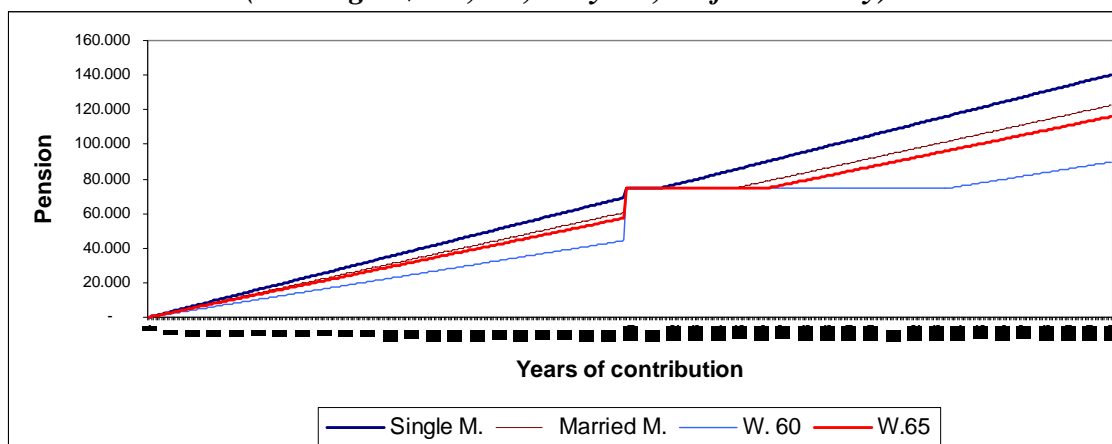
- b) The above effect will be noticeably reduced in the case of women who continue working (and contributing) up to 65 years of age. In fact, self-funded pensions in these cases are very similar to those of a married man (with a wife two years younger).
- c) On the other hand, single men are unlikely to benefit by the state guarantee, since their self-funded pensions exceed the state guarantee after only 22 years of contributions on the minimum wage, with yields slightly over 5% or wages slightly over the minimum.

In summary, women who work for most of their lives for relatively low wages and retire at 60 years of age are those who benefit the most under the current program. Married men or women who work until age 65 for very low wages (less than 160 thousand pesos per month) will access the state guarantee to a lesser extent.

The incentives to contribute (for people who have not achieved 240 contributions) and the disincentives to contribute (once these have been achieved) can be seen in Figure 2.1. Pension savings balances and the resulting life-annuities were computed for 4 different types of individuals. In all cases, the monthly income is given by the minimum wage in force by 2004 (\$120,000), assuming a constant yield on the funds of 5% per year, and a constant density throughout the active period (between 20 years of age and retiring age).¹⁸ The 4 cases considered correspond to:

- Single man who retires at age 65
- Married man with a wife two years younger, who retires at age 65
- Single (or married) woman who retires at age 65
- Single (or married) woman who retires at age 60.

Figure 2.1
Effect of current PMGE on different people
(Earnings= \$120,000, 5% yield, uniform density)



Source: Fajnzylber (2006).

¹⁸ The calculations were made using the RV2004 life expectancy tables for pensioners.

As can be seen, and following on from the earlier conclusions, women with low earnings who retire at age 60 have strong incentives to achieve the 20-year requirement (by acquiring the right to the PMGE, the woman in this exercise almost doubles her pension) but, at the same time, once this objective is achieved the incentives to stop paying contributions are very strong, because the following 13 years of contributions do not increase the pension received at all.

At the other extreme, a single man who retires at age 65 is practically indifferent to the existence of the PMGE, because even if he is entitled to it, the increase in his pension is marginal (little incentive to reach 240 contributions) and at the same time, with 3 additional years of contributions, the self-funded pension exceeds the minimum pension (little incentive to stop contributing).

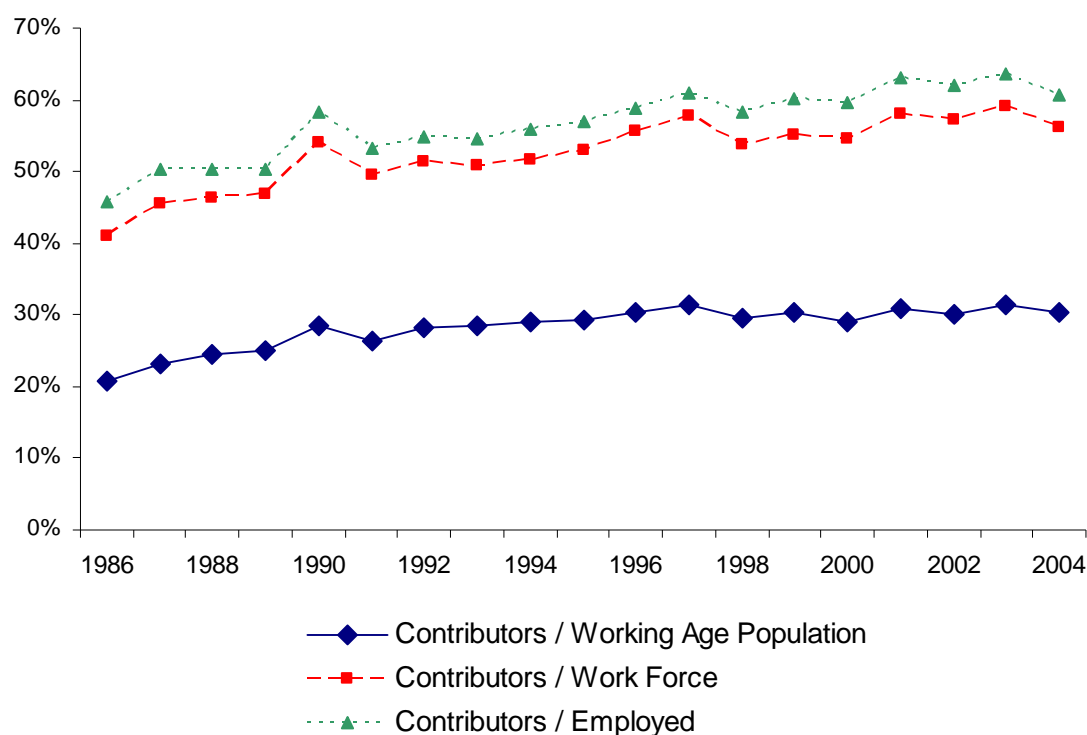
Once again, married men and women who continue contributing up to 65 years of age are in an intermediate position.

2.1.2.- Coverage of the Mandatory Contributory Pillar – Occupational Coverage

In order to make a diagnosis of how the pension system which was reformed in 1980 has performed in terms of benefits, a first approximation involves evaluating the coverage of the contributory pillar. Even though the system has already been running for 26 years, it has not yet reached maturity and there is no generation whose pensions have been funded entirely with the contributions to this system. To the extent that the contributory system's level of coverage is adequate, it is possible to assess whether the pillar that aims to prevent poverty by means of the PASIS and PMGE fulfils its role appropriately, making up for the needs of the population which for one reason or another did not pay contributions or whose contributions were insufficient.

One of the most common measurements in this sense is the so-called occupational coverage, taken as the proportion of workers in work who pay contributions into the system. Historically, the level of occupational coverage has been relatively high in Chile. The information available after the 1980 reform shows that, from the period of economic crisis at the beginning of the 1980s, that coverage has been gradually growing, and is currently located at around 60% of those in work, 55% of the work force and 30% of the population of working age (see Figure 2.2).

Figure 2.2
Contributory coverage in Chile (1986-2004)



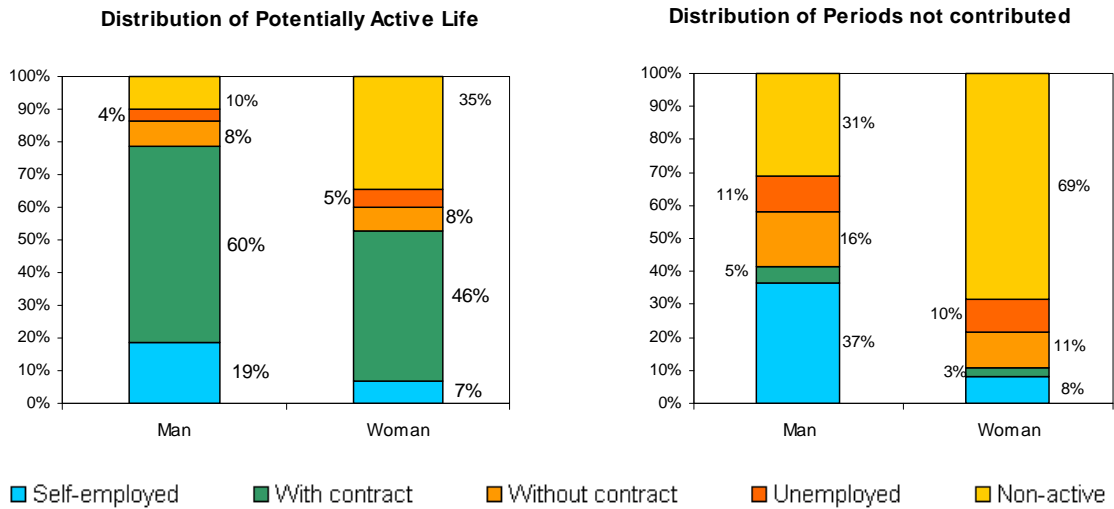
Source: Figure 1, Berstein, Larraín and Pino (2006).

This contributory coverage, on the other hand, is directly related with the degree of people’s work participation and the way in which they are inserted in the labour market throughout their active lives. In the Chilean case, people’s employment situations show wide variation, especially across gender.

As Figure 2.3 shows, men spend about 90% of the total available time to engage in paid employment actually in work. This is in stark contrast to the 35% of time that women spend in inactivity (See Inset 2.1). On the other hand, men spend 19% of their time, on average, as self-employed workers, while this figure is only 7% in the case of women.

The graph on the right, meanwhile, shows the reason behind not paying contributions into the pension system. While men’s social security gaps are due to self-employed work and non-activity (37% and 31%, respectively), the lack of contributions in the case of women is due fundamentally to the “non-active” category.

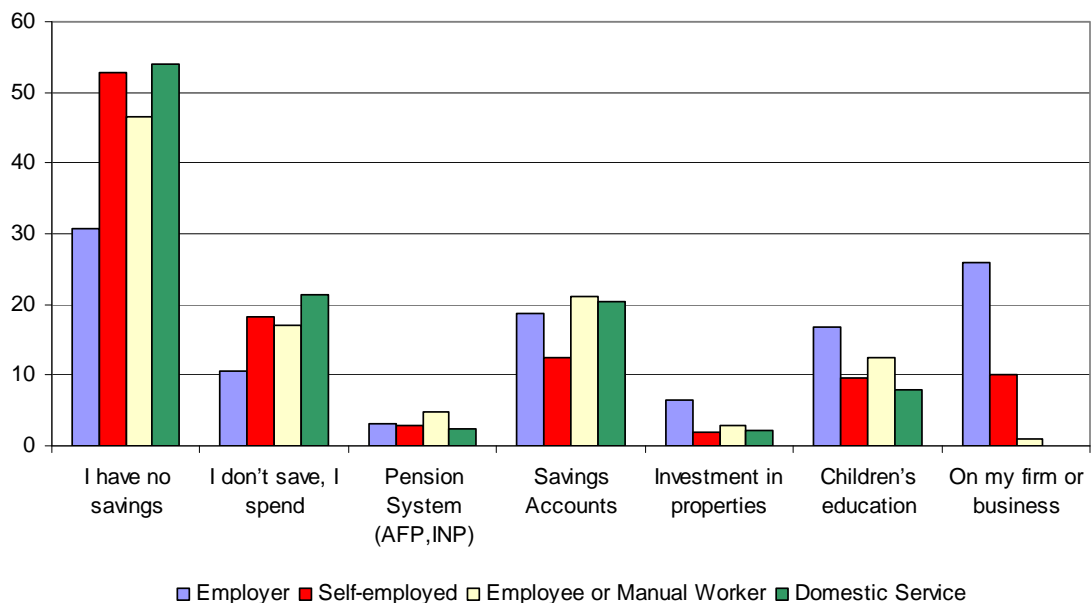
Figure 2.3
Occupational category during active life and in periods without contribution payments



Source: Berstein, Reyes and Pino (2006).

The lack of contributions due to periods of self-employment, might not represent a problem if the non-mandatory pension savings were offset by other forms of saving for old age, such as financial instruments, properties, businesses, etc. The information obtained in the Social Protection Survey (EPS) however, (see Figure 2.4), shows that self-employed workers have patterns of saving that are very similar to other people's; in fact the proportion of people in this position who have no savings or are not saving may be even higher than that for dependent workers (employees or manual workers). (See Inset 2.1)

Figure 2.4
Savings instruments by occupational category



Source: Berstein, Reyes and Pino (2006).

Inset 2.1

Description of self-employed workers

According to data from the National Statistical Institute (INE), in the three-month period November 2003 – January 2004 there were 1,507,000 self-employed workers. In that same period, 65,800 individuals paid contributions into the AFPs as self-employed workers, which means a coverage rate of 4.5%. While this coverage has fallen from levels approaching 6% at the end of the 1980s to the present level of 4.5%, the coverage of employees – measured in the same way – has risen steadily, reaching 80.2% in the year 2003. It is worth mentioning, however, that not all employees are in the formal sector of the economy, which explains why the coverage rate in this sector – where contribution is compulsory – does not reach 100%.

On the other hand, using data from the INE and the SP, it may be seen that the proportion of workers in work – who define themselves as self-employed workers – has remained relatively constant at around 28%, which represents a significant portion of the work force. However, it is important to note that the proportion of self-employed workers is distributed unevenly throughout the country. In fact, the proportion of self-employed workers in regions such as the IX and X is over 35%, whereas in others, such as VI or XII, it is under 20%.

In general, self-employed workers tend to be older than employees, although those who state that they pay contributions into the AFPs are concentrated at average ages between 30 and 55 years, precisely the most productive in the labour market. Meanwhile, if a comparison is made with the distribution of employees, the proportion of men is higher among the self-employed. As regards levels of education, it is worth emphasising that there is a larger proportion of workers with Primary Education or less among the self-employed than among employees (around 10% of employees, versus 25% in the case of the self-employed). The opposite is true at the level of Higher Education, which reports 20% of wage-earners and only 8% of self-employed. Self-employed workers tend to be concentrated in the areas of trade, agriculture and construction. 30% of them are involved in trade, versus 18% of wage-earners; in agriculture their presence is 17% (against 14% of employees), while in the building industry this amounts to 11% (versus 9% of employees).

People belonging to the “owner or employer” category are also often counted as self-employed workers. On comparing the income characteristics of these classifications, it may be seen that employers have markedly higher incomes than the rest of the population, meaning that, in the absence of formal mechanisms to save for old age, they can rely on other sources of self-insurance. By contrast, the incomes of self-employed workers seem to be only marginally higher than those of employees. The distribution of independent workers by quintiles, meanwhile, tends to be somewhat more concentrated in the high-income groups than that of the employees.

Workers' income by occupational category

Occupation	Income				
	% of total	Average	Min.	Max.	Mean
Owner or employer	3.9%	1,534,443	16,466	39,500,000	790,400
Self-employed worker	20.4%	315,330	1,976	15,800,000	197,600
Wage-earner	66.7%	245,315	1,500	54,000,000	150,000
Domestic service	6.2%	103,050	2,000	360,000	100,000
Unpaid family worker	1.5%	--	--	--	--
Armed Forces and Police	1.3%	349,567	11,000	2,000,000	300,000
Total	100%	302,220	1,500	54,000,000	160,000

Source: CASEN 2003

One pending question is the extent to which workers move between one category and another in the course of their working career. On the basis of the work histories that were self-reported between 1981 and 2002 and recorded in the EPS, it can be seen that 90% of women have only worked as employees during their working lives (as stated in their work histories), while this proportion is 77% in the case of men. Further, two-thirds of those who at some time worked as self-employed, also did so as employees. This leaves only one third of the workers who worked as "pure" self-employed between 1981 and 2002¹⁹. 69% of these "pure" self-employed and 76% of those who have passed through periods of employment and self-employment are male.

On the basis of the results of a focus group carried out in February 2004, it is possible to give a qualitative description of the self-employed, in terms of their reasons for working in that way, their income characteristics, their ability to save and their knowledge and participation in the pension system.

There are two basic reasons that explain people's motivations to work as self-employed: the impossibility of finding stable work (associated with the need to work) and voluntary choice (for freedom of schedule and independence, among other elements). The subjective income level, meanwhile, determines the preponderance of the second reason over the first.

The main characteristic of the income of self-employed workers is its variability in time. Some have no control whatsoever over their income, concerning themselves with a day or week at a time, while others – despite volatility – know the seasonal variations of their business.

Self-employed workers have various saving strategies. These are in general directed towards coping with the instability of their income or acquiring a property or durable goods to insure their old age. However, most of those interviewed stated that they could not possibly save.

As regards their relationship with the pension system, self-employed workers have very little knowledge of its characteristics and the basic paperwork involved, for example, in enrolling or contributing in it. This situation is increased by the dearth of

¹⁹ It is worth noting that the EPS is a sample of the members enrolled in a pension system, so this analysis may exclude self-employed workers who have never enrolled.

information about the system that they find in the press, and the negative experiences they have received from friends or relatives. In this way the system is perceived as a deficient, bureaucratic and unreliable means of saving.

Finally, with regard to how they intend to cope with old age from an economic point of view, those interviewed stated that they will work for the whole of their lives, gradually adjusting the workload according to their physical abilities, or that they will live on the savings they have managed to get together, showing a considerable lack of foresight.

So, as a result of this description, it is possible to classify self-employed workers broadly into three categories: first, a group that has low, variable income, added to a high degree of informality, for which any level of saving for old age would constitute a considerable sacrifice. At the other end of the scale, there is a group that enjoys high income, and although it does not have great ability to save, it will not face a dramatic situation in old age. Finally, there are workers with average income who may switch between employee and self-employed work and, in the absence of a formal mechanism of saving for old age, will see their consumption drastically affected when they stop working. This group would seem to be the priority for focusing any policy designed to increase pension coverage for self-employed workers.

Source: Berstein, Reyes and Pino (2006)

Contribution density

Although useful to provide a general overview of the system, the measurements of occupational coverage hide important differences that exist in levels of coverage for different types of people. A high proportion of workers moves among different occupational situations (and therefore their participation in the pension system varies), so it is not always the same people who are paying contributions. In this sense, in order to analyse the level and quality of pension coverage, it is key to look at the density of contributions, in other words, the frequency with which people participate in the mandatory savings system.

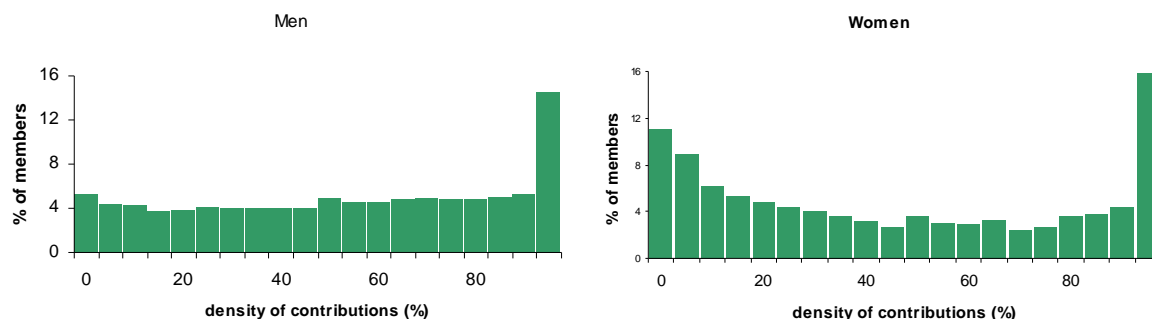
In order to calculate this kind measures, it is necessary to have longitudinal data (multiple observations throughout the life of a sample of individuals), which is not generally available for analyses of this type. An important part of the Chilean pension diagnosis originated in the project developed at the beginning of this decade, the EPS, which was accompanied by the construction of a database of Administrative Pension Histories (HPA) (see Inset 2.2)

The following figure shows how the contribution density for men and women is distributed in the universe of members of the Chilean pension system.²⁰ The wide spectrum of contributory situations is apparent. Both distributions show a bi-modal structure, with considerable groups of members that tend to contribute for most of the time available (bars on the right-hand side of the distribution) and considerable groups of people (especially among women) who pay practically no contributions at all.

²⁰ Specifically, the figure shows the distribution of densities, calculated as the proportion of months elapsed between 20 years of age and December 2005 (with the ceiling at the legal pension age) in which the person paid contributions into the AFP system.

Between the two extremes, it is possible to see a continuum of members with intermediate densities.

Figure 2.5
Density of contributions to the pension system, by sex



Source: Berstein, Larraín and Pino (2006).

Despite the fact that paying contributions at an early age is extremely important in funding pensions, young people in Chile present high levels of unemployment, which result in poor contributory behaviour and low contribution densities (see Inset 2.3).

Inset 2.2

Longitudinal data to measure densities: Development of EPS and HPA

In order to be able to make a detailed analysis of the future coverage of a pension system, it is necessary to be able to reconstruct people's contributory histories in such a way as to project such histories forward and predict the pensions concerned.

In this context, the EPS project was carried out at the beginning of this decade. The Undersecretary of Social Security commissioned the University of Chile to develop a survey with retrospective questions based on a representative sample of the universe of members, pensioners and deceased as of August 2001. This same sample was used by the SP to construct the database HPA which contains the history of contributions and other related variables (since the beginning of the system) in the individual pension savings accounts of the individuals in the survey. The individuals interviewed in the year 2002 for the Social Protection Survey were subsequently followed up in two later editions of the survey (2004 and 2006), meaning that it was transformed into a panel-type survey.

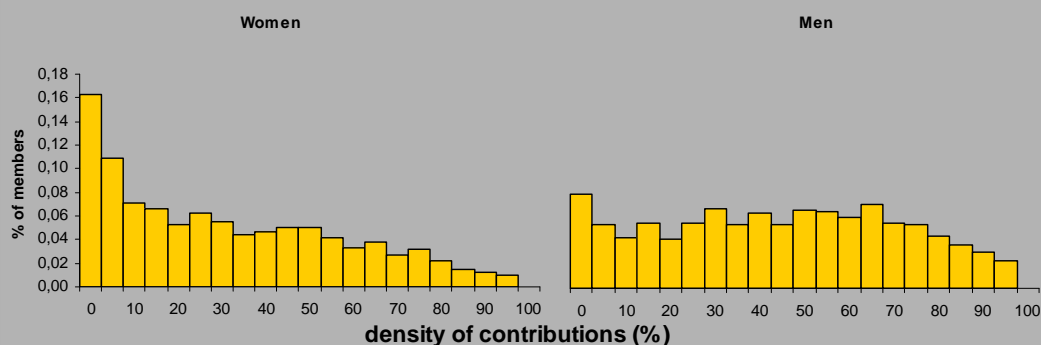
On the basis of the survey and the HPA, studies were carried out that made use of the longitudinal nature of the information to measure contribution densities and to project pensions (see Berstein, Larraín and Pino (2006) and Arenas de Mesa et al (2006).

Inset 2.3

Coverage and density of contributions among young people

In a contributory system of individual funding such as the Chilean one, the contributions paid when young are vitally important in financing the pension, due to the effect of the compound yield accrued by those contributions during people's active working lives.

One way of analyzing the extent to which young people participate in the pension system is through measuring the densities²¹ of their contributions to the system, in other words, the proportion of time that a person pays contributions. The following chart shows the results of measurements of this type, carried out on the basis of the HPA.



Source: Superintendence of Pensions.

The evidence shows a significant difference in contribution densities across sex. Women have a uni-modal distribution, with a large percentage of them not paying contributions or doing so on rare occasion between 19 and 29 years of age. Men, on the other hand, have a more uniform distribution of densities, implying a constant percentage of men throughout the contribution densities in the same age-range.

Average Density by Sex, Education and Age

Sex	Primary Education			Secondary Education			Higher Education		
	19 to 29	19 to 24	25 to 29	19 to 29	19 to 24	25 to 29	19 to 29	19 to 24	25 to 29
Women	18.2%	15.0%	22.0%	32.5%	26.7%	39.4%	41.8%	26.7%	60.0%
Men	38.6%	31.5%	47.2%	51.0%	40.4%	63.8%	47.0%	32.4%	64.6%
Total	31.4%	25.7%	38.3%	42.6%	34.1%	52.7%	44.3%	29.3%	62.2%

Source: Superintendence of Pensions

Finally, the densities of young people are analysed by level of education, sex and age. The table above displays average densities for the various subgroups analysed, showing that the contribution density is higher for men and for more educated individuals. By contrast, individuals with shorter educational careers, especially in the case of women, present lower average densities.

Source: Fajnzylber and Plaza (2008).

2.1.3.- Coverage of the voluntary system

Ever since the beginning of the individually funded system, it has been possible to make voluntary contributions to increase pensions. However, this possibility only began to look more relevant after March 2002, when an important reform of the voluntary pillar

²¹ On average, the density of contribution for workers born between 1965 and 1980 is 40.5%, with a very noticeable difference between genders. The average density for women is 33%, while for men it amounts to 47%.

came into force, which expanded it significantly. The main legal changes introduced at the time were the following:²²

- a) Permission to withdraw contributions paid in freely by a worker via this product at any point of his/her working life, under the tax conditions stipulated in the Law.
- b) Increase in the maximum amount of voluntary savings entitled to tax incentives, from 48 to 50 UF per month.
- c) Extension of the tax benefit to self-employed workers and members of the INP.
- d) Authorisation to Investment Fund Managers, Housing Fund Managers, Life Insurance Companies, Banks, Stock Brokers and other bodies authorized by the of Superintendence of Securities and Insurance (SVS) or Superintendence of Banks and Financial Institutions (SBIF) to offer voluntary pension savings accounts– which prior to Law N° 19,768 could be offered only by the AFPs .

Since then, the voluntary system has been growing steadily, both in the number of accounts and in the accumulated balance (see figure 2.6). The so-called APV (Voluntary Pension Savings), paid into individual accounts in the AFPs themselves, continues to be the main vehicle of voluntary savings, both in the number of accounts (75% as of March 2008) and in the balance accumulated in them (69% as of March 2008).

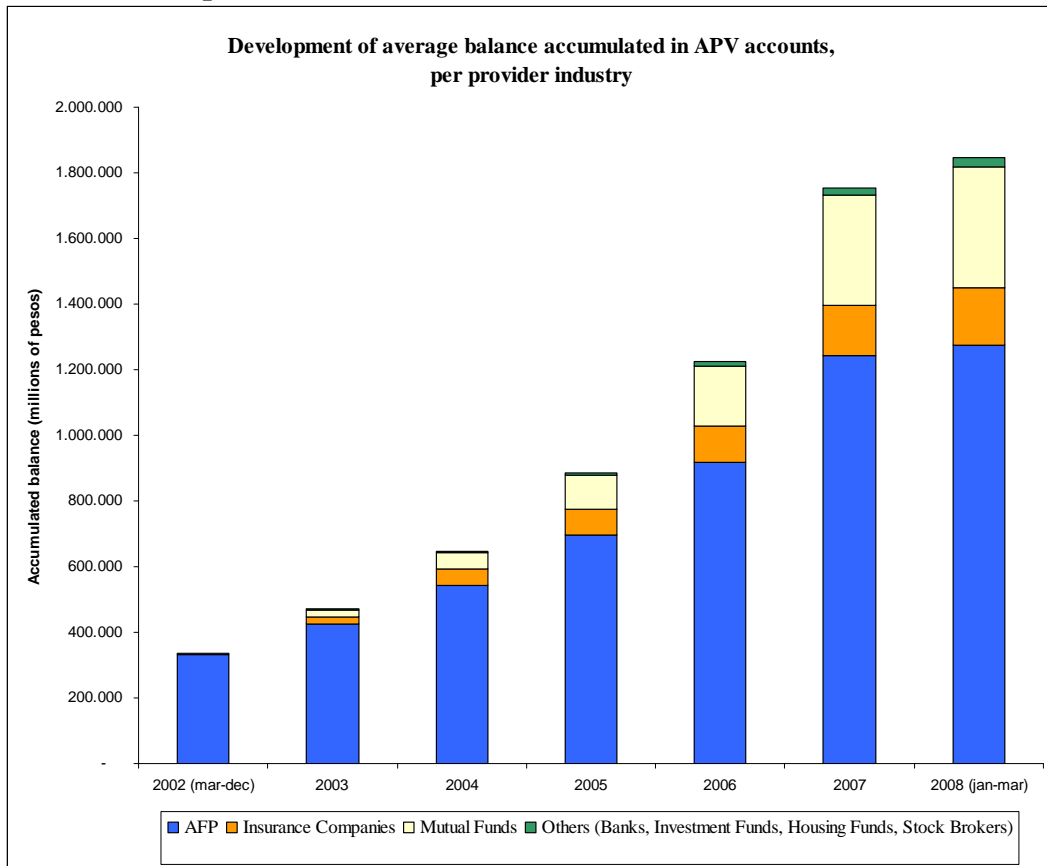
As figure 2.7 shows, savers tend to be people of intermediate age (62% between 35 and 55, with an average age of around 45 years), with a higher proportion of men (66%). A large number of accounts, however, have a zero balance and the rest are distributed in an extremely uneven fashion, with 416 thousand savers having less than 1 million pesos and almost 10 thousand exceeding 100 million pesos.²³

Figure 2.8 shows the correlation of voluntary savings made via accounts in the AFPs (which represent about 69% of the total saved) and covered earnings. It is clear that the vast majority of those who have accounts of this type have covered earnings of over 1 million pesos. This is due, on the one hand, to the fact that people with a higher level of income have the ability to save, and on the other, that the tax incentives favour precisely these groups. In the same lines, although about 35% of APV savers have less than 10 million pesos in their mandatory individual pension savings account, when considering the number of members in this category, only 1% of this group have a positive balance in the APV account or in employer-agreed deposits. This proportion rises gradually, reaching 49% for people with balances of over 100 million. With regard to the distribution of the total balance saved through the AFPs, it is a striking fact that 36.4% of this is to be found in accounts belonging to individuals with over 100 million pesos.

²² “Information on Voluntary Pension Savings as of March 2008”, a joint communiqué from the Superintendence of Pensions, the Superintendence of Banks and Financial Institutions and the Superintendence of Securities and Insurance.

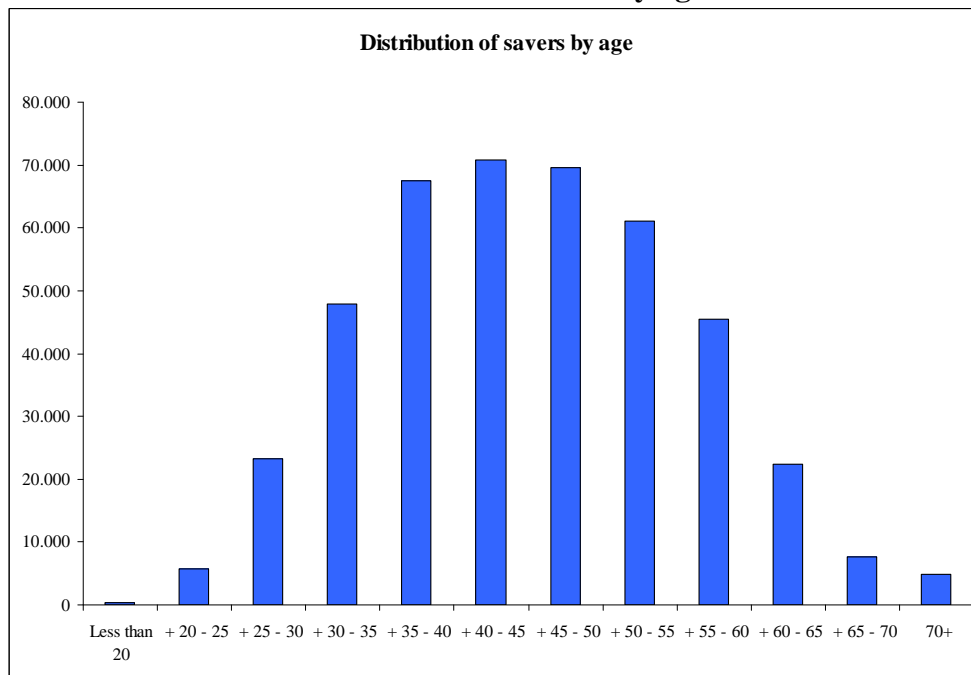
²³ The average balance is around 4.8 million pesos, while the median balance is between 50 and 100 thousand pesos.

Figure 2.6
Development of the balance accumulated in APV accounts



Source: Author's own, based on joint communiqué from SP, SBIF and SVS, March 2008.

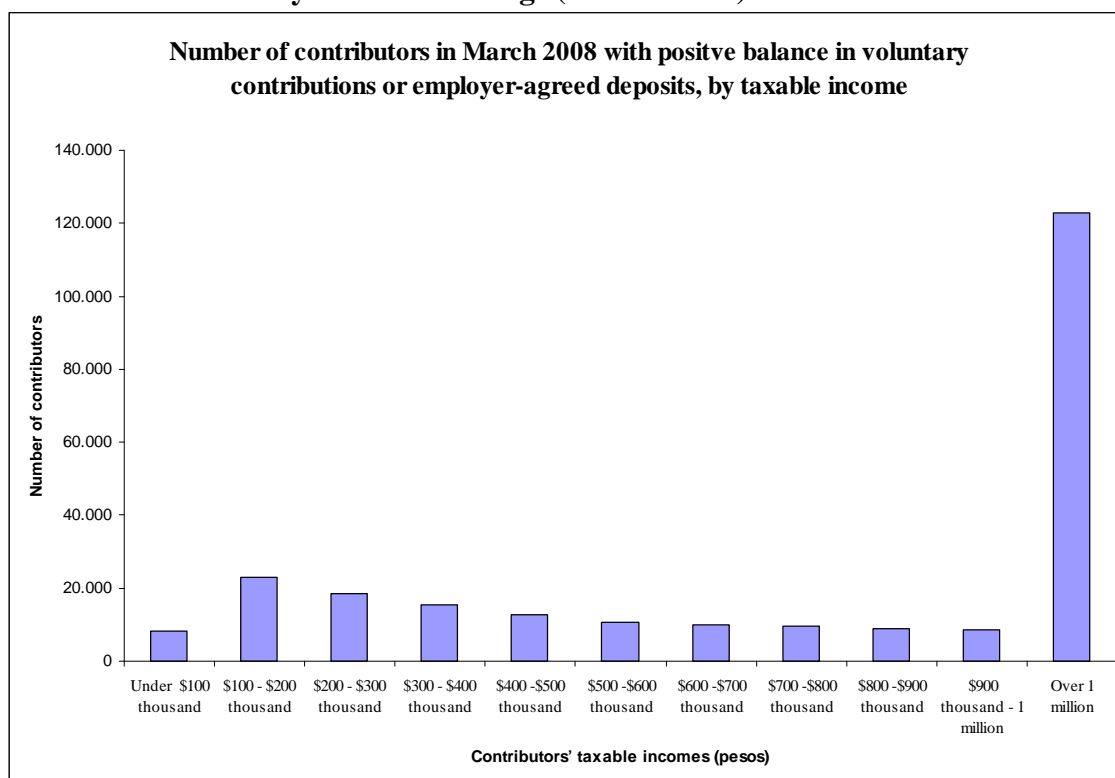
Figure 2.7
Distribution of APV savers by age



Source: Author's own, based on joint communiqué from SP, SBIF and SVS, March 2008.

Note: Accounts with zero balance have been excluded.

Figure 2.8
Characteristics of APV or Employer-Agreed Deposits made in AFPs,
by covered earnings (contributors)²⁴



Source: Superintendence of Pensions

2.1.4.- Income in old age ²⁵

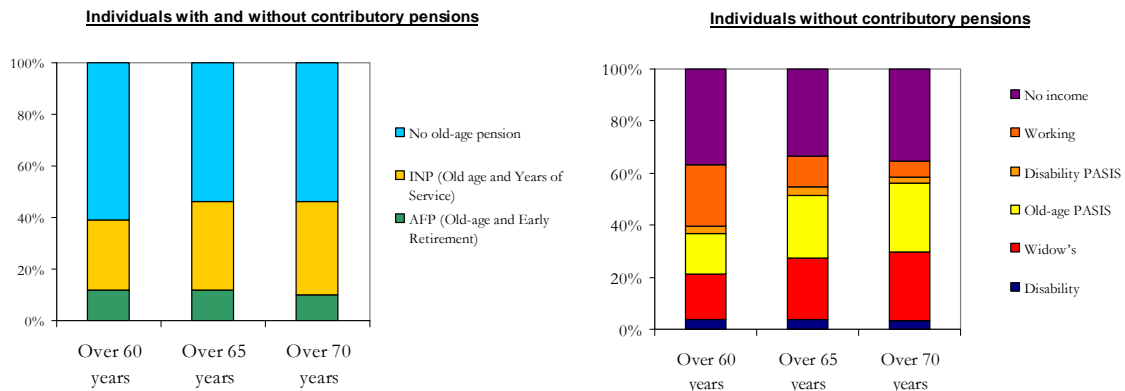
Coverage and density indicators given in the previous sections determine the benefits that the population receives. As mentioned earlier, an analysis of the benefits in place nowadays does not permit an evaluation of the 2008 reformed pension system, but does give an idea of how the elderly adult population is getting on. In the following section, an analysis that projections benefits is made to help to understand and evaluate to some extent the system in force between 1980 and 2008.

The left panel in figure 2.9 shows the share of benefits paid by the contributory pillar of the AFP system and the pay-as-you-go system managed by the Social Pensions Institute (IPS). The right panel, on the other hand, displays the sources of income for people without contributory pensions. Approximately half the population over 70 years of age received benefits from a contributory system (most of them coming from the pay-as-you-go system, though its relative importance is decreasing as the AFP system matures). The figure on the right shows that about 60% of people without contributory benefits are at least partially covered by welfare, survivorship or disability pensions.

²⁴ This chart was developed on the basis of statistics of the number of people who paid contributions into their mandatory individual funding account in the month of March 2008, and who had a voluntary pension savings account or employer-agreed deposits in the AFP providing the information. Covered earnings in this context correspond to that reported at the point of paying the mandatory contribution. It does not include APV paid into other financial institutions or APV accounts held in an AFP other than that of the worker.

²⁵ Section based on Fajnzylber (2006).

Figure 2.9
Sources of income in old age



Source: Berstein, Larraín and Pino (2006).

Table 2.3 shows the share of individuals covered by the different types of pension, by age-bracket and sex. On analysing the elderly population as a whole, 22% of the population over 65 years of age receives no income from retirement benefits or pensions. This figure decreases gradually with age, reaching 10% of those over 80 years of age who have no pension income of any kind. It might be thought that this development coincides with rational decisions of individuals who postponed retirement; however, the percentage covered by this item remains fairly stable after age 65 and across the various cohorts.

The program of Welfare Pensions for those 65 and older played an essential part, providing coverage for 15% of the population of this age range with no access to other sources of income (16% of women). Coverage increases gradually across cohorts, reaching 17% of the population over 80 years of age.

However, even more important than the PASIS, widows' pensions played a predominant role in covering women, representing the only source of pension income for 21% of women over the age of 65, rising to 30% of women over the age of 80, making them almost as important as contributory pensions or retirement benefits.

Table 2.3
Percentage of people who receive some Retirement Benefit or Pension income
by Sex and Age: Chile (2003)
(Millions and Percentages)

	Between 60 and 64			Between 65 and 69			Between 70 and 74			Between 75 and 79			Over 80 years of age		
	Total	M	W	Total	M	W	Total	M	W	Total	M	W	Total	M	W
Population (millions)	0.54	0.25	0.29	0.40	0.18	0.21	0.36	0.16	0.21	0.23	0.10	0.13	0.25	0.09	0.16
Without income from retirement benefit or pension	61%	61%	61%	44%	25%	41%	22%	12%	29%	15%	9%	19%	10%	7%	13%
Old-age pension or retirement benefit	25%	30%	21%	44%	62%	29%	50%	71%	35%	51%	70%	36%	52%	77%	38%
Disability pension	3%	4%	1%	3%	4%	1%	2%	4%	1%	2%	3%	2%	1%	2%	1%
Widow's allowance or pension	6%		11%	8%		15%	11%		19%	14%		26%	19%		30%
Orphan's pension	0%		0%	0%		0%	0%		0%			0%	0%		1%
Other type of pension	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%
Old-age PASIS ²⁶	1%	1%	2%	9%	7%	11%	13%	12%	14%	16%	16%	16%	16%	14%	17%
Disability PASIS	2%	2%	3%	2%	1%	3%	2%	1%	2%	2%	2%	1%	1%	1%	1%
Mental Handicap PASIS	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: Fajnzylber (2006) based on CASEN 2003.

Therefore, the fundamental difference between men and women is in terms of the contributory pensions they receive, and this is only partially offset by widows' pensions. Further, the level of contributory pensions differs considerably across sex due to differences in attachment to the labour market and also specific elements of the Chilean pension system (see Inset 2.4).

²⁶ It is interesting to note that in the group between 60 and 65 years of age, 1% of people state that they receive the Old-age PASIS, when in fact this benefit is only granted from age 65 onwards. This might be due to errors of classification of Disability PASIS.

Inset 2.4

Gender Issues in the Pension System

The funded system implemented in Chile in 1981 implies, by its nature, a close relationship between the earnings during the working life and income during old age. It is therefore to be expected that self-funded pensions will be lower for women than for men, due to their low attachment to the labour market and the lower wages that they receive.²⁷ However, there are some peculiarities of the pension system and the wage profile of women and men in Chile that make the gap in the passive stage even wider than in the active stage.

Among the elements that affect the widening of the gap in old age is, for example, the lack of contributions at an early stage – during the child-rearing period. This means a high cost in terms of pensions because income at the beginning of the active life is what most influences the final balance. There are also elements in the design of the pension system that are important in determining whether the differences observed in active life are maintained, smoothed or increased during old age. While some factors favour women's pensions, others harm them.

The existence of minimum and welfare pensions becomes a subsidy for the women in the Chilean pension system, with women being the main beneficiaries of this type of subsidy, making them one of the elements in women's favour. Eligible beneficiaries of survivorship pensions also implies higher pensions for women than for men (in the case of the woman, the husband is only considered in the calculation of survivorship benefits if he is disabled, whereas the wife is always included in the husband's pension). It is worth emphasising that though this might appear to be a greater benefit for the woman when she retires, in actuarial terms it is only a different way of distributing resources over time and does not alter their present value. On the other hand, the fact that women have a lower retiring age than men and a greater life expectancy mitigates against the relative position of women in old age.

Berstein and Tokman (2005) analyse the impact on "self-generated" income during women's active and passive lives for a specific cohort: those born between 1960 and 1965. In other words, those who began to work in 1981 when the pension reform was implemented and who will retire between 2020 and 2025.²⁸ The results of these projections (see table below) shows that the impact of the minimum pension is greater for women with lower levels of education because their pension would be an average of 22.4% lower without this state guarantee. Further, unisex life-expectancy tables would reduce men's pensions and increase those of women, especially for higher educational levels, precisely because these pensions depend to a greater extent on the self-funded amount, with no access to state guarantee. Finally, it is worth emphasising the important impact of the age of retirement, since even assuming that the woman does not pay contributions during the five additional years, between 60 and 65 years, the impact of postponing retirement is higher than 30%, being once

²⁷ While the participation of women in 31 countries analysed by the Organization for Economic Cooperation and development (OECD) is around 67%, only 43% of Chilean women between 25 and 54 years of age have a job.

²⁸ The analysis concentrates on "self-generated" income and does not include other sources of income, such as the survivorship pensions that these women might be receiving.

again greater for higher levels of education, for the same reason given above. Though retiring earlier may seem to be a benefit for women, it has a significant cost, because each year that retirement from active life is brought forward means a pension 7% lower.

Impact on the annuity of different elements of the pension system

	Primary Education		Secondary Education		Higher Education	
	Man	Woman	Man	Woman	Man	Woman
Without minimum pension	-16.8%	-22.4%	-4.0%	-19.2%	-0.2%	-4.7%
All with survivorship insurance	0.0%	-0.8%	0.0%	-0.9%	0.0%	-1.4%
With unisex life-expectancy table	-3.2%	4.3%	-5.0%	4.5%	-5.9%	6.9%
Retirement at 65 years						
Assumption (1) no contributions between 60 – 65	0.0%	33.8%	0.0%	32.5%	0.0%	42.0%
Assumption (2) contributes according to probabilities	0.0%	34.7%	0.0%	34.0%	0.0%	46.8%

Source: Authors' calculation based on statistics from the EPS.

Source: Berstein and Tokman (2005).

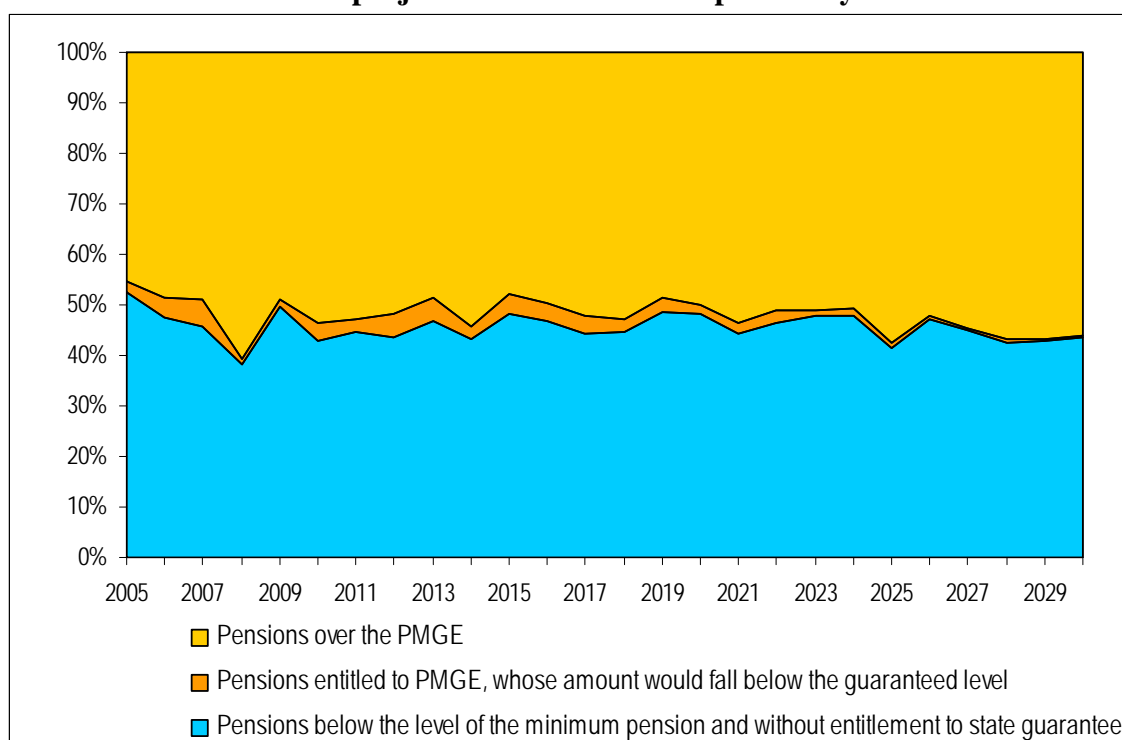
2.1.5.- Pension projections

One step further than occupational coverage or contribution densities to measure coverage of the pension system or evaluating the benefits currently being received consists in making econometric projections of the pensions that members may get upon retirement.²⁹

On the basis of the longitudinal administrative data described in the previous section, projections of this type were developed in which, in the first place, a prediction was made of the probability that each individual interviewed in the sample would contribute from the last observed period until reaching legal retiring age. A similar projection was made, once again using econometric models, to predict individuals' covered earnings when paying contributions. With these elements and the available information about the recognition bonds corresponding to current members, an estimation was made of the pensions that different cohorts of pensioners would receive in the future. Figure 2.10 shows an example of these projections for the period 2005-2030, indicating for each year the proportion of pensioners of that year who i) would manage to self-fund a minimum pension, ii) would not manage to fund a minimum pension but would achieve the 20 years of contributions needed to qualify for the PMGE, and iii) would not manage to fund a minimum pension or be entitled to a PMGE.

²⁹ See Berstein, Larraín and Pino (2005) and Berstein, Larraín and Pino (2006).

Figure 2.10
Pension's projection for the Chilean pension system



Source: Berstein, Larraín and Pino (2006).

2.2.- Coverage related measures included in the reform

2.2.1.- Strengthening the poverty-prevention pillar

The diagnosis presented in the previous section made it imperative to strengthen and to integrate the non-contributory poverty-prevention pillar in a pension system that would cover the needs of the elderly adult population in an effective manner. This was due to the fact that, even though important efforts were made to increase the coverage of the individually funded system, it is possible to see that there is a group that, today and in the future, will require old age and disability support from the government. It is considered that providing protection for these sectors of the population is a priority and that the protection that was being provided was insufficient.

An important challenge is that of providing this protection without reducing incentives to pay contributions, or at least ensuring that the impact on incentives is as small as possible. It is for that reason that it was decided to integrate the systems, ensuring that the pensions of those who pay more contributions will always be higher than those who have not paid contributions. Another element considered in the design was the fiscal sustainability of these subsidies (see Inset 2.5).

Inset 2.5

Elements for designing the poverty prevention in old age pillar

Faced with the problems of coverage caused by the low density of contributions to the mandatory contributory system, there are a number of design possibilities to prevent, in non-contributory ways, the prevalence of poverty in old age. The most appropriate choice for a country depends on a series of factors, of which three are of particular importance: the level of protection provided by the scheme, the disincentives to contributory saving that may be generated and the cost to the government over time of the measures being considered. These three dimensions are generally in opposition to one another.

PROTECTION



INCENTIVES

COST

The level of protection is given by the share of the elderly population that would be protected, even if at a minimal level, from the risk of poverty in old age. The problem of incentives refers to the relationship between the design of the scheme of benefits during the passive stage and the encouragement to pay into the contributory scheme during the active period. The higher the level of non-contributory protection provided by the State, the less the effect of contributing during the active stage (wealth effect). On the other hand, the withdrawal of benefits from those people who have accumulated a certain level of wealth during their active life may act as a sort of tax on the efforts made when they were young (substitution effect).

The Solidarity Pillar introduced by the reform makes it possible to provide a high level of protection, by granting non-contributory benefits to those sectors of the population that are least covered by the mandatory contribution pillar, establishing in practice a pension nationwide-floor. To avoid the high cost of a universal scheme, the benefits are focused on the poorest 60% of the population, and to mitigate the possible disincentive effect typical targeted schemes, the amount of the benefit is withdrawn gradually, so that the final pension increases uniformly with the savings of each person.

Source: Fajnzylber (2006).

The new Solidarity Pillar

As has already been mentioned, prior to the Reform, the risk of poverty in old age was covered by two basic programs: PMGE, which provided a floor for the pensions of those individuals with at least 20 years' contributions and PASIS for individuals without entitlement to a pension from any pension system.³⁰

³⁰ As of March 2008, the Minimum Pension was equivalent to US\$222 (US\$242 after reaching 70 years of age and \$257 after reaching 75) while the PASIS program provided old-age, disability and mental handicap benefits equivalent to US\$110 up to 70 years of age, US\$117 after 70 years of age and US\$128 after 75 years of age (all figures in US\$ are based on the exchange rate of 435.10 pesos to the dollar, in force on 12th March 2008, the day when the Reform was officially enacted).

The 2008 Reform replaces these programs with a single scheme which guarantees that all individuals in the least affluent 60% of the population will have access to a basic pension, regardless of their contributory record.³¹ This new program provides old-age and disability subsidies, funded out of the Nation's general revenue.³²

Individuals without pension rights from any pension scheme will be entitled to a Basic Solidarity Pension (PBS) once they are 65 years old and provided they meet the affluence and residence requirements.³³ Individuals who have paid contributions but are entitled to a pension below a given level will be entitled to a Solidarity Pension Payment (APS) with the same requirements in terms of age, affluence and residence. The latter seeks to guarantee that benefits are granted to people who have actually lived in Chile for a significant period of their lives, avoiding people moving into the country solely to receive the benefit. Specifically, the residence requirement stipulates that the person must have lived in the country for at least 20 years between the age of 20 and the moment of applying for the benefit and at least 4 of the 5 years immediately prior to the application (see Inset 2.6).

³¹ The scheme will be introduced gradually: during the first year, as from 1st July 2008, the PBS will be equivalent to \$60,000 and be restricted to the least affluent 40% of the population. The benefit will increase to \$75,000 in July 2009 and cover the poorest 45%. The scheme will be fully functional as from July 2011, covering the poorest 60% of the population.

³² Among the alternative designs put forward to the Presidential Advisory Council for Pension Reform were schemes for universal pensions, pensions focused according to poverty criteria and graduated minimum pensions. For an analysis of the existing poverty-prevention pillar and alternative designs, see Fajnzylber (2006).

³³ The affluence qualification consists in a focusing procedure that will be applied to determine whether or not a person belongs to the 60% of the poorest population. The initial implementation (2 years) will be based on the Social Protection Record, an instrument used in most government means tested programs that estimates a vulnerability index for the households interviewed, based on information on ability to generate income, self-reported measurements of income, administrative data of pensions received and an index of needs based on the age and disablement status of the members of the household. For further information, visit the web page www.fichaproteccionsocial.cl.

Inset 2.6
Residence requirements for the new Solidarity Pillar

International experience shows that in all countries where non-contributory benefits are offered, whether universal or targeted, there are minimum residence or citizenship requirements in order to qualify. In the case of the new Solidarity Pillar, a review was made of international literature, with both the alternatives and the advantages and disadvantages of the various options being detected. The following table summarizes the characteristics of the requirements for a series of countries.

Requirements to qualify for non-contributory pensions around the world

Countries	Type of pension	Residence or citizenship requirements
New Zealand	Universal pension for over-65s	10 years as from 20 years of age, including 5 since the age of 50 Citizenship and residence
Mauritius, Namibia, Botswana, Bolivia, Nepal Denmark	Universal pension for over 60-75 Pensions based on residence, 65 years	Complete pension: 40 years of residence between 15 and 65 years. Minimum for partial pension: 3 years (10 for non-citizens)
Finland, Iceland, Norway, Sweden, Netherlands	Pensions based on residence, 65-67 yeinars	Complete pension: 40 years of residence between 15 and 65 years. Minimum for partial pension: 3 years (1 year in Netherlands)
Canada	Pensions based on residence, 65 years	Complete pension: 40 years of residence after the age of 18. Minimum for partial pension: 10 years (20 for payment outside Canada).
United Kingdom	Pensions based on residence, 80 years	Complete pension: 10 years of residence in any 20-year period after the age of 60. Minimum for partial pension: there is no partial benefit.

Source: Summarized from Larry Willmore (2006), "Non-contributory pensions: Bolivia and Antigua in an international context", Funding Development Series Number 167, Special Studies Unit, CEPAL, May.

It can be seen that in the case of countries with universal pensions, citizenship is required in order to qualify for benefits, with the important exception of New Zealand, where the choice was made to demand 10 years of residence after the age of 20, including 5 years of recent residence after the age of 50. On the other hand, among those countries that have non-contributory schemes based on residence requirements, it is usual to establish a significant requirement to qualify for a complete pension (generally 40 years), but partial benefits are granted after 3 years of residence (the case of Canada is distinctive, because it requires 10 years, or 20 years for payment of benefits outside the country, as also the case of Denmark, which requires 10 years for non-resident citizens. These partial benefits with fewer years of residence may be interpreted as semi-contributory benefits, to the extent that each year of residence (with a minimum) gives entitlement to a percentage of the total pension, possibility on the understanding that the person contributed to the national economy (and paid taxes) while resident in the country.

Therefore, the new Solidarity Pillar implements a principle similar to that used in countries with pensions based on residence, while bearing in mind elements that are proper to our situation. Thus, for an old-age pension, the new Solidarity Pillar requires 20 years' residence in Chile (continuous or non-continuous) as from the age of 20, and for a period of no less than 4 of the 5 years immediately prior to the date of application to receive the benefits. In this case, the Law considers individuals defined as "exiles", in which "the time spent abroad for that reason shall be considered as a period of residence in the country" (text of Law N° 20,255, article 5°). The new Solidarity Pillar also makes a distinction with regard to the disability pension, where it is impossible to insist on the same requirements as for old age, because they would be too demanding. However, in order to avoid opportunistic behaviour, people are required to prove 5 years' residence in Chile (continuous or non-continuous) of the last 6 years immediately prior to the date of presenting the application for receiving the benefits.

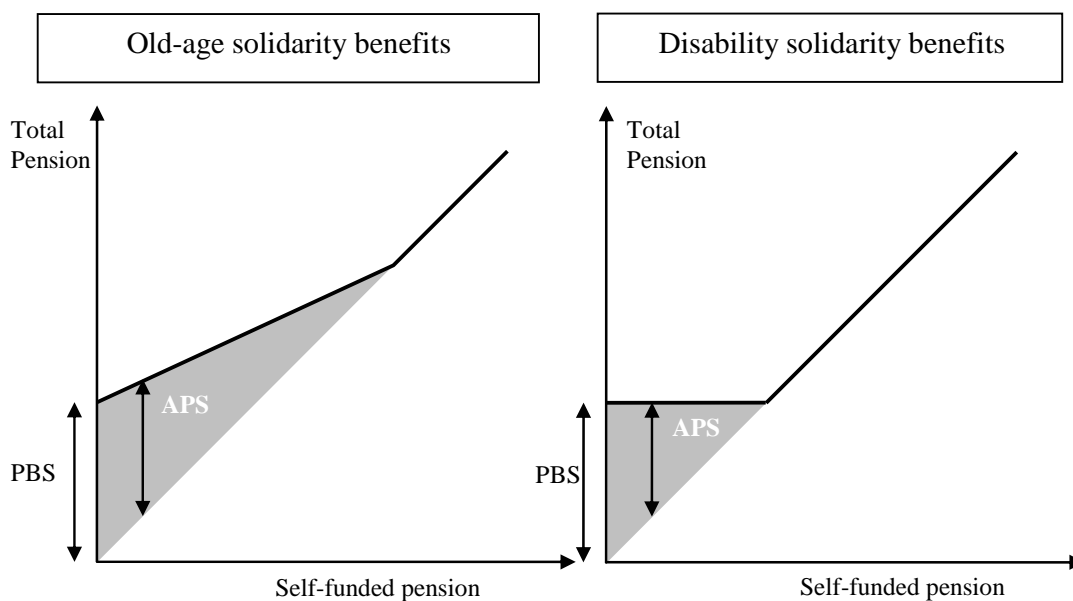
Source: Fajnzyłber (2006b).

The disability program offers benefits under similar conditions but for individuals between 18 and 64 years of age who have been declared disabled by a medical board, which makes a technical assessment of the worker's disablement.³⁴ Once the person reaches 65 years of age, he/she may be eligible for benefits from the old-age solidarity system.

The structure of benefits can be described most easily by means of figure 2.11, which shows the solidarity subsidies and the final pension, on the basis of the amount of pension funded by the person him/herself.

³⁴ For the running of the Medical Board, the AFP Association provides administrative support and the SP appoints the doctors and supervises their operation. For assessing workers who apply for a basic solidarity disability pension, the IPS will provide the corresponding funding.

Figure 2.11
Subsidies and final pension under the System of Solidarity Pensions



Source: Superintendence of Pensions.

It is worth underlining two particular elements of this design: the strong integration between the contributory pillar and the solidarity pillar, and the concern about savings disincentives that might be brought about by this integration. The integration makes it possible to guarantee that any person in the first three quintiles will receive a pension at least equivalent to the PBS. If the benefit were established as the subsidy necessary to achieve the PBS (as in the case of the disability solidarity scheme), there would be strong disincentives to pay contributions in the case of people with little prospect of accumulating significant pensions, since their income in old age would not increase - at least within a certain margin - with the number of contributions. With the scheme chosen, the final old-age pension increases unvaryingly with the self-funded savings; in other words, each peso saved increases retirement income.

The new Solidarity Pillar is undoubtedly the most relevant component of the 2008 reform, both in terms of the extension of coverage that it offers and the certainty that it provides in the sense that any elderly adult in Chile will have some kind of protection in old age. Current projections show that this program will also have an important effect in reducing income inequality over the next few years. The main challenge is, obviously, to develop an adequate fiscal policy to fund the additional cost implied by this reform for the coming decades, during which the country will be exposed to a significant increase in its demographic dependency ratio. This challenge will be mitigated by the general reduction in the fiscal demand arising from the cost of the transition from the pay-as-you-go scheme to the funded system. Since the 1980 reform, the government has had to fund the fiscal deficits caused by the old pay-as-you-go schemes (deprived of new sources of income) and the liabilities with former contributors to these programs who opted to the new pension scheme. These demands are now beginning to decrease, leaving fiscal space to fund the new pillar.

2.2.2.- Reinforcing the mandatory contributory pillar

The defined-contribution nature of the pension system based on individual funding establishes a direct relation between a person's contribution record – the frequency, timing and amount of the contributions – and the benefits to which these contributions entitled. Pensions are lower when individuals have long periods without paying contributions due to occupational choices or working informally, when people enrol in the system late or when they pay contributions that bear no relation to their real earnings (due to the ceiling or to under-declaration of income). What is more, the actuarial nature of the benefits means that growing life-expectancies require more voluntary savings, later retirement from the labour market or lower pensions. The 2008 Pension Reform tackles these concerns in a series of dimensions, focusing particularly on those groups that are vulnerable. This is why contributory participation has been made compulsory for a large group of self-employed workers, a series of measures designed to improve gender equality in the system have been established, the formal hiring of young workers has been encouraged through subsidies and more tools have been provided for effective collection of contributions that are overdue.

Mandatory participation and associated benefits for self-employed workers

One of the vulnerable groups in old age consists of those workers who have worked as self-employed for part of their working lives. According to the diagnosis, most of these individuals have not worked as self-employed their entire working lives, but have still done so for a considerable proportion of time. As participation to the pension system is voluntary for workers of this type, myopia, administrative costs, unstable income and lack of knowledge imply that they tend not to pay contributions. On the other hand, the benefits of the new solidarity scheme will be paid to all eligible individuals, regardless of the reason behind their lack of contributions.

It is for these reasons that, in a way consistent with the increased coverage implied by the introduction of the new Solidarity Pillar, the reform obliges those self-employed workers who receive income that is liable to income tax to pay contributions into the mandatory system on the basis of their annual income.³⁵ The introduction of the obligation will be gradual, beginning with a 3-year information period, followed by a further period of 3 years during which pension contributions will be paid from the tax rebates owed to the workers unless the latter explicitly state that they do not wish to pay contributions. In other words, during this period, the default option will be to contribute to the system. This enables the voluntary nature of the contribution to continue while obliging the member to take an active decision (see Inset 2.7).

During the transition period, the proportion of income subject to the contribution requirement will be gradually increased, starting at 40% in the first year, 70% during the second, and 100% in the third year. This will become completely mandatory as from

³⁵ More precisely, these workers will have to contribute 10% of their covered earnings, plus the fee corresponding to the services provided by the AFPs and the premium of the disability and survivorship insurance. The covered earnings is equivalent in this case to 80% of the annual income received under this category. There is a minimum monthly contribution equivalent to the contribution rate applied to a minimum wage and a maximum contribution, equivalent to the contribution rate applied to the covered ceiling (64,7 UF per month). This new requirement will be applied in a similar way to the need to pay into a health insurance, either public or private.

2015. Finally, as from 2018, these workers will also be obliged to pay 7% of their covered earnings into some type of health insurance (public or private).

Inset 2.7

Default options and contribution of self-employed workers

During the transition period of the Pension Reform, there will be a three year-period during which contributions of self-employed workers will not be mandatory but will be set by default within the annual income-tax declaration. In other words, a contribution will be paid into the worker’s AFP charged to his/her tax rebate, unless the person explicitly states that he/she prefers not to pay the contribution. This measure, put forward by Berstein, Reyes and Pino in March 2006, is based on a wide range of literature related with the effect of default options on rates of worker participation in voluntary savings plans (known as 401K) offered by employers in the USA.

The authors argue that the main advantage of measures of this type is that they mark a mid-point between mandatory contribution (and its potential effect on the formality of this type of worker) and a contribution that is completely voluntary, by confronting the person with the need to take an active decision not to participate.

The following table presents results of a simulation about the range of effects that such a measure might produce (expressed in terms of the probability of accepting contribution by omission) on the replacement rate for workers with differing levels of education.

Effect of contribution by default on replacement rates, by level of education

	Probability of accepting contribution by default					
	0% (base scenario)		40%		80%	
	men	women	men	women	men	women
Primary education	45%	15%	50%	27%	55%	36%
Secondary education	53%	20%	57%	24%	59%	29%
Higher education	54%	26%	62%	28%	63%	28%
Average	51%	21%	56%	26%	59%	30%

Source: Tables 7 and 8, Berstein, Reyes and Pino (2006)

In general terms, the measure could raise replacement rates by around 8 percentage points (16% of increase) in the case of men and 9 percentage points (30% of increase) in the case of women. The greatest effects would occur in women and men with primary education, reflecting the greater propensity of these groups to spend high proportions of their active working lives as self-employed workers.

Source: Berstein, Reyes and Pino (2006).

The main challenge presented by this measure is the supervision of its actual application. Experience of other countries in the region has shown that self-employed workers tend to have much lower levels of compliance than employees. Although the situation in Chile seems relatively favourable (as shown by the high levels of compliance with tax regulations), it is to be expected that this process will not be entirely easy. On the other hand, this component of the reform is focused only on self-employed workers who personally carry out an activity by which they obtain work

income, taxed under article 42 N° 2 of the Income Tax Law, and excludes self-employed workers for whom it is more difficult to determine income effectively and supervise contributions. Among these are included workers engaged in agriculture and fishing and owners of small businesses, among others. For these workers, participation in the system will continue to be voluntary.

To make this obligation effective, the Inland Revenue Service (SII) will inform the General Treasury of the Republic, during the first fortnight in May, of the identities of self-employed members who have to pay pension and health contributions (the latter for the National Health Fund, FONASA), and the amount to be paid for those items. In order to calculate these amounts, the SII will take into account the mandatory contributions that the worker may have paid in the event of he/she also has been an employee, and the provisional payments.

The General Treasury of the Republic will have to pay the mandatory contribution for pensions into the pension fund of the AFP to which the self-employed worker belongs, out of the amounts withheld as provisional income-tax payments during the previous calendar year and up to the amount which these resources suffice to make the corresponding payment. The Treasury will also pay the health contributions into the National Health Fund, once this obligation comes into force. If the withheld amount is not sufficient for the total payment of the contributions, the member will be required to make up the shortfall by a direct payment.

For those self-employed workers who are obliged to pay contributions, the covered earnings will be computed annually and will correspond to 80% of all the gross earnings taxed by Income Tax that was obtained in the calendar year prior to the declaration of that tax. This cushions these workers from monthly fluctuations in their earnings, making it more flexible than monthly contributions. However, these workers will be able to make provisional monthly contribution payments, which will be paid into the pension fund and attributed to the pension contributions that they are obliged to pay annually.

In any case, covered earnings cannot be lower than the minimum monthly wage nor higher than the product of multiplying by 12 the covered earnings ceiling established in the first paragraph of article 16 (currently 64,7 UF). For this purpose the value of the UF shall be that corresponding to the last day of the month of December.

As a result of this measure, it is estimated that over a million self-employed workers will see an increase in their contributions and an improvement in their coverage. The obligation to pay contributions will not apply to those workers who are 55 years old or more in the case of men, or 50 years old or more in the case of women, on 1st January 2012. This exception is due to the fact that in a system of individual funding, imposing the obligation to contribute on workers who are approaching retiring age may be very onerous, since they will not benefit from long periods of yield and the payment of fees in the case of the Chilean system is based on flow, making it relatively more expensive for those who begin to contribute later.

Mandatory contributions for the self-employed will also provide the same coverage of the Disability and Survivorship Insurance (SIS) as employees, extending the coverage beyond the month following that in which the contribution has been paid. Thus, if the

worker paid contributions on covered annual earnings equal to or higher than seven minimum monthly wages, he/she will have an annual coverage of the SIS from 1st May of the year in which he/she paid the contributions until 30th April of the year after. If covered annual earnings are lower than the amount given before, the self-employed worker who contributes in this way will be covered by the SIS during the number of months resulting from multiplying 12 by the ratio between the number of contributions equivalent to minimum monthly wages and seven, counting from 1st May of the year in which he/she paid the contributions. In any case, whatever the amount of the contribution paid, the worker will always be covered in the month of May in which he/she makes the payment.

In addition, the Law 20,255 provides self-employed workers access to the Single System of Family Benefits included in Decree with Force of Law N° 150 (1982), provided that they are up-to-date with their social security contributions. In order to determine the value of the benefits granted by the system of family benefits, the monthly earnings shall be determined as the average earnings of the self-employed worker, accrued by the beneficiary in the calendar year immediately preceding that in which the benefits are claimed. Dependent family members must be accredited with the IPS and this body will inform the SII. The benefits of the System of Family Benefits will be paid annually and will be deducted from the payment of pension contributions corresponding to the self-employed worker. This benefit will come into force on 1st January 2012.

Self-employed workers will also be included in the insurance of the Law of Work-Accidents and Occupational Diseases (Law N° 16,744). For this purpose, they will be obliged to pay the basic general contribution included in letter a) of article 15 of Law N° 16,744, the extraordinary contribution of 0.05% stipulated in transitory article six of Law N° 19,578, and the additional differentiated contribution applicable in the terms given in articles 15 and 16 of Law N° 16,744 and its respective regulations. The corresponding contributions will be calculated on the basis of the same earnings on which the aforementioned workers pay their pension contributions. The obligatory nature of contributions for this insurance follows the same transitory rules as the obligation to pay pension contributions, but in any case these workers have been able to pay voluntarily for this insurance since 1st October 2008.

Finally, the Law also stipulates that these self-employed workers shall be able to enrol in a Family Allowance Compensation Fund (CCAF), with the sole aim of achieving access to additional benefit, social credit and complementary benefit schemes. In any case, enrolment is voluntary and people are required to be paying pension and health contributions in order to enrol individually in a CCAF.

Subsidy on hiring and on pension contributions of young, low-income workers

A particular aspect of the defined-contribution pension system is that, due to the effect of compound interest over many years, the contributions paid at early ages may have a significant impact on final pensions. For this reason, and in the interests of reducing the high level of youth unemployment, the reform introduces a special subsidy to employers who take on people aged between 18 and 35, which makes it possible to finance part of the cost of contributing to the pension system. Specifically, the employers receive an amount equivalent to 50% of the pension contribution, calculated on a minimum wage, for each worker hired for a salary that is equal to or less than 1.5 times the minimum

monthly wage. This benefit will be received for the first 24 contributions, whether continuous or non-continuous, that are registered by the worker in the Pension System of D.L. 3,500.

Furthermore, the worker will directly receive a state subsidy in his/her individual pension savings account for the same amount as that of the employer, for the first 24 contributions that he/she makes between the ages of 18 and 35, where his/her wage is equal to or lower than 1.5 times the minimum monthly wage (see Inset 2.8).

Inset 2.8
Expected effect of youth subsidy

The effect of the youth subsidy will be different depending on the sex of the member, the age at which he/she begins to pay contributions, the number and time distribution of the contributions over the whole course of the working life and the yield of the pension funds. The following tables show the expected impacts in terms of old-age pensions, in different scenarios and for different members. In all cases the pension that the worker would receive without the existence of the subsidy is calculated and compared with that obtained by applying the amount of the subsidy to the first 24 contributions paid prior to reaching 35 years of age. The estimated effects do not include complementary contributions from the Solidarity Pillar.

In intermediate scenarios, the effect expected is an increase of around 10% in the self-funded pension, though the impact is even greater for workers with incomes below the minimum wage.³⁶

Impact of contribution subsidy by age and covered earnings

		Man			Woman		
Earnings:		50% MW	100% MW	150% MW	50% MW	100% MW	150% MW
Pension without subsidy:							
Age of First Contribution	From 20	\$57,755	\$115,509	\$173,264	\$36,374	\$72,747	\$109,121
	From 25	\$47,344	\$94,688	\$142,032	\$30,003	\$60,005	\$90,008
	From 30	\$39,051	\$78,102	\$117,154	\$24,918	\$49,837	\$74,755
Pension with subsidy:							
Age of First Contribution	From 20	\$70,646	\$128,400	\$186,155	\$45,427	\$82,528	\$119,630
	From 25	\$57,080	\$104,424	\$151,768	\$36,900	\$67,503	\$98,106
	From 30	\$46,426	\$85,477	\$124,528	\$30,199	\$55,616	\$81,032
Effect of subsidy in percentage terms							
Age of First Contribution	From 20	22%	11%	7%	25%	13%	10%
	From 25	21%	10%	7%	23%	13%	9%
	From 30	19%	9%	6%	21%	12%	8%

Impact of youth subsidy by age and yield of funds

		Man			Woman		
Yield:		5%	6%	7%	5%	6%	7%
Pension without subsidy:							
Age of First	From 20	\$86,022	\$115,509	\$156,430	\$36,374	\$72,747	\$94,593

³⁶ A Minimum Wage of \$144,000 is assumed on which the person contributes with a density of 50%, distributed evenly as from the first contribution, with a Programmed Withdrawal interest rate of 4.2%. The man is assumed to be married to a wife three years younger, while the woman is single when she retires.

Contribution	From 25	\$73,342	\$94,688	\$123,121	\$30,003	\$60,005	\$75,013
	From 30	\$62,836	\$78,102	\$97,636	\$24,918	\$49,837	\$59,987
Pension with subsidy:							
Age of First Contribution	From 20	\$94,552	\$128,400	\$175,839	\$45,427	\$82,528	\$108,445
	From 25	\$80,085	\$104,424	\$137,131	\$36,900	\$67,503	\$85,161
	From 30	\$68,836	\$85,477	\$107,782	\$30,199	\$55,616	\$67,468
Effect of subsidy in percentage terms							
Age of First Contribution	From 20	10%	11%	12%	25%	13%	15%
	From 25	9%	10%	11%	23%	13%	14%
	From 30	9%	9%	10%	21%	12%	13%

Source: Minute from the Research Division, Superintendence of Pensions.

Additional tools for supervising contribution payment

A central aspect in increasing coverage concerns the development of tools that will allow effective supervision of the employers' obligation to pay their workers' pension contributions in due time. Nowadays, if an employer fails to pay contributions on a worker's behalf, it is difficult to find out whether the matter involved is the termination of a contractual relationship or the violation of the obligation.

In search of a solution to this situation, the Reform introduces a legal change whereby, in circumstances where employers fail to pay contributions without giving notice of the end of the contractual relationship, it will be assumed that the contribution has been declared and not paid. Therefore, the AFPs will be obliged to use all the means at their disposal to clarify the existence of unpaid pension contributions and, if appropriate, get them paid. Once the period for proving termination or suspension of the contractual relationship has elapsed without that situation being proved, it will be assumed for purposes of commencing collection procedures, that the contributions concerned are declared and not paid.

On the other hand, it has been found that a recurrent source of the problems concerned with delay in contribution payment is due to employers' use of physical media for contribution payments. This form of complying with their obligations lends itself to calculation mistakes and in many cases complicates the correct accreditation of the funds in the corresponding accounts and the work needed to correct it (wrong or missing information from the employer). As a way of encouraging the use of electronic media for paying contributions, reducing the delays in the system and facilitating the supervision of appropriate payment, the Reform allows payment of pension obligations up to the 13th of each month, provided these are made electronically³⁷ (see Inset 2.9).

³⁷ The obligation will remain on the 10th of each month for contributions paid non-electronically.

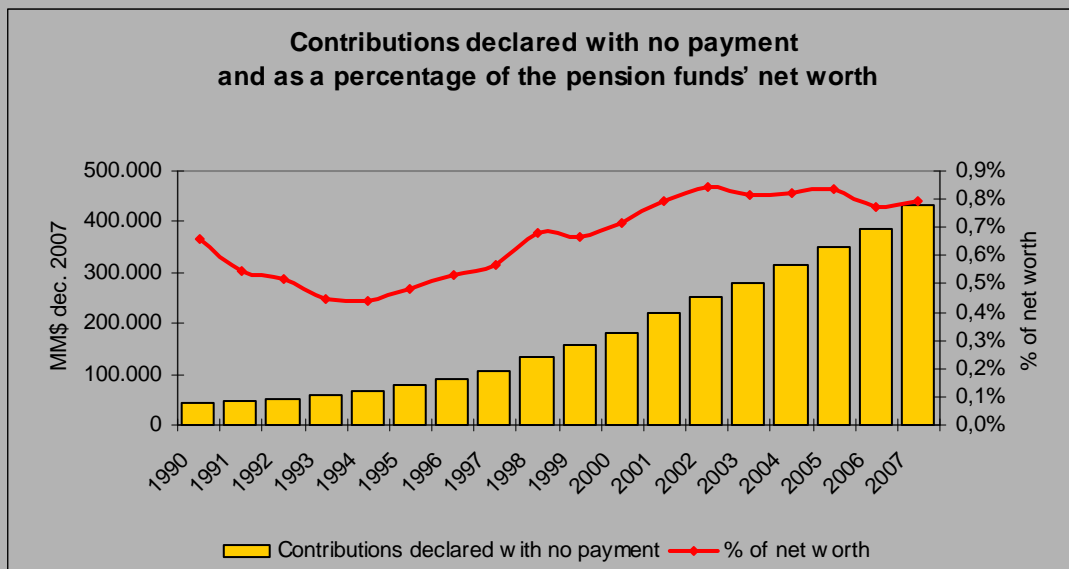
Inset 2.9

Automatic Declaration with no Payment

The contributions paid in by the workers throughout their lives represent one of the main factors when calculating pensions. In fact, in an individually funded system, the contributions paid at the beginning of the active life have a very relevant impact on the final pension. However, it is possible to observe the existence of numerous periods in which people have no transactions in their individual pension savings accounts. One of the reasons why these periods - known as social security gaps – exist, is that the employer does not pay his/her workers' contributions.

Prior to the Pension Reform, article 19 of D.L. 3,500 (1980) stipulates that employers are obliged to pay contributions and that, if they fail to do so within the corresponding period, they are obliged to make the declaration in any event. In these cases, it is called a “Declaration with no Payment” (DNP). In the third paragraph of the same Decree-Law, it is stated that the employer is obliged to make this declaration within the first ten days of the month following that in which the wages accrued, in the event of not having made the payment within the same period.

The magnitude and importance of contributions declared without payment during recent years may be seen below. These have remained relatively constant in time, reaching on average 0.7% of the total net worth of the pension funds.



In synthesis, there is no doubt that the best scenario is that in which the employer pays his/her employees' contributions at the correct time. However, if this does not happen, there must at least be recognition of the debt on the part of the employer and this, until now, has occurred under the legal figure of DNP. When this debt is not recognised by the employer, the workers are adversely affected. It is for this reason that the Pension Reform takes responsibility of the harm that workers may suffer and creates Automatic Declaration with no Payment in Law 20,255 of the year 2008. This new mechanism operates in the case where the employer has not paid the contributions or made a DNP, or given notice of the termination of the contractual relation. This therefore obliges the AFPs to start collection procedures as if there were a DNP.

With the implementation of this new mechanism, it is hoped that the contributions that were not paid will be recovered and harm to the workers' savings will thus be avoided. At the same time, it gives the AFPs a key role in relation to the controlling of such payments. They are responsible for supervising the correct and punctual payment of the workers' contributions that are declared without payment.

Source: "Declaration with no Payment of contributions", Minute from the Research Division, Superintendence of Pensions.

2.2.3.- Reinforcing the voluntary contributory pillar

The voluntary pillar constitutes one of the three fundamental pillars of the system. As was mentioned in the diagnosis, this has gained greater relevance since the passing of Law 19,768, in force since 1st March 2002. However, the main challenge is to extend this form of saving to the middle-income sectors of the population, since the tax benefit has so far concentrated this instrument on a very restricted segment of the population.

In order to reach this objective, the Law of Pension Reform includes the creation of the Collective Voluntary Pension Savings plans (APVC) and introduces additional incentives that make this instrument more attractive for middle-income workers. Finally, with the aim of increasing alternatives for those individuals who do not have labour earnings during particular periods or during their whole active life, the concept of voluntary contributors is also included, which did not exist prior to this reform.

Collective Voluntary Pension Savings Plans

Nowadays, APV can be carried out by means of a special account in one of the AFPs, through mutual funds, investment funds, housing funds, life insurance with savings schemes and term savings accounts, in addition to special plans offered by stockbrokers or securities agents, but the contracts are all arranged individually.

Law 20,255 creates the APVC, a scheme that provides tax incentives to firms that offer savings plans in which the employer complements the voluntary savings made by his/her workers.³⁸ According to the experience of developed countries, there is enormous potential in the savings that can be accumulated for old age through voluntary plans. The creation of APVC plans represents a particularly interesting method for employers to offer a form of non-pecuniary compensation to attract and keep high-productivity workers, increasing incentives to train them on the job.

From the social security point of view, these plans represent an opportunity to increase the pension savings of workers with low-to-average earnings. In order to achieve this objective, the plans offered will include the following basic features:

³⁸ APVC works on the same principle as 401(k) plans in the United States or other occupational plans in use in other developed countries. Employers may arrange contracts with any institution that provides individual voluntary savings plans (AFP, banks, mutual funds, insurance companies, etc.) in which they commit to make contributions in the employer's name, based on the contributions paid by the worker him/herself. These become the property of the worker after a minimum period of continuance in the firm. The conditions must be the same for all workers and under no circumstances may employers restrict the benefits to certain groups of employees.

- a) The employer offers his workers one or more voluntary savings plans, to enable them to increase their pension resources. It is voluntary for employers to supply the plans, but once a contract is in place, the employer is obliged to pay the contributions as promised.
- b) Such plans are funded with contributions from the workers and the employer.
- c) Workers can join the plans offered by the employer individually and their enrollment in a particular plan cannot be denied.
- d) The savings plan must be set up by means of an agreement or contract between the employer and an institution that is authorized to manage collective voluntary pension savings funds. That agreement is signed by the employer in representation of his/her employees who wish to be included in the plan concerned.
- e) The terms of the offer are defined by the employer.
- f) The offer may establish a minimum period of continuance in the firm for the worker to acquire the ownership of the contributions made by the employer into the APVC plan (this concept is known as *vesting period*). All the resources contributed by the employer will accrue to the worker once this minimum period has been completed. In any case, the minimum period that is established may not exceed a pre-determined number of months, as stated in regulations issued by the corresponding supervisory bodies.

Nevertheless, if the worker is fired as a result of the needs of the firm, the resources contributed by the employer will become his/her property.

The method of making this proposal workable requires the separation of the resources belonging to the worker from those originating from the employer's contribution. The plan must therefore have two sub-accounts or records, which will also be necessary for purposes of taxing these plans, as explained further on.

- g) To give employers more flexibility, there may exist plans where only the employer contributes. In this case the employer can pay differentiated contributions, in terms of amount and availability, compared with plans where the worker also contributes.
- h) A minimum percentage of the company's workers must enrol in the contract, in accordance with the regulations issued by the corresponding supervisory bodies. This is aimed at ensuring that the APVC has wide coverage and does not concentrate only on workers with higher incomes.
- i) Once the contract has been signed, the employer and workers are obliged to pay contributions. This means that the employer will deduct the contributions of his/her workers from their wages. However, the worker is allowed the possibility of stating his wish not to continue paying contributions, in the light of his/her needs, in which case the employer's obligation also ceases. In order to ensure that the resources saved by the workers are really paid into the collective savings plans administered by the authorized institutions, the rules of social security collection procedures shall

be applied to contributions that are deducted by the employer and not paid into the plans.

- j) As in the case of APV, contributions to APVC plans will not be included in deciding entitlement to the PMGE or to the subsidies in the Solidarity Pillar (Law 20,255), nor for calculating the additional contribution. In addition, such resources are immune from seizure.

Incentives for workers with average incomes

In order to make both individual and collective plans attractive for middle-income workers it was deemed necessary to modify the tax incentives of this type of plan.

Prior to the reform, the worker's voluntary contributions were deducted from the taxable base of the second-category tax (work earnings). If the funds were withdrawn prior to retirement, they were liable for the corresponding tax, plus a legal surcharge.³⁹

This form of tax exemption not only gave no incentive whatsoever to those workers who were only liable to pay a relatively low tax rate or none at all, but also implied a form of savings with restricted liquidity, due to the penalisation of early withdrawal.

In this sense the reform offers two additional incentives to voluntary saving (whether individual or collective): i) workers can now choose between making use of the tax exemption when they pay the contributions or when they withdraw them; ii) workers can become eligible for a State Bonus for voluntary contributions (whether individual or collective) that are used to increase pensions or take early retirement.

Under the first incentive scheme, for each deposit of voluntary pension savings (individual or collective) the worker can choose traditional tax exemption (when contributions are made) or alternatively, may prefer his contributions not to be deducted from the taxable base of the second-category tax. In this latter case, tax will be paid only on the yield obtained when the funds are withdrawn.

Workers who opt for this new alternative and who assign those savings to increase or bring forward their pension will be entitled to Bonus at the government's expense, equivalent to 15% of what has been saved, with a ceiling of 6 UTM per year. This Bonus is payable for annual savings up to 10 times the total contributions of the year. It will be deposited annually in a separate account in the same institution in which the voluntary contribution was paid. The Incentive Payment and its yield will not be liable for Income Tax as long as they are not withdrawn.

If the worker makes withdrawals before retiring, the AFP pays 15% of the funds withdrawn to the General Treasury of the Republic, out of the Bonus. The Bonus is subject to the same conditions of yield and fees as the voluntary savings. The value of the Bonus will be determined each year by the SII. The SII informs the General Treasury of the Republic, who makes the deposit.

³⁹ The AFP or authorized institution, as appropriate, withholds 15% of the withdrawal as a one-off tax.

Voluntary Contributor

At present, people who are carrying out unpaid activities (such as housewives) are not able to pay pension contributions into an AFP. There is evidence showing that in some cases these people have chosen to pay contributions as self-employed, which does not correspond to the definition given in article 89 of D.L. 3,500. As a way of remedying this situation, the legal figure of “voluntary contributor” has been created. This person can pay contributions even though he/she is not performing activities from which he/she receives earnings.

It is stipulated that these contributions can be paid “by the member him/herself” or by a “third party” on his/her behalf. The aim of this is to simplify the paperwork involved in contributing and to encourage this type of contribution, for example, between spouses or from parents to children. In fact, in the case where the third party paying the contribution for another is the spouse, he/she may ask the employer to deduct the corresponding contributions from his/her wages.

For those who were already enrolled, the first contribution as a “voluntary contributor” generates the opening of a new account called the “voluntary individual funding account”, which is different from and parallel to the funding account held by employee or self-employed workers.

One of the important benefits, in addition to increasing the future old-age pensions of these individuals, is the coverage of the SIS. This is important because an individual at the active stage of life, whether a housewife or a student, can see his/her ability to earn income seriously limited as a result of becoming disabled, or his/her family affected in case of death, and this type of event would be covered by means of his/her voluntary contributions. The conditions of coverage would be the same as those currently applicable to self-employed workers (coverage for the month following the contribution).

The covered earnings for voluntary contributors will be the amount contributed each month, deducting the relevant fee multiplied by 10, with no ceiling, according to a ruling issued by the SP. However, benefits of the SIS will be calculated based on the covered earnings ceiling (currently 64,7 UF), meaning that the premium must be charged on the basis of that amount.

2.2.4.- Measures designed to improve equal gender treatment in the pension system

The Reform paid special attention to the introduction of measures to improve equality between men and women in the pension system. In general, women tend i) to have long periods without contribution payments, generally associated with the responsibilities of caring for children or other dependent relatives; ii) to join the labour market in jobs with lower levels of pay (in relation to men with similar educational levels); iii) to retire earlier and iv) to live to more advanced ages.⁴⁰ All these elements, combined with a pension scheme that does not include redistribution by sex at the retirement stage (due

⁴⁰ The legal retiring age is 60 years for women and 65 in the case of men. The report of the Pension Reform Council suggested rising the retiring age of women to 65 years, making it equal to that of men. This proposal was not included in the Bill that was sent to Congress.

to the use of tables that are differentiated by sex in the different pension options), imply significant differences in the distribution of benefits by gender.

On the other hand, the design of the old-age and disability benefits under the AFP system inherited various elements of asymmetry by gender from earlier schemes: women only generate survivorship benefits to their husbands (or the father of their children) in the active stage if they are disabled. This means that they are entitled to lower benefits under the SIS, even though they pay the same premium as the men. On the other hand, when women retire they are not obliged to set aside funds to finance survivorship pensions for their husbands. Furthermore, the mortality tables used to calculate benefits under the programmed withdrawal option are differentiated by sex (which is reasonable because it is a self-insurance scheme) and the insurance companies are authorized to offer differentiated offers to men and women (sex forms part of the anonymous information to which those offering have access in the System of Pension Consultations and Offers (SCOMP)).

Introduction of the new Solidarity Pillar

In order to tackle the differences explained above, the Reform includes a series of measures, one of the most important being the introduction of the new Solidarity Pillar, which, by design, tends to benefit mostly women, since they are more likely to be eligible for its benefits. At the same time, the benefits of the new Solidarity Pillar are for life, and the design is the same for men and women, which tends to reduce the differences arising from the fact of greater female longevity .

Grant for each live birth or adopted child

The Reform creates a State grant for mothers for each live birth or adopted child, equivalent to the contribution of a worker receiving the full-time minimum wage, for 18 months. This grant is generated at the moment of birth and receives a return equivalent to the net yield of Fund C of the AFPs until the moment when the woman reaches 65 years of age. This benefit is subject to residence requirements but not income conditions.

Since Chile is among the countries of the region with a low rate of participation on the part of the feminine labour force (caused to a large extent by child-care activities), the introduction of the grant is extremely important for achieving adequate pensions, especially for female workers with low incomes. But over and above the financial benefit, this measure is highly valued by the population as a form of recognition of the value of the (unpaid) activity of giving birth and taking on the care of children in the first months of life (see Inset 2.10).

Inset 2.10

Expected effect of the Grant per child

The impact that the Grant implies for Chilean women will depend on a series of factors, such as the number of children and the point at which they are born during life, the future development of the pension system's returns and the current minimum wage, and the life-expectancy of women on retirement.

Considering various cases, the following table shows the effect of the introduction of the Solidarity Pillar and the replacement of the PASIS and PMGE on the pension of

various women who are 20 years old on 1st July 2009 and have two children, one born when they are aged 21 and the second at age 25.

The following table shows the pension received on retiring at 65 years of age, considering the benefits of the Solidarity Pillar (PBS for non-enrolled women and APS for enrolled women).⁴¹

Expected effect of the Grant per child on different women

	Pension without Grant per Child (*)	Pension with Grant per Child (*)	Increase of Pension due to effect of Grant (%) (*)
Non-enrolled woman, with 2 children	\$ 75,000	\$102,720	37.0%
Enrolled woman, contributing on the minimum wage, with 2 children	\$122,997	\$142,565	15.9%
Enrolled woman, contributing on two minimum wages, with 2 children	\$170,995	\$150,562	11.4%
Enrolled woman, contributing on three minimum wages, with 2 children	\$218,992	\$238,559	8.9%

(*) Includes PBS and APS

The grant per child will definitely have a significant impact on women's pensions, particularly of those with less participation in the pension system or with lower earnings.

It is worth noting that the impact on pensions of women close to retiring age when the reform came into effect will be lower (about 18% for a woman aged 35 and 3.7% for one aged 65), due to the lower accumulated yield up to the moment of retirement.

Source: Minute from the Research Division, Superintendence of Pensions.

Economic compensation in case of divorce or annulment

Furthermore, the Reform introduces the legal concept of economic social security compensation in the case of divorce or the annulment of the marriage. Under this legal figure, a judge can instruct the transfer of pension funds between individual accounts if he/she considers it necessary, as a form of economic compensation to the party that suffered harm during the marriage. That transfer cannot exceed 50% of the resources accumulated by the spouse who has to pay the compensation during the period in which they were married (see Inset 2.11).

⁴¹ The additional assumptions are as follows: Yield on Grant per child of 5.5% per year in real terms; Yield on Pension Fund of 6% per year in real terms; rate of Programmed Withdrawal, 4.2%. The accumulated balance and therefore the pension are estimated on the basis of a minimum income, readjusted at a rate of 2% per year. A contribution density of 25% is assumed over a period of 45 years. The parameters used for calculating the APS correspond to those included in the Law currently in force.

Inset 2.11
Effect of proposed division of balance

The proposal to divide the balance in the event of divorce or annulment may in principle affect different aspects of the pension system, such as the pensions of men and women, the benefits of the Solidarity Pillar and even the cost of the SIS.

Its long-term impact, however, is uncertain, due to the important changes that have been occurring in Chilean society in the area of marriages, annulments and, more recently, divorces. The number of marriages has fallen and that of annulments or divorces has risen (particularly since 2004, the year when the new divorce law came into force). On the other hand, the age at which weddings are taking place has tended to be later (See: INE, demographic tables, series 1980-1998).

From the point of view of pensions, the effect of this measure will benefit the spouse who has seen less increase in the balance of his/her savings during the period the marriage lasted. The following table shows the expected effect on the pension of various women, on the basis of the spouse's income and the duration of the marriage.⁴² As can be seen, the larger the difference between the income-levels of the spouses and the duration of the relationship, the greater the impact.

Improvement in woman's self-funded pension

Man's wage	Duration of Marriage		
	5 years	10 years	20 years
\$120,000	0%	0%	0%
\$250,000	14%	24%	39%
\$500,000	40%	71%	114%

It is worth noting that the existence of the Solidarity Pillar could mitigate these estimated effects, depending on the eligibility for its benefits. In the case where both spouses are potential beneficiaries of the PBS or APS, the larger self-funded pension would raise the base pension of the beneficiary spouse, reducing the State subsidy to a certain extent, while on the contrary, the spouse who would transfer part of his/her balance might be eligible for a larger subsidy by the APS.

Finally, depending on the frequency and magnitude of the transfers of balance between divorced or annulled spouses, the SIS may be affected, to the extent that men (who are more likely to be transferring balance under present conditions) are at the same time the ones with a higher claims rate. The transfer of part of their balance may mean more contributions from the insurance companies responsible for covering such claims, which would be only partially offset by the lower payments to be made to women who become disabled or die while covered by the Insurance.

Source: Minute from the Research Division, Superintendence of Pensions.

⁴² The assumptions made are: woman with a real wage of \$120,000, uniform contribution density of 50% for both spouses as from the age of 20, 5% real annual yield on the funds, and an age difference of 5 years (the man being older). Though the statistics suggest an average age difference of 3 years between the spouses, it was decided to assume 5 years, as a method of coordinating the retiring ages and without producing any major alteration of the results.

Separation of the Disability and Survivorship Insurance contracts and transfer of the difference in premium

As was mentioned earlier, the premium for the SIS was the same for men and women prior to the Reform, despite the fact that men have a lower life-expectancy and that women do not generate survivorship benefits for their husbands unless they (the husbands) have been declared disabled. In order to avoid this crossed subsidy from women to men, the Reform requires all the AFPs to jointly auction for separate contracts for men and women, fixing a single premium (as a fraction of covered earnings) for men, and another for women. The AFPs would charge all their members a single premium for the SIS (equivalent to whichever premium is higher, for men or women), depositing the difference in the accounts of the members of the lower-cost group (most likely the women). This may be interpreted as a way of maintaining a constant cost for all members and at the same time, a way of increasing women's savings at the point when they retire (see Inset 2.12).⁴³

⁴³ In the discussion of the reform, another alternative put forward with the aim of improving the pension position of women was to use unisex tables for men and women, which would mean redistribution from men to women, due to the differences in longevity. Although a measure of this type could imply considerable increases in women's pensions, its application would be impracticable due to the presence of programmed withdrawal pension option and the incentive to discriminate against women purchasing annuities.

Inset 2.12
Estimated impact of transferring the SIS premium
on women's pensions

As in most parts of the world, Chilean women present longer life-expectancies than men. In a system of individual funding, the benefits are calculated actuarially on the basis of the life-expectancy of each person at the point of retirement. In Chile, that calculation, whether carried out by an AFP (programmed withdrawal) or a life insurance company (annuity), is made using tables that are differentiated by gender. This means that, in conditions of equality in terms of age, balance and family group, a woman receives a lower pension than a man (in exchange for receiving it for a longer expected period). One way of offsetting this situation consists in establishing differentiated contracts for men and women in the SIS, by charging a single premium corresponding to that of the more expensive group and depositing the difference between the single premium and the specific premium in the individual account of the less expensive group (presumably women). A measure of this type would generate additional savings equivalent to the difference in premiums, with which women's pensions are expected to increase in the range of 2.5 and 4.4%, for long-term interest rates between 4.5% and 2.5%, respectively. The following table summarises the main results of an analysis of this type, including the possibility of women leaving survivorship pensions to their widowers, even though they are not disabled.

Effect on pensions of a SIS premium differentiated by gender
considering same beneficiaries conditions

Interest rate	SIS commission for men (1)	SIS commission for women (2)	Difference (3) = (1) – (2)	Increase in women's pensions ((10%+(3))/(10%)- 1)
2.5%	1.3%	0.9%	0.4%	4.4%
3.5%	1.1%	0.7%	0.3%	3.3%
4.5%	0.9%	0.6%	0.3%	2.5%

Source: Castro and Fajnzylber (2006).

Survivorship pensions for non-disabled widowers

One of the main asymmetries existing in the AFP system is the impossibility of generating survivorship pensions for widowers unless they are disabled. Given the growing role of women as income earners in pluri-parental households, it was considered fundamental to protect these families against the possibility of losing this source of earnings either from work or pensions.

For this reason, the Reform requires set aside a reserve upon retirement to fund possible survivorship benefits for surviving male spouses. Meanwhile both men and women are covered by the survivorship component of the SIS. In the first case – pension calculation – the inclusion of widowers will have the effect of reducing the monthly amount of a woman's pension when she retires in exchange for the greater coverage offered. In the second, the additional coverage is funded by the SIS premium corresponding to the women in the system.

The measures described in this sub-section cover most of the elements of the design of the pension system that can be considered in order to increase fairness of treatment

between men and women.⁴⁴ It is clear however that inequalities will persist, mainly associated with cultural factors that affect the distribution of chores and the distortions that occur in the labour market through choices of occupation and wage discrimination. It is very difficult that these sort of factors are corrected through a Pension Reform.

⁴⁴ For further details of these measures, see the section corresponding to the Solidarity Pillar earlier in this section and also Chapter 5, dedicated to the measures concerned with pension benefits.

CHAPTER 3

COMPETITION IN THE PENSION SYSTEM

The existing level of competition among providers of the mandatory pension savings service has been one of the aspects most often analysed since the AFP system was introduced in 1981. The logic behind the system, which delegates the management of the pension funds to private profit-making companies, is based on the theory that the market will discipline the performance of the AFPs and bring their aims into line with those of the members. Competition among the various AFPs would therefore be the factor to enable appropriate levels of yield, cost and service quality.

Although the yield achieved by the pension funds has been high in these 26 years that the system has been operating, reaching an average of 10% per year in real terms between July 1981 and December 2007, the degree of competition – especially as regards the price variable – is open to question. In this area, the intensity of competition in this industry is seen to be limited, and the explanation for this may be found in a number of factors. The mandatory nature of the product, the complexity of the financial aspects of saving for old age and the fact that pension benefits are perceived as something in the far-distant future may all be among the aspects explaining the fact that the target population is a group with a low level of knowledge, little interest in the product and relative lack of responsiveness to the price variable when choosing an AFP.

The negligible intensity of the competition can be seen in a lack of buoyancy in terms of firms entering and leaving the market and the small quantity of transfers among AFPs, which are mostly not due to active decisions taken by members on the basis of the AFPs' characteristics.⁴⁵ Furthermore, in the period in which there was indeed competition in this market, it resulted in excessive use of sales personnel, which led to increases in operating costs and a great flood of transfers among AFPs, without producing improvements in the system or reducing the price.

For these reasons, various proposals have been put forward to improve this aspect of the pension system. These have to do with the organization of the industry, whether to retain or to eliminate the single corporate purpose, how to facilitate the entry of AFPs to the market, to change the fees structure, etc.⁴⁶ The Pension Reform recently approved in Congress brings together the analyses of the system carried out earlier on this subject. This chapter presents the main measures included in the reform that were directed towards improving competition in the system and a summary of the analyses made to support those proposals.

3.1.- Diagnosis of industrial organization and competition.

Since 1st April 2008, with the merge of AFPs Bansander and Santa María, there have been 5 AFPs operating in the system, of which the two largest concentrate 66% of all members. The two largest AFPs accumulate 55% of the total pension funds under

⁴⁵ See for example Berstein and Ruiz (2004)

⁴⁶ By way of illustration: in November 2004 the Superintendence of AFPs and the Centre of Public Studies (CEP) organized a joint seminar in which the subject "competition" was one of the key issues to be analysed as a challenge for improving the pension system. When the Presidential Advisory Council for Pension Reform was set up in March 2006, competition in the sector was defined as one of the issues to be analysed, and on which proposals for improvement were required.

management. The number of AFPs has fallen over time from 21 participants in the years 1993 and 1994 to the 5 firms in existence at present.

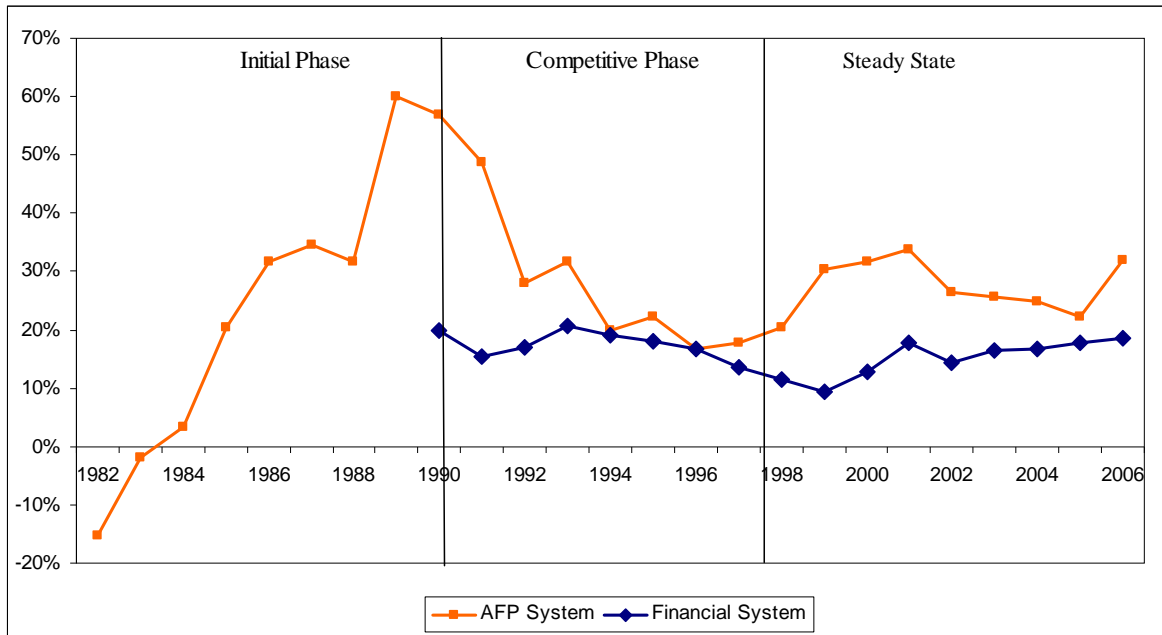
However, in order to determine competitiveness in an industry, it is not sufficient to evaluate the number of firms involved in it. Though traditionally the concept of competition has been associated with an atomised market in which no participant has market power, it is sometimes enough to have two firms that are competing strongly via prices to achieve the balance of perfect competition, as in Bertrand's duopoly model.

For these reasons, modern analysis of the level of competition existing in any market puts emphasis not on its structure, but on the degree to which it can be challenged (Baumol (1982) and Baumol et al. (1982)). In simple terms, the concept of "challengeability" states that the market can be competitive, regardless of the number of participants, if it is possible to enter and to leave the market freely without incurring significant costs. The companies in a market with these characteristics will behave competitively, because if they attempt to take advantage of any market power that generates super-normal profits, they may trigger the entry of new firms charging lower prices, that will attract some of their customers, leaving them with a fraction of their surplus.

In this sense, the clearest evidence of the lack of competition in the AFP market, more than the low number of firms or their high concentration, is the presence of very high returns over a long period of time (over 10 years) without the entry of any new firms and without the competition of the firms already in existence being capable of pushing prices down. In fact, the following diagram shows the persistently high returns of the AFPs, compared with those of the banking industry. In the period 1991-2006 the AFPs obtained on average a return on equity of 28%, whereas for banks the return on equity amounted on average to 16% in the same period. The minimum return obtained by the AFPs was 16.8% in 1996, a period when commercial rivalry led to a steep rise in sales expenditure.⁴⁷ Valdés and Marinovic (2005), applying a methodology for measuring economic return used in regulated industries, find even higher levels of return on assets, to the point where it reached 42% per year in the period 1996-2003, during which no new AFP entered the market.

⁴⁷ There are considerable differences in the returns of the various AFPs. For example, in December 2006, the AFP with the lowest return on equity achieved an index of -2.5%, whereas the AFP with highest returns on equity achieved a level of return of 63.6% in the same year.

Figure 3.1
AFP Returns v/s Financial System



Source: Superintendence of Banks and Financial Institutions and Superintendence of Pensions.

Though it may be argued that the level of risk faced by the different industries is different, it may be seen that in the most recent period the volatility in levels of return in the AFP industry has fallen to levels slightly higher than those of the banking industry. If we measure the standard deviation of these average returns for the whole period between 1991 and 2006, this amounts to 7.9% in the AFP system and almost 3% in the financial system. However, if one considers 1998 onwards, the standard deviation on the system's return falls to 4.65% in the AFP industry and amounts to 3.23% in the financial system, holding the average return of the AFP system at a level much higher than that of the financial system, as may be seen in the following table.

Table 3.1
Average return and risk. AFP System v/s Financial System

Period	AFP System		Financial System	
	Return	Risk*	Return	Risk*
Initial 1982-1990	24.62%	25.65%	n.a.	n.a.
Competitive 1991- 1997	26.41%	11.27%	17.19%	2.31%
Steady-state 1998 - 2006	27.47%	4.65%	15.06%	3.23%

* Measured as the standard deviation of the return in the period.

Source: SBIF and SP.

In order to analyse whether there is space to lower prices and transfer profits from the producers to the consumers, it is necessary to evaluate two key elements: the existence of barriers to entry and the intensity of competition. The first factor refers to the ease and rapidity with which a new producer can enter the market. The second is related with the margins between price and marginal cost. Specifically, price competition is intense if it is profitable for a company to lower its prices, in other words, when the profits in sales resulting from attracting a larger number of buyers more than compensates for the losses due to charging less.

As it will be seen further on, both the regulations and the actual characteristics of the AFP market affect the two elements. While the economies of scale and the regulations defining the single corporate purpose potentially produce barriers to entry, the low price responsiveness of the demand or the fees structure allowed by the Law act against intensity of competition.

Following a review of the industry's history, a diagnosis is given below of the causes of the low level of competition, with particular emphasis on trying to understand the apparently low degree of challenge seen in the data.

3.1.1.- History of the industry

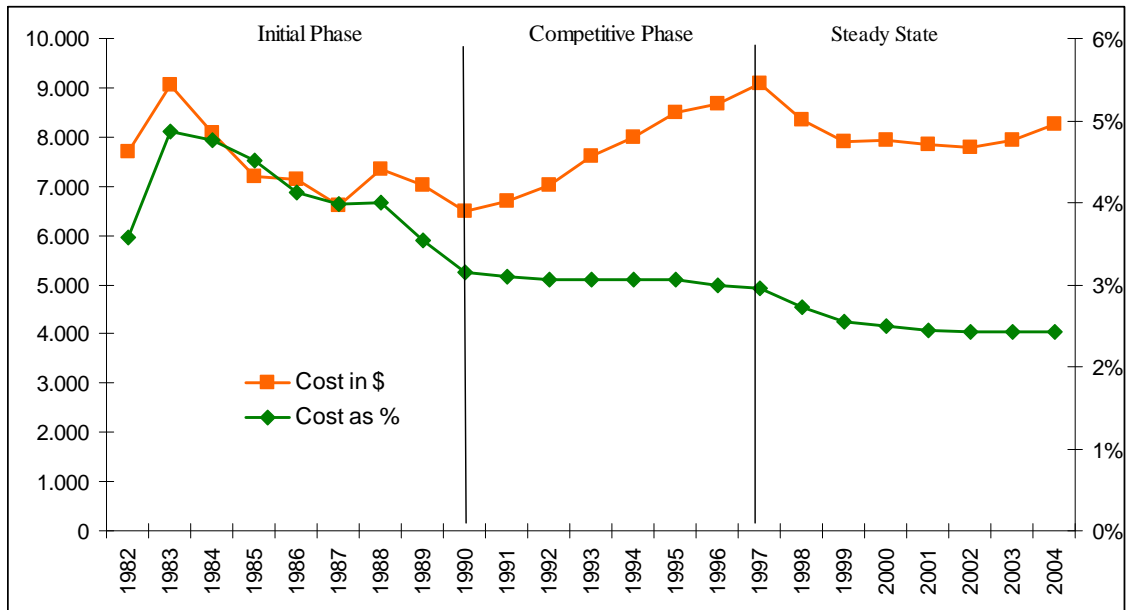
Before analysing the possible causes of the paucity of competition intensity, it is illuminating to review the history of the AFP industry. There are three periods that are clearly differentiated in the various pieces of work that have tackled the subject.⁴⁸

- **The initial phase**, between 1981 and 1990, characterised by high fees, high costs for the AFPs and profit levels that began to rise sharply at the end of this phase. Little movement in terms of firms entering and leaving was recorded during this stage.
- **Competitive phase**, between 1991 and 1997, characterised by firms entering, merging and being taken over, and a decreasing level of profits. During this stage, fees rose steadily in real terms.
- **Steady-state phase**, from 1998 onwards. In this phase there has been very little movement of firms, high levels of profit and an increased degree of concentration.

The following diagram shows the development of the level of fee in the three phases mentioned. As can be seen, although fees expressed as a percentage of the wage bill have tended to fall over the period, the average fee expressed in pesos has increased, even in real terms. This is because the wage bill has increased during that period, meaning that the fee income per contributor increases, even though the fee expressed as a percentage of the wage bill decreases.

⁴⁸ See, for example, Tarziján (2005) and Valdés (2005)

Figure 3.2
Evolution of Fees
(in \$ as of December 2004)



Source: Castro (2005).

The competitive phase is particularly interesting because it is the only one that shows clear signs of the way in which competition is viewed in this industry. This phase showed a lot of firms entering the industry and was characterised by high expenditure on sales personnel and an enormous number of members switching among AFPs. It is very likely that the high level of firm entries that occurred between the years 1991 and 1994 is due to the industry's level of return in the years prior to that period, as may be seen in Figure 3.1. With regard to this, Valdés and Marinovic (2005) state that the newly-entering AFPs probably did not anticipate the reaction of the existing AFPs, based on expenditure on sales personnel and marketing strategies, which unleashed a commercial war in the period. As may be seen in the following diagram, presented in Bernstein and Cabrita (2007), there is an extremely high correlation between the number of salesmen employed by the AFPs and the number of transfers that occurred in the system (See Inset 3.1).

Inset 3.1 Role of sales personnel in AFP transfers

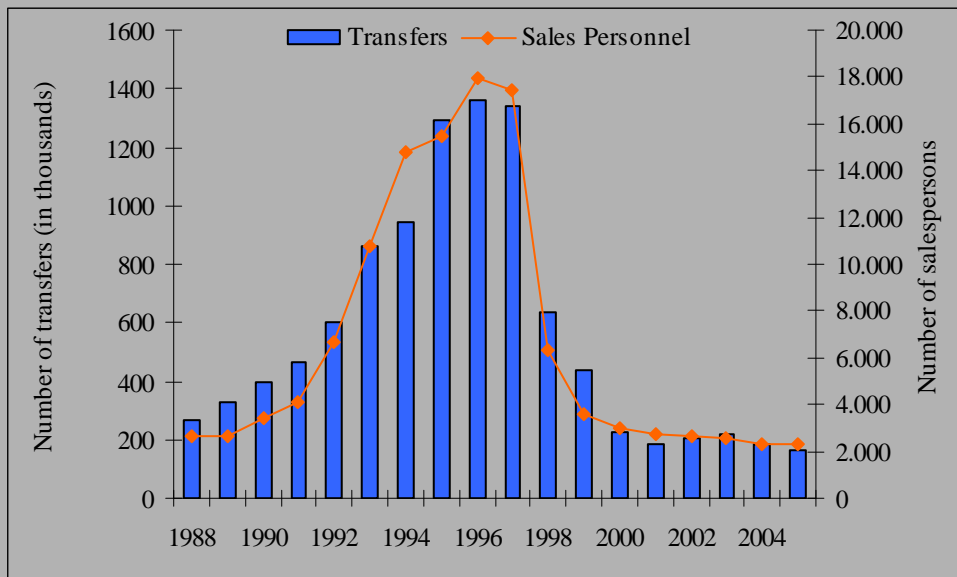
A theoretical model representing the role of the sales personnel in the industry is presented in Bernstein and Micco (2005). The model identifies an informative role for the sales personnel, empowering members to take better decisions, but also a persuasive role in which, by way of incentives, members are induced to take decisions which, according to the characteristics of the AFPs involved in the decision, are not necessarily in their best interests.

Using individual data, Bernstein and Cabrita (2007) analyse the role of the sales agents and the various characteristics of the AFPs in individuals' transfer decisions, finding that the main variable is the probability of being visited by a sales person, with the elasticity of the likelihood of a transfer with respect to this variable being three times greater in the period 1988-1996 than in the period 1998-2006.

The results found by Bernstein and Cabrita (2007) show that responsiveness of the demand to prices and yield is quite low, which confirms the results found in earlier studies. However, the results show that this increases when the member is visited by a sales person.

It was likewise found that moving from first to last place in the yield ranking increases the probability of members' switching by 28%, reaching 37% in the period post-1997 – a situation due mainly to the presence of sales personnel. On the other hand, an increase of 10% in the difference of the fixed fee compared with the cheapest AFP in the system (as a percentage of earnings) increases the probability of members' switching by 13%. This responsiveness is also closely related with the sales agents, given that the elasticity of this variable, when the probability of the salesperson's visit is zero, is almost nil for all periods of estimation.

Transfers and Sales Personnel

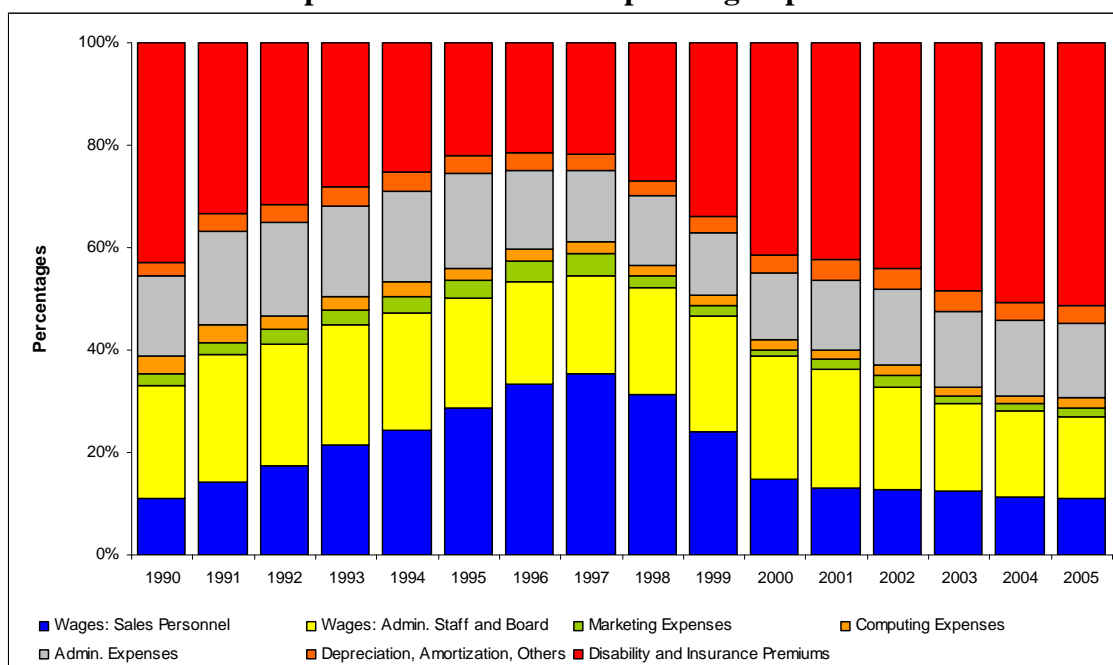


Source: Bernstein and Cabrita (2007).

In the competitive phase “gifts in kind” from sales personnel were widely used, in exchange for changing AFP.⁴⁹ These gifts are in practice a form of price discrimination, where the salesperson shares the surplus that they receive for transferring a high-earnings contributor.⁵⁰

The consequence of the increase in the number of salespersons and transfers brought about an explosive increase in operating costs (see Figure 3.4), which produced a decrease in the industry’s returns, despite the increase of fees income experienced in this period. Furthermore, a large proportion of these operating expenses are explained by transfers that were never actually done, because they had not been carried out according to the rules, did not provide all the necessary information or were simply cases of fraud. In fact, this period not only had an explosive increase in transfers, but also in rejections, as may be seen in Figure 3.5.

Figure 3.4
Composition of the AFPs’ Operating Expenses

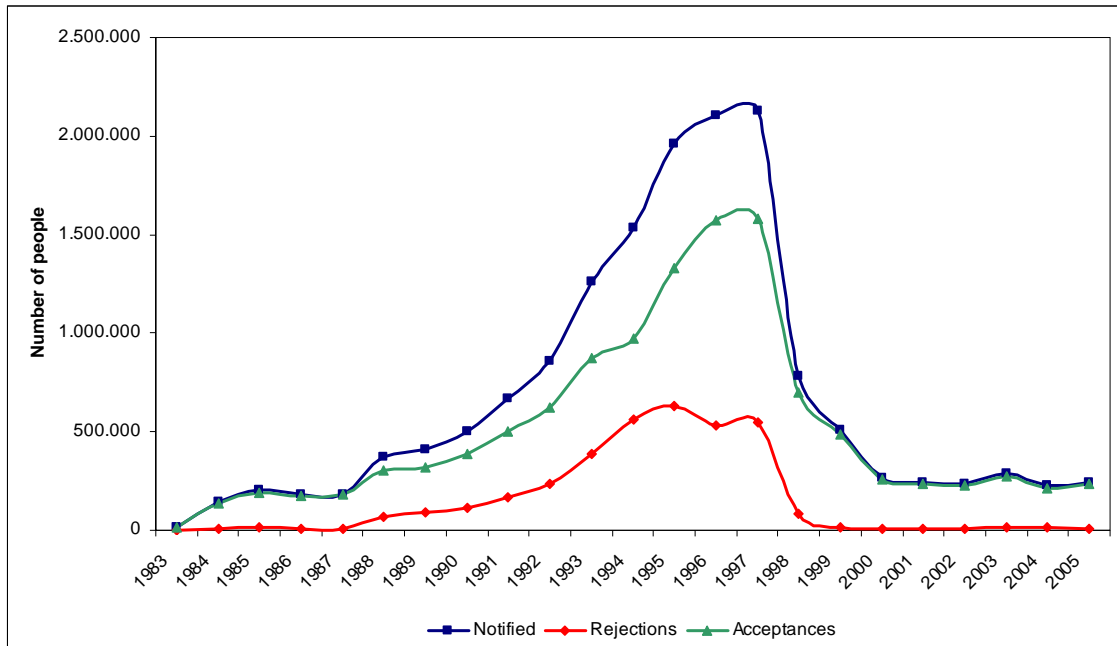


Source: Superintendence of Pensions (2007).

⁴⁹ Superintendence of Pensions (2007), page 237, mentions evidence based on opinion polls which mention the existence of a gift as one of the main reasons given by members for changing their AFP, according to members’ own perception.

⁵⁰ In fact, this kind of persuasion is explicitly forbidden by the regulations.

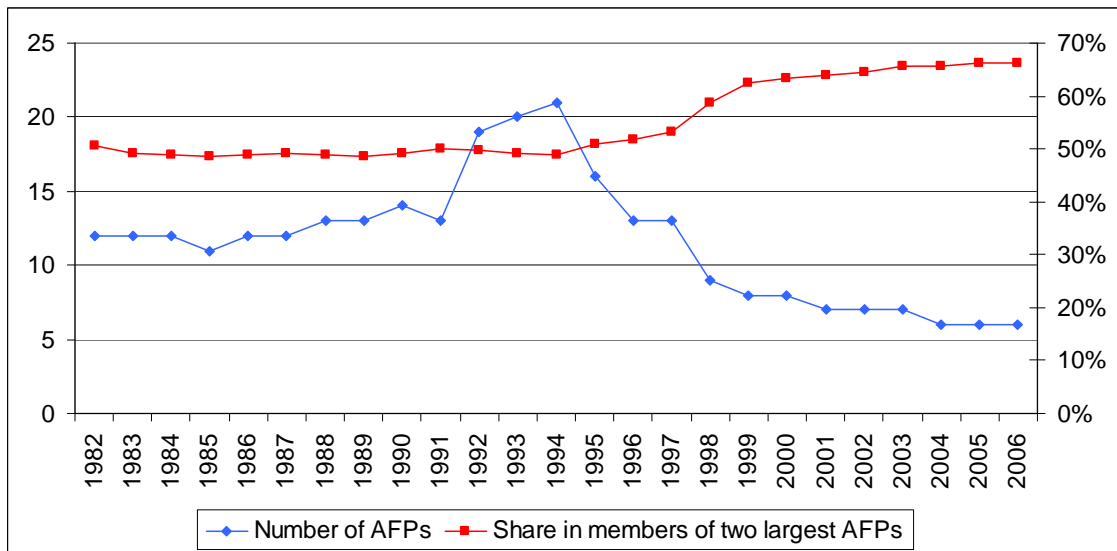
Figure 3.5
Number of Transfers per Year



Source: Superintendence of Pensions (2007).

Finally, it is illuminating to look at the way in which the competitive phase ended. The following diagram, presented in the Presidential Advisory Council for Pension Reform's report, shows the developments in the number of firms since the system began.

Figure 3.6
Evolution in N° and Concentration of AFPs



Source: Superintendence of Pensions (2007).

The last AFPs to enter the market did so in 1994 and, generally speaking, none of them was successful in increasing its number of members to a level that enabled it to remain in the market. Up to the present, the year 2008, no new firms have entered.

From 1995 onwards, a stage of mergers began and in 1997 new regulations appeared to increase restrictions on members switching among AFPs, requiring a photocopy of the Identity Card and a salesperson's visit to be attached in order to make the transfer, and on the hiring of sales personnel, requiring an examination in pension knowledge to be taken. All this meant that by the end of 1997 there was an industry without a sales war and with a low degree of competition.

The following table summarises the experience of each of the firms that entered into this market after the beginning of the system in 1981.

Table 3.2
Firms entering the industry after 1981

AFP	Entry	Exit	Initial Size	Final Size
Unión ⁵¹	1985	1997	310,000	250,000
Protección	1986	1998	6,000	225,000
Futuro	1988	1995	2,000	5,000
Banguardia	1992	1994	11,000	24,000
Fomenta	1992	1997	2,000	8,000
Previpan	1992	1994	1,000	11,000
Qualitas	1992	1997	2,000	32,000
Genera	1993	1994	2,000	4,000
Aporta ⁵²	1994	2000	12,000	26,000
Armoniza	1994	1995	11,000	18,000
Valora	1994	1995	4,000	27,000

In brief, the competitive phase, instead of triggering “healthy” competition by reducing prices or increasing the quality of the service, produced a steep growth in costs, particularly expenditure on sales personnel, which particularly affected the small AFPs and the AFPs that entered into the industry in the years 1990-1994. The membership portfolio of these new AFPs was made up largely of clients who had entered by way of “gifts” and were therefore more likely to leave by the same route.

The final and ongoing stage has been characterised by high profits, no entries, and a general stability in the industry's main variables.

In this sense, from the theoretical point of view, we can model the competitive phase of this industry as a prisoner's dilemma, in which the possible strategies are to engage in commercial warfare (“confess”) or not to engage in commercial warfare (“not confess”). In a simultaneous game, if all engage in commercial warfare, they are all worse off, but when facing the possibility that *one* other AFP may engage in commercial warfare, each one separately decides that it is better to make war than not to do so, meaning that the equilibrium is the very worst from the social point of view. In the post-competitive phase, the balance of this market has apparently shifted from the static balance of this game to the dynamic balance in which the best strategy for each one is not to engage in commercial warfare, because they know that if one of them strays off the path and starts a war, all the rest will be in a position to get even and focus the commercial war on that one. This maintains discipline for all the AFPs (and even potential entrants).

⁵¹ Formed through the merging of AFP Alameda and AFP San Cristóbal

⁵² In 1997 it merged with AFP Fomenta, forming the new AFP “Aporta Fomenta”

3.1.2.- Reasons for the Low Competition

The low degree of competition observable in this market can be understood as a consequence of the low degree of challenge, of barriers to entry and of the limited responsiveness of the demand to the price of the service. A number of factors constitute barriers to entry in this market.⁵³ It is worth noting that the design of the pension system is such that AFPs provide services that achieve their minimum scale of efficiency at different levels: the AFPs must provide services involving operations, accounts management, customer service, disability and survivorship coverage and financial management, at one and the same time; activities that require a different number of members to minimise the mean production cost. The obligatory reserve funds also constitute a barrier to entry, as does the threat of aggressive commercial conduct on the part of the existing AFPs that makes it difficult for an entrant to develop a sales force and recruit a critical mass of members. Another characteristic of the system that is also mentioned as a barrier to entry is the legal obligation for AFPs to be set up as institutions with a single corporate purpose, which prevents companies that are already in operation from using their sales channels, for example, to win clients. All these factors are added to those we shall be analysing in more detail in the next sub-section: productive economies of scale.

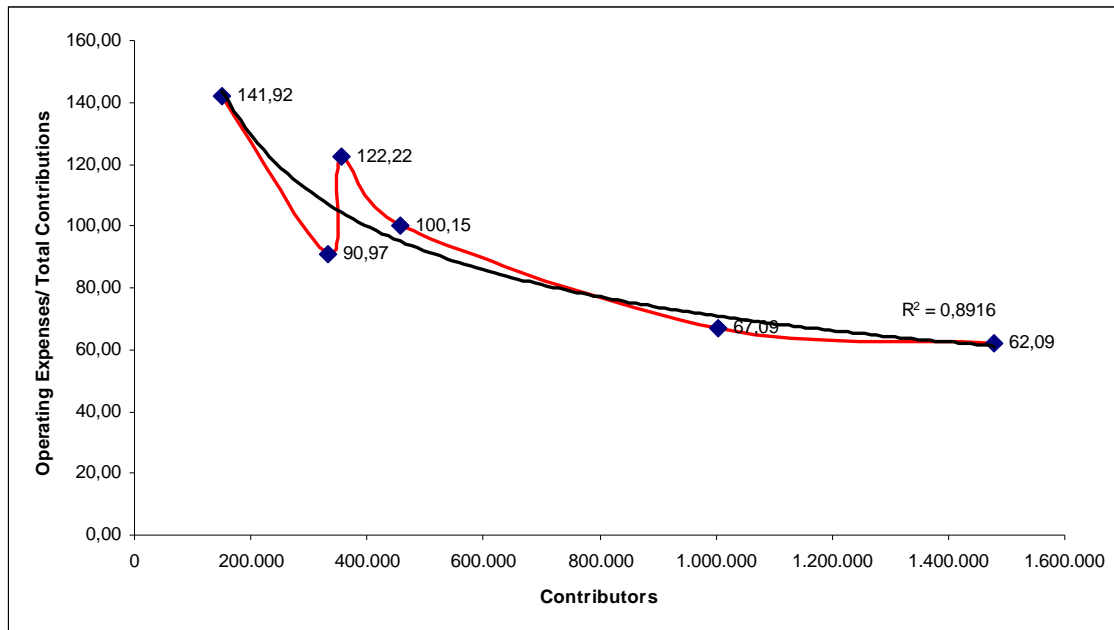
Economies of Scale

Economies of scale refer to the reduction in average costs that occurs with an increased volume of production, a situation that is experienced to a certain extent by the vast majority of productive processes. Economies of scale influence the intensity of competition in an industry, because firms are under pressure to reach the “minimum efficient scale”. This refers to the size at which the average production costs reach their minimum level.

It is therefore necessary to have a measurement of the economies of scale in the AFP industry. The aim of the following illustration is to show that average costs based on the number of members are decreasing, although if one excludes the cost of sales personnel and advertising the slope is much less steep. To analyse average costs that exclude sales costs allows, to some extent, a better approach to the productive scale phenomena, since these do not depend exclusively on the number of members, but also on the commercial aims of the firms. So two firms of similar average “size” in terms of membership, may have very different costs related with sales personnel, depending on each one’s marketing strategy.

⁵³ See Presidential Advisory Council for Pension Reform (2006), Valdés (2005), Tarziján (2006).

Figure 3.7
Average costs per AFP



Source: Superintendencia of Pensions.

However, to get an idea of the pressure that can be exerted by economies of scale in the AFP industry, one must take into account that the “price” of the pension product is not homogeneous, but is related largely with the level of members’ wages. For this reason, a firm that focuses on a high-earnings market niche may be less concerned about economies of scale than a firm that aims for more widespread client portfolios. In fact, the following table enables one to see the level of heterogeneity in the characteristics of the members belonging to the different AFPs.

Table 3.3
Average earnings per AFP*

AFP	Total	Male	Female
Bansander	444,178	471,967	397,780
Cuprum	627,584	668,418	565,674
Habitat	361,334	379,555	335,630
Planvital	279,945	293,265	254,835
Provida	297,134	315,267	263,444
Santa María	328,510	353,598	286,525
Total	363,030	382,793	330,306

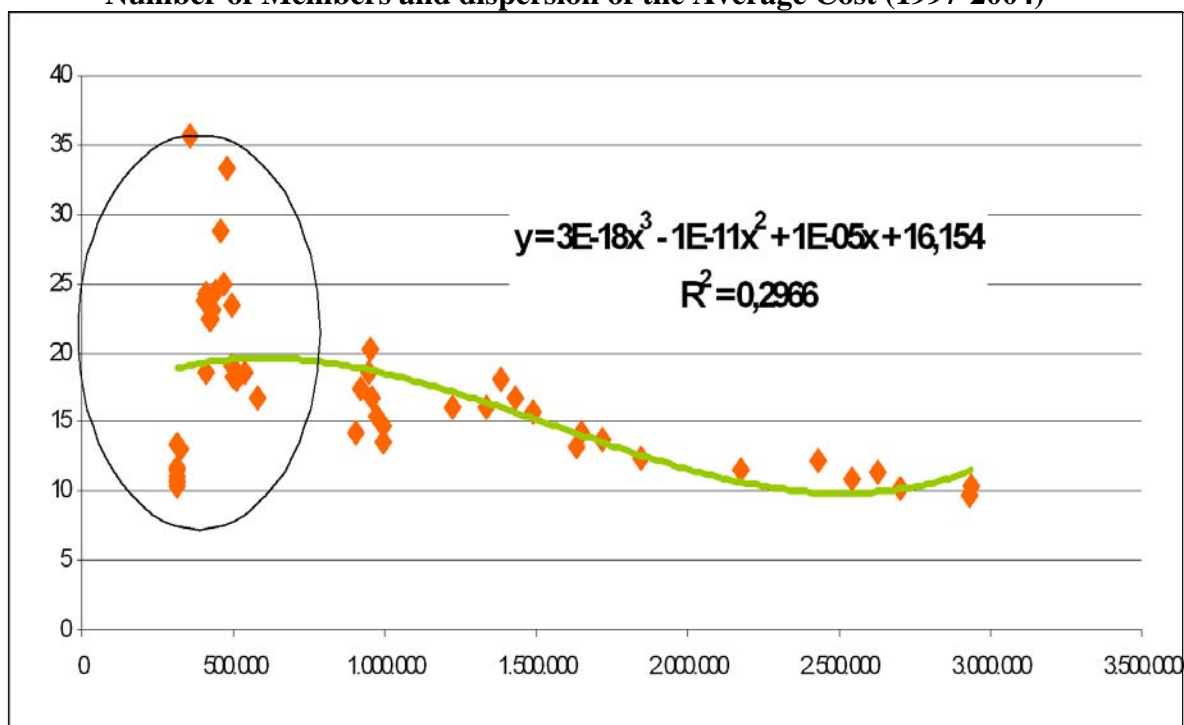
* Covered earnings of active members, contributed in December 2006 on wages accrued in November 2006.

Source: Superintendencia of Pensions

As a matter of fact, the heterogeneity among the portfolios of each AFP, shown in the above table, is quite high. In other words, looking only at the number of members in each AFP gives a partial view of its scale of operations, there being generally a greater scatter between the average costs of AFPs of a similar size than between AFPs with very different numbers of members. This is shown in the next diagram which relates the average cost and the number of members for the period 1997-2004. It can be seen that the differences of costs are greater among AFPs with similar numbers of members

(points that are included in the circle) than AFPs of different sizes, due to the fact that these AFPs have portfolios of members with very different average wages.

Figure 3.8
Number of Members and dispersion of the Average Cost (1997-2004)



Source: SP (2007).

This evidence points out that differences in costs observed among different AFPs are explained more by differences in their portfolios and services provided than by differences in scale.

Marinovic and Valdés (2004) carried out estimations of cost functions for the AFPs, in which they find that the smaller AFPs are able to use more flexible technology that presents low economies of scale, whereas the larger AFPs, with more than 200,000 contributors, would use an efficient technology for those size levels, but with more important economies of scale. In conclusion, the stylised facts seem to indicate that, in the observed size range (from 300 thousand to 2.5 million members), productive economies of scale did not play a very decisive role, while the marketing strategy of the AFP (expenditure on marketing and sales personnel) and the characteristics of the membership portfolio had a greater influence on average costs than the size.

Single Corporate Purpose

D.L. 3,500 defined the Pension Fund AFPs as bodies with a single corporate purpose. In other words, the only business in which they are allowed to engage as such is the management of pension funds arising from the mandatory and voluntary saving of the system's members. It is worth asking oneself about the justification for this design. In the first place it should be noted that the pension system was conceived as one of mandatory saving. This obligation is not consistent with a model of behaviour based on rational individuals who take their future welfare into account. In order to justify the obligation to save, it is necessary to assume that those participating in the system present a certain degree of short-sightedness or inter-temporal inconsistency in their

decisions. In this way, if individuals do not save, they may be taking a decision that harms them and reduces their welfare. There is evidence of this in results of focus groups held with people close to retiring age and self-employed workers who regret not having saved for their retirement stage.⁵⁴

This same assumption is what justifies in turn the single corporate purpose of the AFPs. For example, if the marketing of the service of managing mandatory savings is carried out in conjunction with any other service involving present consumption (such as a consumer loan, for example), the preferences of the individual would give priority to the conditions of the service of present consumption, to the detriment of pension savings. This works against the very design and purpose of the pension system.

From the point of view of fund management, the same problem arises. If this is carried out in conjunction with the management of other resources, the AFP may give priority to the resources that it manages with a shorter-term horizon, to the detriment of the pension funds, since any harm suffered by the latter would not produce any great reaction on the part of the savers.

These considerations underline the relevance of keeping the single corporate purpose in the management of pension funds in the Chilean pension system. In fact, it is possible to argue that the single corporate purpose has contributed in part to the more than positive yield, over 10% per year in real terms, which has been achieved by the pension system on average since its creation. The single corporate purpose was singled out by the Advisory Council for Pension Reform as a basic principle to be retained, and even deepened, among its proposals for improving the pension industry's organisation. This principle was accepted by the Executive in the preparation of the Pension Reform Bill that was sent to Congress.

In any case, it is worth noting that, taking into account the justification for the existence of the single corporate purpose, it is easy to identify certain tasks carried out by the AFPs that are proper or complementary to that purpose, which could be shared or outsourced to third parties without apparent drawbacks. Among these could be the handling of accounts (record-keeping), provided that this is not used as a source of inside information about the identity of the AFP's members, or the collection of pension resources, which is in fact outsourced today at banking institutions and internet sites that allow collection to take place electronically.

In fact, it has been argued that the combination of the single corporate purpose and the impossibility or presence of disincentives to outsource some functions may constitute an additional source of entry barriers, by creating the obligation to enter different businesses with different minimum scales of efficiency, simultaneously (Tarziján, 2006). This grouping of functions is not true of the design of all pension systems with mandatory saving. In Mexico, for example, the collection task is centralised in a public body, the Social Security Institute, while the reform of the Swedish pension system included separating the task of accounts management (record-keeping), which is done centrally, from the management of the funds which is decentralised, as described by Palmer (2006).

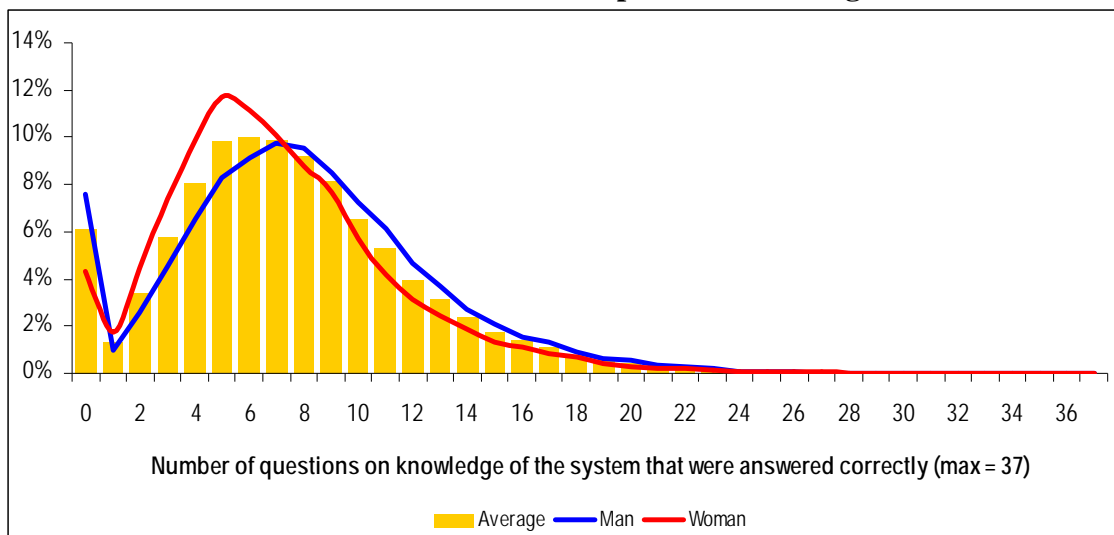
⁵⁴ MORI (2004).

Demand's Responsiveness to Price

Undoubtedly, a fundamental aspect in studying the industrial organization of any industry is to find out the characteristics of the demand, both at the level of the market as a whole and from the perspective of each firm individually. In the Chilean AFP industry, the total demand is a captive one, since pension saving is mandatory for wage-earning workers; for this reason the interesting phenomenon here is the way in which people change their AFP. In other words, the demand facing each firm is influenced mainly by its relative position compared with the other AFPs.

On the other hand, it is logical that members should have a minimum level of information and understanding of the variables involved in order to switch between AFPs. However, the EPS⁵⁵ has revealed the low level of knowledge shown by members: in the 2002 version of this survey, of a total of 37 questions to do with knowledge of the pension system, those interviewed got an average of eight right, and less than 3% answered at least half the questions correctly (see Figure 3.9). By way of example, it is worth highlighting the fact that one of the 37 questions concerned the price of the service and over 95% of members were unable to answer it.

Figure 3.9
Distribution of the rate of pension knowledge



Source: EPS 2002.

To summarise, there is a low level of knowledge, even among members who are close to retirement or recently retired, who should theoretically be much more aware of the system's variables. With the limited level of knowledge, it is to be expected that the demand will be relatively unresponsive: a conclusion reached in a series of studies carried out by empirical analysis, such as Marinovic (2000), Bernstein and Ruiz (2005) and more recently, using individual data, Bernstein and Cabrita (2007).

Though the cause of the limited responsiveness of the demand is worth specific study, it is possible that the explanation is related with the following aspects of the service and industry that provides it:

⁵⁵ See details in www.proteccionsocial.cl

- a) Being a mandatory product, the critical mass of people interested in the characteristics of the product is a small percentage of the total membership; this, compared with the situation of a product where consumption is 100% voluntary. In this latter case a larger proportion of consumers are presumably interested in the product.
- b) Being a mandatory product that forms part of social security, members believe that the State will protect all their interests (as is the case in traditional pay-as-you-go systems, where people have limited power of decision).
- c) Since the benefits of the system are paid after a relatively long period, there is no concern about the issue in the short term (particularly among young people).
- d) Members recognise the importance of the issue, but postpone taking decisions because they find them very complicated or because they have inter-temporal inconsistency in their preferences.
- e) The differences in yield and cost are too small to justify the effort of changing or even finding out about the different options. It is worth underlining that the small differences in fees may be both a cause and effect of the unresponsiveness of the demand.
- f) Many members perceive no differences in service quality among AFPs.

Fees structure

The Law lays down the type of fees that the AFPs may charge and the items on which they are allowed to do so. For example, for handling the mandatory individual accounts the AFPs are allowed to charge a variable fee, set as a percentage of covered earnings and deducted from the member's wage, and a fixed fee in pesos which is deducted from the balance in the individual account. Both fees must be standard for all members of the same AFP (though it is possible to make distinctions among employees, self-employed and those not entitled to the disability and survivorship insurance) and are only charged in periods when a contribution is paid. The variable fee is the AFP's most important source of income.

The obligation to charge all members the same percentage rate generates considerable differences in the income produced for an AFP by a contributor with a high income in relation to one with a low income. This difference is presumably greater than the difference in the cost of handling the accounts of the two individuals. For many analysts, this fee structure constitutes a hindrance to price competition, since transferring part of the surplus obtained by the AFP to a high-income member implies lowering the price for all members and losing income on the part of those with low incomes.

However, this structure also produces a subsidy from high-income members to those with low income, including an element of redistribution that makes it difficult to introduce a modification in the Law. There is also a subsidy from those who contribute regularly to those who do not. On the other hand, the AFPs are only authorized to charge fees on withdrawals or transfers from Voluntary Savings Accounts (Account 2),

meaning that those who save in that way are being subsidised by those who have mandatory accounts. The regressive nature of the fixed fee possibly limits its importance as a source of income for the AFP, since its amount is limited by low-income contributors' ability to pay.

The fact that administration fees are charged on contributions means that these bear no relation to the person's balance. This means that at the beginning of the working life the fees represent a high proportion of the accumulated balance and are the most important factor in the decision to choose an AFP in terms of the yield, net of costs. However, at the end of the working life, the differences in fee become less important than the differences in the yield of the funds, being precisely the people who have most at stake in the matter of pensions who take least notice of this variable.

Finally, the existence of more than one price makes comparing the price of the service more difficult for the member. Calculating price differences among AFPs becomes complicated when it is necessary to combine a component based on salary with one that is fixed. Furthermore, from the AFP's point of view, it cannot advertise itself as the cheapest, because its being so depends on the individual's salary level. These factors reduce public recognition of price as a relevant variable for choosing an AFP.

3.2.- Measures contained in the reform in the area of competition

As a general conclusion from the diagnosis, the intensity of competition in the industry has tended to decrease with time and tends to occur on the basis of variables other than those that should be the focus of attention of the market (price, risk/return ratio and service quality). The reasons behind the low competition among the firms arise from various factors: low responsiveness of the demand, compounded by a rigid price structure that definitely leaves the marketing efforts of the sales personnel as the only alternative to provide intense competition and the "gifts" that they may offer as a mechanism of price discrimination. This situation affects competition between both existing firms and potential ones.

The potential firm will necessarily have to trigger a price war in which it has many disadvantages compared with existing firms, because it will tend to attract those members who are less loyal and therefore, those more likely to change again to another AFP. It will therefore be difficult for them to grow to a "minimum efficient scale". This may constitute an important barrier to entry. Furthermore, the existing firms do not want to get involved in a war of this type and so, if they have the possibility of avoiding it, the result will be an equilibrium in which there is little intensity of competition to attract members as long as there are no new firms entering into the market.⁵⁶

This diagnosis leads on to conclude that, in order to increase efficiency in the AFP market, it is necessary to implement measures that achieve at least two objectives: to increase the challenge ability of the market and increase the responsiveness of the demand to the price variable, at least in the segment of the population most affected by

⁵⁶ This situation is consistent with models of oligopoly where the price war is the result of a strategy to penalize deviations from a collusive agreement (Stigler (1964)) or where these wars arise as a consequence of the existence of costs of change on the part of users (Klemperer (1989)).

it. The outsourcing of functions and the separation of the SIS are measures that enable the barriers to entry to be lowered, by lightening up the cost structure of a new AFP. The elimination of the fixed fee and those that are deducted from the member's balance may contribute towards increasing the price responsiveness of the demand. Finally, all these measures are complemented by the possibility of auctioning for membership portfolios, which makes it possible both to increase the challenge ability of the market and increase the responsiveness of the demand to price. This mechanism constitutes an alternative to invest in sales personnel and the marketing war, to enable a new firm to enter into this market. At the same time, it increases public recognition and provides customers with more information about the price variable. This section describes the measures included in the Pension Reform and presents the analyses carried out that support their implementation.

3.2.1.- Responsiveness of the demand: auctioning for new members

One of the most important measures contained in the reform to increase competition in the pension industry is the auctioning for a group of members, based on price. This measure had also been in the discussions between academics and industry representatives, even before the Presidential Council for Pension Reform was set up.⁵⁷ The auctioning for members aims directly at the price-responsiveness of the demand, since the group of members in the auctioning process becomes a group of people who will be assigned exclusively according to price. Furthermore, the existence of the auctioning event means that the rest of the members may potentially take an interest in comparing the prices of the various AFPs.

These effects should, in principle, reduce the barriers to entry and encourage competition among the firms: the first because the potential firm may actually reach the minimum efficient scale without causing a marketing war based on sales strategies using salespersons, and the second, because the existing firms will at least have a new way of competing for a niche in the market.

It should be noted that a reduction in the prices of the AFPs is not the main aim, but rather better competition. To the extent that the auctioning fulfils its mission, the increased competition could result in a series of benefits, such as lower prices or better service quality. All this may be accompanied by lower margins for the firms, which would definitely imply that members would take away a larger share of the surplus of this market.

In order to improve competition in other relevant aspects, the SP publishes a quality service index every four months, produced on the basis of information collected during their inspections (see Inset 6.2). In this way, a solution is provided, to a certain extent, to members' general lack of information concerning this dimension. Meanwhile, with regard to yield, the reform gives the AFPs greater flexibility, which means that the management of each AFP becomes more relevant in achieving better yields, greater potential for differentiation and therefore, greater capacity for competition in this area.

⁵⁷ See for example Valdés (2005a), Valdés (2005b) and Larraín, Castañeda and Castro (2006)

Design of the auctioning process

The measure consists in assigning all new members joining the pension system over the course of two years to the AFP that offers the lowest price in an auctioning process.

In this process, each firm involved in the auctioning offers a price and the group of members is assigned to the one that presents the lowest fee. This firm must hold the price of the bid for a minimum period, known as the “award period”, which has been set at a maximum of two years. Although the auctioning is awarded to the lowest price offered, this does not mean that other variables that are relevant for the quality of the pension product are no longer taken into account. For a start, the AFP offering the winning bid must comply with all the regulations that exist in this market, among them the minimum yield requirement, obligatory reserve fund, etc.. Furthermore, if the auctioning goes to an AFP that is not yet established in the market, it will have to meet the requirements for setting up as an AFP as established in the Law and must present a prospectus to the SP, which must approve it.

As the counterpart, the members commit themselves to remain in the AFP for a minimum number of months after joining, called the “continuance period” which cannot exceed 24 months. This measure seeks to protect the AFP with the winning bid from a possible marketing war. Regardless of the above, the members included in the bid may change AFP before the continuance period is over if the AFP fails to meet the minimum yield or minimum net worth requirements, is declared to be in a state of evident insolvency or bankruptcy or is in process of liquidation. Furthermore, the members may change to an AFP that charges a lower fee than the one offered in the auctioning process for two consecutive months. Likewise, in order to safeguard the proprietary interests of the members, it has been stipulated that, during the continuance period, members may change to an AFP that obtains a yield that is sufficiently high to offset the higher cost charged by that AFP.

Additionally, in order to avoid the auctioning process having possibly adverse results, the measure states that the AFPs taking part in the auctioning process must offer a fee that is lower than the lowest fee currently in force in the market. It has also been established that the price awarded in the auctioning cannot be raised during the “award period”.

As regards the price level that the AFP with the award is allowed to charge those of its members who are not involved in the auctioning process, it is important to point out that, just as in the current situation, AFPs are not allowed to discriminate in prices. Therefore, if an AFP that is currently operating is awarded the bid, it must charge the fee offered to all its members.

In the discussion to define the characteristics of the most desirable auctioning process in the case of the Chilean AFP system, the design elements that were seen to be most relevant were the definition of the group to be bid for and the decision on whether or not to insist on a continuance period.

As regards the group to bid for, compulsory assignment has been brought in for workers beginning their working life, given that their non-existent or low accumulated balance means that for them the price variable is the most important when choosing an AFP. It is possible to see this, if one calculates the internal rate of return (IRR) obtained by a

member as a result of his/her contributions in the system as the yield net of the social security cost achieved by those contributions in a given period of time. In fact, as is shown in Inset 3.1, in order to a member with zero balance in his/her account, from an initial position with a fee of 2.3% and yield of 5%, to obtain the same IRR after 24 months with a yield one point lower, the fee would only need to be reduced to 2.19%. What is more, it would only be necessary for the fee to fall to 1.73% for the yield needed to obtain the same IRR to fall to zero. These are big differences in yield, in view of the historic data on the yield scatter among different AFPs.

This group is also of sufficient size to cover the minimum efficient scale of operations of a new AFP. According to data from the SP, about 200 thousand new members join the system each year, with a contribution density similar to the mean (46.7% versus 45.2%), a lower cost in SIS, less demand for services because they are further from retiring age, and a lower requirement in obligatory reserves, though they have lower covered earnings (237 thousand pesos in the year 2004, versus 358 thousand on average). This figure compares with estimates that give a minimum efficient scale for fund management as between 150,000 and 300,000 contributors.

The minimum continuance period was set to give greater security with regard to the stability of the composition of the portfolio awarded to the AFPs that take part in the auctioning. This is a way of preventing a passive strategy on the part of the other AFPs: to await the result of the auctioning process and then compete for the new members by attempting to coax them out of the AFP with the successful bid by using their sales forces. In practice, it is established that the only way of competing for the new members is to take part in the auctioning process. However, it is felt advisable to limit this minimum continuance period, because after a certain level of balance accumulation, the cost variable begins to lose its importance compared with yield. In addition, the inertia typical of the members of the system (of mandatory saving) is a substitute for the continuance requirement and makes capturing part of this portfolio a difficult task for the AFPs even after the 24-month period.⁵⁸

There is a lot of literature in economic theory referring to the optimum design of auctioning mechanisms and this undoubtedly exceeds the scope of this document. This literature generally makes assumptions that are fairly limiting when enabling one to rate the auctioning mechanisms in terms of their efficiency and the estimated cost of assignment. However, in order to grade the possible results of portfolio auctioning, it is necessary to take into account such aspects as collusion and the incentives to take part in the auctioning process. In fact, Klemperer (1999) and Klemperer (2002) states that in practice, the two most important aspects in designing an auctioning process are the feasibility of collusion and the incentives for firms to take part. There is no doubt at all that these aspects, along with the ease of entry for new AFPs by this route, will be the

⁵⁸ With regard to the auctioning mechanism itself, the reform only defines two aspects. Article 160 states that “in each auctioning process the service shall be awarded to the entity that [...] offers to charge the lowest fee per deposit of regular contributions at the point of presenting the bids”. This article therefore defines a rule for awarding the contract, without explicitly stating the specific design of the auctioning mechanism. Vickrey (1961) classified auctioning processes into four basic types. A complete review of the literature on auctioning processes is found in Klemperer (1999). Meanwhile Article 162 states that the process is to be governed by the Law and bases of the auctioning processes, which “are to be approved by the Ministry of Labour and Social Security by supreme decree”. It also stipulates that the base must contain at least a series of points, one of which is point “h) Process and mechanism for awarding the contract and breaking a draw”.

most important to be taken into account when designing the auctioning mechanism, which will be specified at the time of defining the bases of the auctioning process.

Characteristics of the members included in the auctioning

Using databases available at the SP, it is possible to estimate certain characteristics of the new members who would generally make up the number of those to be included in the auctioning. In the first place, an estimate is made of the number of members by sex and age. In order to make this analysis, the people entering in the period between January 2004 and December 2005 were observed on the basis of information contained in the SP' Database of Members, Contributors, Pensioners and Deceased.

Table 3.4
Basic characteristics of the group included in the auctioning

Nº Members	598,554
% of women	49.3%
Average age	26.9

Source: Superintendence of Pensions.

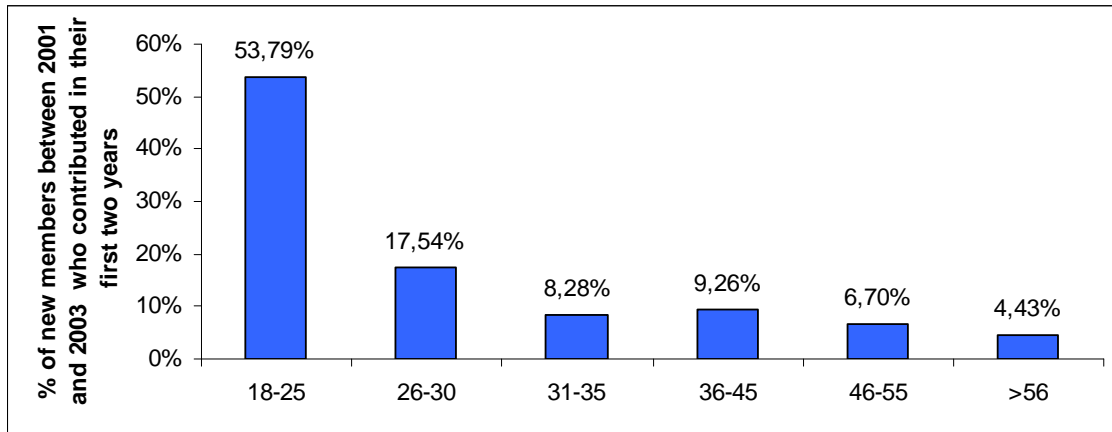
The nearly 600,000 members shown in the table imply that, after two years, a new AFP that enrolls members only through this route would achieve a number of members similar to that currently belonging to the fifth AFP in the market, which is Cuprum. This figure represents a reasonable size for an AFP, as explained in the section on economies of scale, which also points out that it is necessary to have an idea of salaries and density in order to complete an analysis on the competitive viability of an AFP entering by this route.

For the analysis of wages and contribution density the HPA updated to December 2005 was used.⁵⁹ 1,481 people who joined the system between 2001 and 2003 were analysed,⁶⁰ of whom 466 never paid contributions (31.5%). Considering only those members who registered contributions in their first two years in the system (1,015 members) we proceeded to analyse their wages and contribution density. It can be seen that 54.5% of the new members in this sample are women, while almost 54% were 25 years old or younger when they enrolled (Figure 3.10).

⁵⁹ This database has the whole pension history of a sample of approximately 25,000 people.

⁶⁰ The date of enrolment used corresponds to that found in the identification file of people in the HPA.

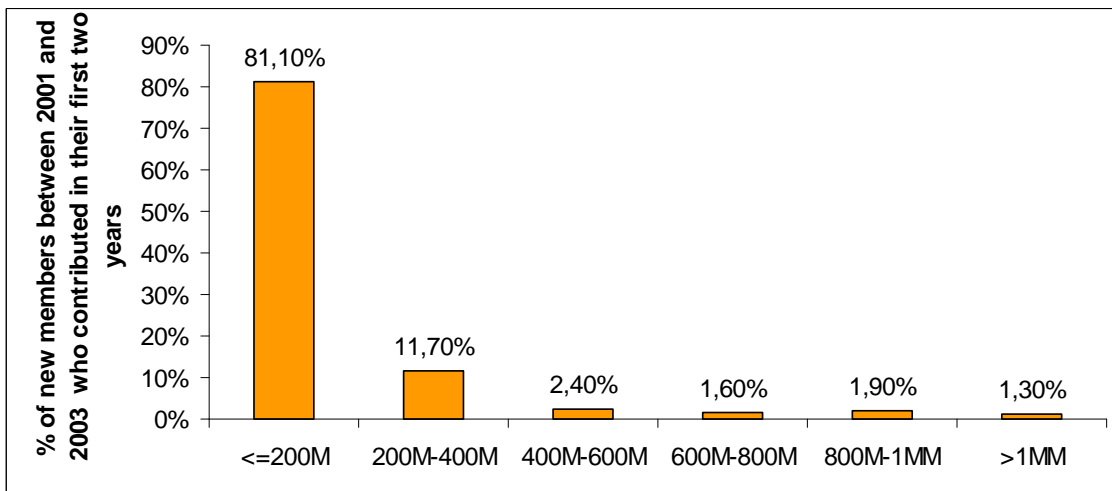
Figure 3.10
Distribution of Members by Age Bracket



Source: Superintendence of Pensions.

With regard to these members' wages, the following diagram shows the average covered earnings in the periods in which there was contribution within the first 2 years of enrolling in the system.

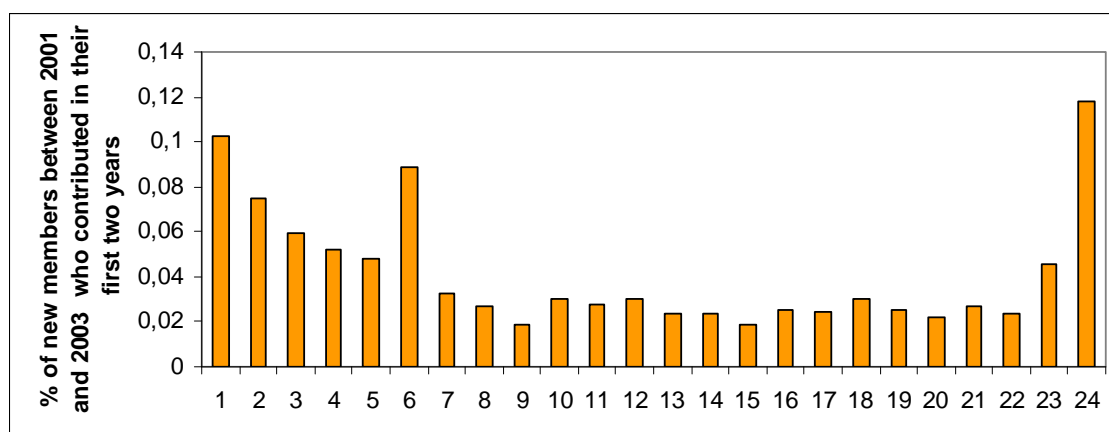
Figure 3.11
Distribution of Members by Earnings Bracket
First Measurement



Source: Superintendence of Pensions.

A histogram is given below with the density of contributions of the new entrants who contributed at least once in their first 24 months in the system. The average number of months contributed in the first 24 is 11.2, which represents a contribution density of 46.5%.

Figure 3.12
Distribution of Members by Contribution Density
First 24 months



Source: Superintendence of Pensions.

Table 3.5
Distribution of Density of New Members

Density (months w/contributions)	% New Members
1 to 8	48.47%
9 to 16	19.90%
17 to 23	19.80%
24	11.82%

The following table summarizes the main statistics for this group of new members.

Table 3.6
Characteristics of New Members

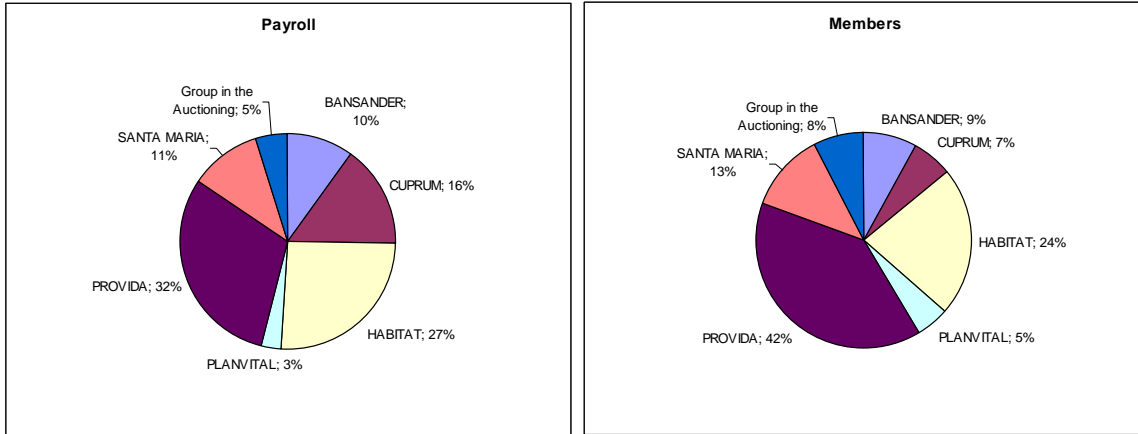
New Contributors in the System between 2001 and 2003					
Characteristic	Mean	St. Dev.	25%	50%	75%
Age	29.6	11.4	22	25	32
Wage	172,643	181,677	91,594	120,790	172,964
Density*	11.2	8.2	4	9	19

* Number of months with contributions in their first 24 months in the system.

Source: Superintendence of Pensions.

With regard to the viability of the business, it is possible to measure the market share represented by the group of new members in terms of the number of members and their payroll. It is an AFP's advantage to have a high ratio between payroll and number of members, since their income is in direct proportion to the former, whereas many of their costs relate more to the second variable. As may be observed in Figure 3.13, the group included in the auctioning of new members might represent 8% of all members after two years (this simulation being carried out as of December 2006). However, in payroll terms, they would only represent about 5%. In any case, the ratio between these two measurements does not appear to be outside of the market levels from the point of view of a new firm. It should be noted that the ratio between the two figures for the group of new members is greater than that of Planvital and similar to that of Provida.

Figure 3.13
Payroll and Membership of the group included in the auctioning
versus the whole industry
(End of Year 2)



Source: Superintendencia of Pensions.

Inset 3.2

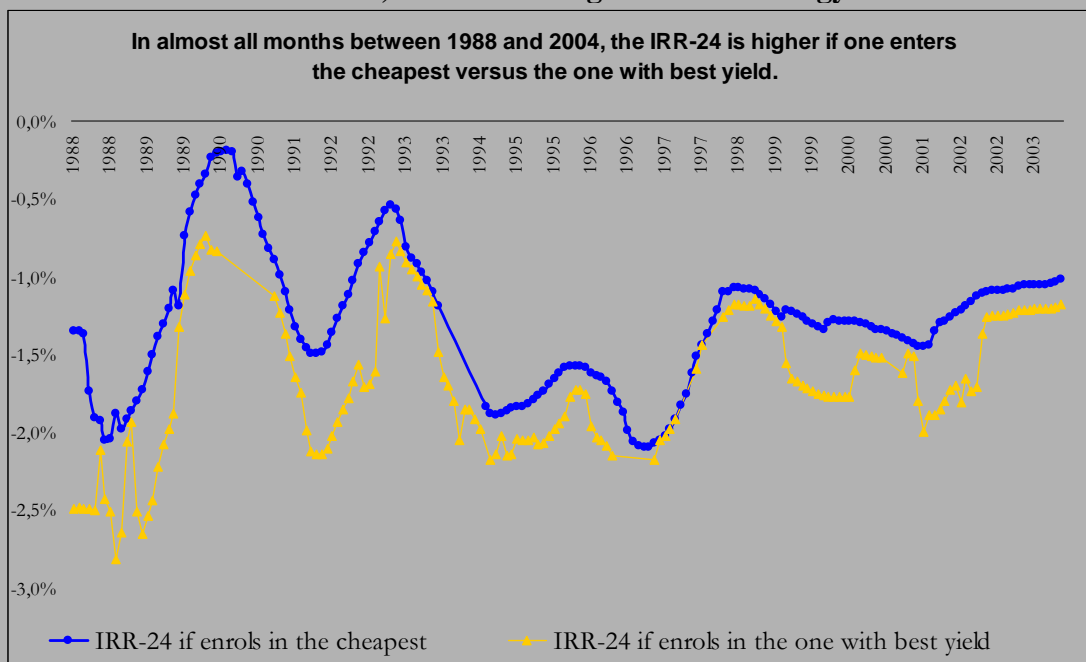
Effects of the auctioning process for members

The fact that the auctioning process is awarded by price leads to the question of whether is more appropriate for a person joining the system to pay contributions in the cheapest AFP or in the one with best yield.

The data shows that a person who joins the cheapest AFP and continues to pay contributions for 24 months obtains a better internal rate of return (IRR) at the end of the period than another person who decides to join the one with best yield. In fact, that is the conclusion to be drawn from simulating those options for people who enrolled in each of the months between 1988 and the year 2004.

The following diagram shows the IRR at 24 months in both options for each month since 1988. It is possible to see there that, in terms of net yield in the first 24 months, the person who enrolls in the cheapest AFP always comes out better, according to the data observed.

IRR – 24, AFP according to choice strategy



Source: Superintendencia of Pensions.

The above analysis is based only on hypothetical members, not on real cases. Using the HPA database of a representative sample of members in the AFP system, it is possible to estimate the advisability of one alternative or the other, using real cases.

In the first place, the following table shows the percentage of people whose IRR-24 would have improved or deteriorated, compared with their real position, if they had opted for either of the two strategies being studied:

Results at 24 months compared with the real situation

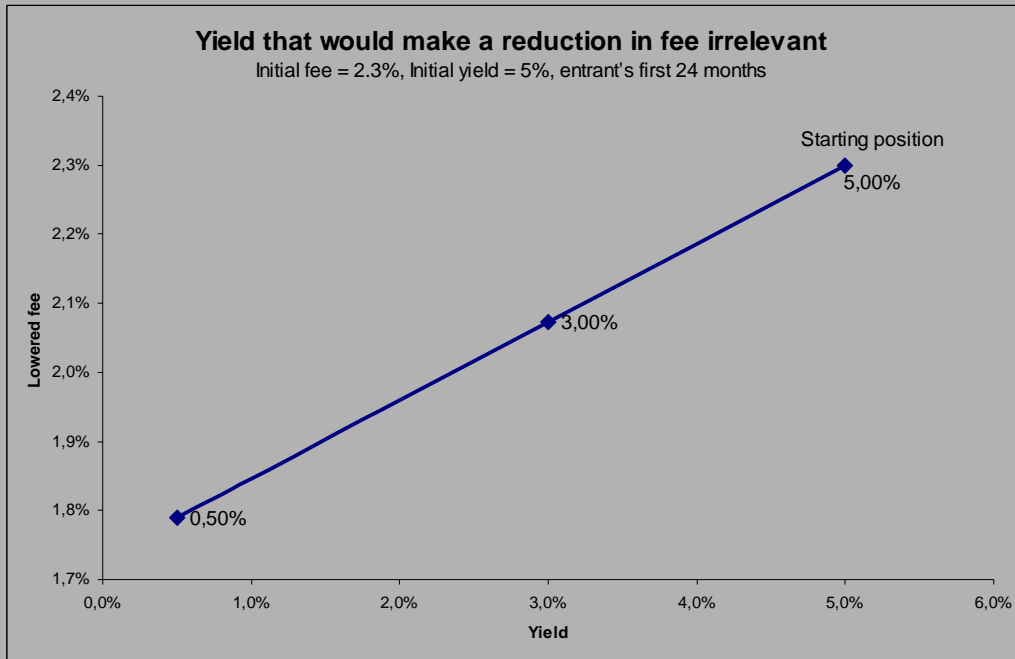
	Cheaper		Better Yield	
	People	Change	People	Change
Improved	77.3%	11.5%	31.8%	8.9%
Remained the same	12.2%	0	5.4%	0
Deteriorated	10.5%	-3.8%	62.8%	-18.4%

In fact, a good proportion of the members would have improved if they had joined the AFP that was cheapest in the month they enrolled, with an improvement of about 12% in their IRR-24. Only 11% of people would have had a worse IRR, with an average of 4% “deterioration”.

If people had chosen the AFP with the best yield, less than a third would have improved their IRR-24 and almost two-thirds would have significantly worsened their IRR (it would have fallen by 18%). It should be noted that the great difference between choosing by price and choosing by yield is that the price is observable at the moment when the choice is made and in fact the person can switch to the cheapest AFP if his/her own AFP puts its prices up. However, it is not possible to see which AFP will have the best yield over the next 24 months at the point of taking the decision, meaning that the comparison of the results of the previous financial year is even stricter and more favourable to the option of choosing according to price.

Finally, it is possible to simulate the yield and cost ratio that leaves the member’s IRR indifferent. This comparison emphasises the importance of the price variable in choosing the most suitable alternative for those members with a low balance. To see this, an analysis was made of the case of an individual who joins the system and remains in the same AFP for (at least) 24 months, with a contribution density of 100%. Assuming that the current alternative (an existing AFP) presents a variable fee of 2.3% of covered earnings and a real annual yield of 5%, an estimation was made of how low the yield of a new AFP (a potential winner of the auctioning process) would have to be, for there to be no difference for the member (in terms of the IRR of the flow of payments and the final balance), between the new AFP and the existing one. The result of this analysis is presented in the following graph.

Fees-yield ratio to hold the same IRR



Source: Superintendence of Pensions.

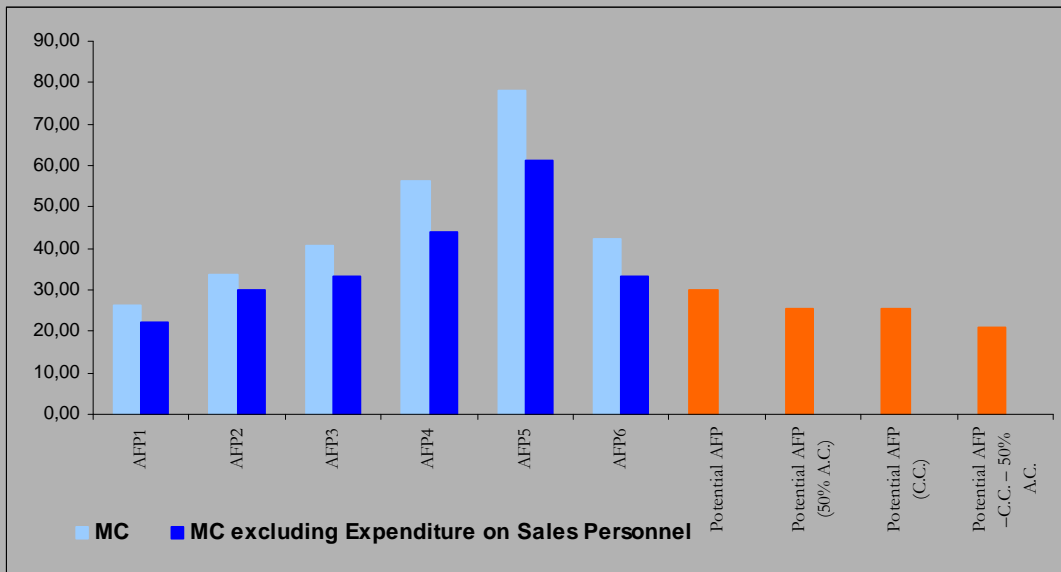
In conclusion, a steep fall in yield of two percentage points, from 5 to 3% for example, is equivalent in terms of IRR-24 to a fall from 2.3% to 2.07% in the fee, in other words, 0.23 percentage points.

It is important to emphasise that these results are directly associated with the fact that the members concerned are just joining the system and therefore start with a zero balance. As their balance grows, the yield becomes more important than the fee (in terms of IRR). Strictly speaking, the best choice should always be to pick the AFP that offers the best expected IRR (Berstein and Castro, 2005).

Inset 3.3
Mean Cost and Variable Fee of a Potential AFP

According to the results of the cost analysis carried out in Reyes and Castro (2008) and assuming the expected conditions in terms of numbers of members, contributors and wages, an entering AFP would have lower mean costs than most existing AFPs. The auctioning reduces the entry costs substantially because no great sales efforts are needed to attract members, as occurs at present. In fact, by excluding expenditure on sales personnel, the mean cost of a potential AFP is slightly lower than that of the remaining operators in the system, as shown in the following diagram.

**Results of Estimation: Mean Cost per AFP and
Mean Cost per AFP excluding expenditure on Sales Personnel (in \$ per year)**

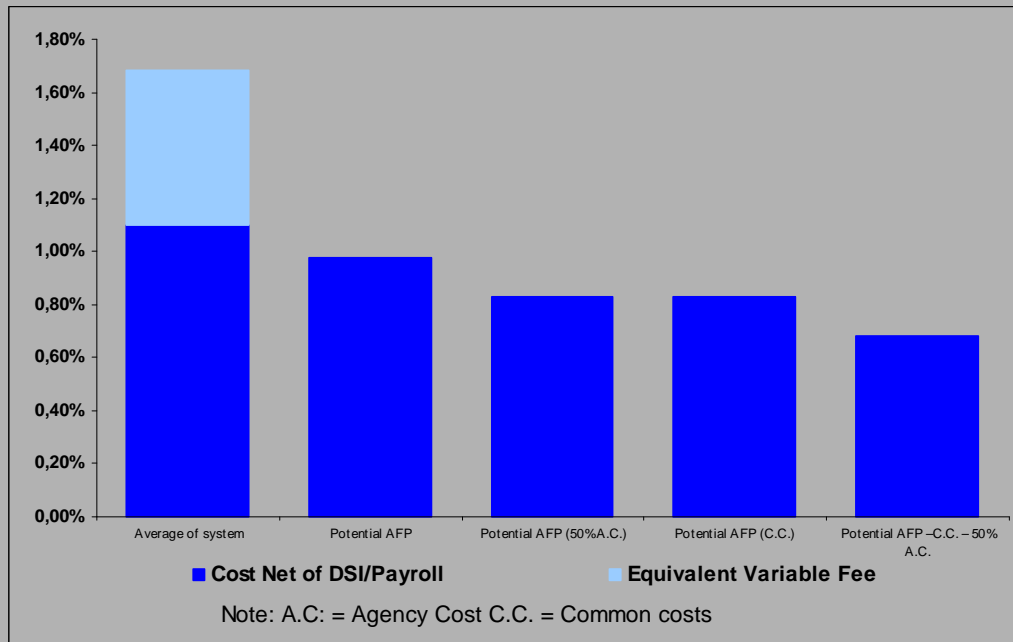


Source: Superintendence of Pensions.

These lower mean costs in practice entail a potentially lower fee to be charged as a result of the auctioning process. The following diagram shows the total cost net of the SIS divided by the payroll for the potential AFP, compared with the Equivalent Variable Fee net of the SIS charged by the other AFPs. Here it can be seen that there is room to charge a fee that is lower than those charged at present, but higher than the costs as a percentage of the payroll of the potential AFP, estimated at 0.98%. A comparison of these costs with the analogous figure for the existing AFPs shows that the average for the system is higher than this figure (though one AFP is marginally lower at 0.92%) which may be due to the short evaluation period. If we assume that the cost of agencies is 50% of what is predicted, just because of the scale of the potential AFP (a justified assumption because a portfolio of young members should make less use of agencies), the estimated operating cost for the potential AFP as a percentage of its payroll falls to 0.83%. On the other hand, by eliminating the extreme values of common costs (those not attributable to a particular process) observable in the data, the operating cost of the potential AFP also falls to about 0.83% of its payroll, while if this effect is combined with the assumption of an agency cost that is 50% lower than the one predicted on the linear regression, the cost reaches 0.68% of the payroll.

This range of estimated costs suggests that it is possible to use the auctioning mechanism to generate the entry of a new, economically profitable AFP, while charging a price that is lower than the one prevailing in the market. This analysis provides data that make it possible to judge the viability of the proposed auctioning mechanism positively, and its potential to increase the challenge ability of this market.

Results of Estimation: Variable Fee per AFP



Source: Superintendencia of Pensions.

3.2.2.- Separation of Functions

The AFPs, as institutions with a single corporate purpose, carry out a series of functions related with management of the funds, such as handling the individual accounts, dealing with the public, the marketing and sales effort and the provision of the disability and survivorship pension.

As the Council stated in its final report, the packaging of functions limits the industry's efficiency, because each company has to offer all the functions instead of concentrating on what might be more competitive. Furthermore, these are tasks which, by their nature, need different resources and abilities to be offered to the public. This packaging therefore has important consequences for the organization of the industry.

The following Table presents the sources of income and operating expenses of the AFP system. The composition of the operating expenses shows the multiplicity of functions carried out by the AFPs. The SIS represents the largest item, amounting to 51% of the total, followed by wages and other administrative expenditure (30%) and wages for sales personnel (11%).

Table 3.7
Operating Income and Expenditure of the AFPs
(2005)

	Amount (MM\$)	%	%
Total Operating Income	420,992	100%	100.0%
Income from fees	382,011		90.7%
Profits on obligatory reserve	32,468		7.7%
Other operating income	6,513		1.5%
Total Operating Expenditure	300,647	71%	100.0%
SIS Premium	154,432		51.4%
Administration costs	91,243		30.3%
Wages paid to sales personnel	32,918		10.9%
Marketing costs	4,936		1.6%
Depreciation and amortization of period	6,398		2.1%
Other operating expenses	9,836		3.3%
Wages paid to Board of Directors	884		0.3%
Operating Profit	120,346	29%	

Source: Superintendence of Pensions.

Among the operating costs, if the cost associated with the SIS is excluded, the functions most directly linked with the management of the funds represent only 4.2% of the total costs. A high proportion of the AFPs' costs correspond to handling of accounts.⁶¹ The functions that absorb a high proportion of resources correspond to the branch network (32.8%) and marketing (28.5%). The remaining 16.3% refers to processes that are common to various different functions.⁶²

At present the AFPs may outsource, in accordance with the Superintendence's regulations.⁶³ As will be seen below, these stipulate precisely which activities the AFPs may outsource and the precautions that they must take when signing such contracts.

Considering that outsourcing of functions by the AFPs is regulated only by the Superintendence's rules, the Pension Reform proposed including a regulatory framework for outsourcing in D.L. 3,500, which includes new powers for the SP in terms of the supervision of sub-contractors who provide services related with the activities that are proper to an AFP.

With the proposed change, the Superintendence will have the powers needed to allow the AFPs to outsource more functions, with suitable safeguards.

Another of the important limitations on carrying out a higher level of outsourcing is its effect on the AFPs' tax position. Currently, the fees charged for managing pension resources are exempt from paying Value Added Tax (VAT).⁶⁴ This prevents the AFPs from deducting the VAT that they pay for the activities and purchases that they carry

⁶¹ This item includes the handling of accounts as such, the handling of pensions and the preparation and distribution of statements.

⁶² See Figure 17, Distribution of Costs by Process.

⁶³ Circular N° 1168 issued by the SP.

⁶⁴ Article 28, D.L. 3,500.

out. With regard to the above, the Advisory Council for Pension Reform proposed two alternatives to eliminate the effect of the VAT on outsourcing for the AFPs.

The Situation at Present: Activities authorized and prohibited for outsourcing

The Superintendence states explicitly in its ruling which activities the AFPs may outsource and which must be carried out using the personnel and resources of the AFPs themselves.

The activities that the AFPs are authorized to outsource are mainly related to the operational aspects of handling members’ individual accounts, management of the Pension Funds’ investments and carrying out the AFPs’ administrative processes. Furthermore, the regulations states that other functions may be authorized which, in the opinion of the SP, are not specific to the management of Pension Funds. It is worth bearing in mind that the AFPs do outsource a large proportion of the activities that are authorized for outsourcing.

**Table 3.8
Activities authorized for outsourcing of functions,
prior to the Reform (Circular N° 1,168)**

Accounts Handling	Fund Investment	Administrative
<ul style="list-style-type: none"> • Collection of pension contributions • Insurance (other than the SIS) • Payment of voluntary savings withdrawals, compensation and pensions • Receiving statements and collecting deposit contributions • Recording, studying and ruling on the solving complaints process (Circular N° 650) • Reimbursement of excess payments⁶⁵ 	<ul style="list-style-type: none"> • Securities broking • Securities custody • Management of Pension Funds abroad via authorized agents • Valuation of investment portfolios and Obligatory Reserve Fund • Custody of Pension Fund securities (percentage where custody does not correspond to securities deposit firms) • Custody of recognition bonds • Management of resources making up the Pension Funds⁶⁶ 	<ul style="list-style-type: none"> • Entering data • Distribution of correspondence • Design and preparation of printed forms • Microfilming • Computer services • Accounting services for the AFP and its subsidiaries • Hard copy file and databases • Issuance of statements and pension books • Receiving benefit applications and dispatching them to central office (in places where the AFP has no agencies)

Related to the activities that are forbidden for outsourcing, the regulation excludes from service-providing contracts those activities that have so far been considered to be specific to the AFPs’ own corporate purpose. These correspond to:

- Supervision of collecting agents, whether their own or outsourced
- Operating and accounting supervision of the current accounts at the bank and their respective reconciliations, as also the preservation and filing of back-up documentation

⁶⁵ The activity “reimbursement of excess payments” was authorized by an Official Letter from the Superintendence in December 2006.

⁶⁶ D.L. 3,500 stipulates in article 23 bis that outsourcing of this function must be through institutions with a single corporate purpose.

- The process of updating the Pension Funds' net worth
- The process of enrolment and the transfer of personal accounts
- The accounting record of the Pension Funds' operations, preparation of accounting documents and filing of back-up documentation
- Solving complaints
- Processing pensions and other benefits laid down in D.L. 3,500.

Activities outsourced by the AFPs and estimated cost

According to the Financial Statements as of December 2005, the costs incurred by the AFPs during that year, as a result of having outsourced the most important services, amounted to 15,700 million pesos, which is 5.2% of the total operating costs. It is worth pointing out that the AFPs report the contracts whose cost charged to profits represents over 3% of the total operating expenditure of the period in the Standard Codified Statistical Records (FECU), so this situation could be underestimating the outsourced amounts. In any event, in the breakdown per AFP, the highest proportion of outsourcing costs over total operating costs corresponds to 9.7%.

Table 3.9
Outsourcing per AFP (figures in M\$)

ITEM	BANSANDER	CUPRUM	HABITAT	PLANVITAL	PROVIDA	STA MARIA	SYSTEM
COLLECTION CONTRACTS							
Banks	108,435	98,537	134,617	114,382	1,646,377	132,529	2,234,877
Other institutions	381,564	330,638	858,216	163,057	363,405	740,961	2,837,841
Total	489,999	429,175	992,833	277,439	2,009,782	873,490	5,072,718
COMPUTER MAINTENANCE CONTRACTS	272,509	-	-	396,581	654,864	-	1,323,954
SECURITIES CUSTODY	354,105	367,579	652,255	159,196	734,704	365,994	2,633,833
ADVERTISING AND PROMOTION CONTRACTS	148,150	-	-	-	-	-	148,150
OFFICE RENTAL	152,088	-	-	-	-	-	152,088
SECURITIES AND SECURITIES ADMIN.ABROAD	323,167	52,990	382,654	41,428	179,605	65,268	1,036,112
OTHER IMP. CONTRACTS							
Pension Payment	-	-	-	-	871,692	-	871,692
Cleaning Offices and Agencies	26,675	-	-	-	40,907	-	67,582
Microfilming Documents	15,904	-	-	-	127,588	-	143,492
Processing and Dispatch of Correspondence	134,100	-	-	-	488,979	-	623,079
Rental of Photocopiers etc.	189,512	-	-	-	39,980	-	229,492
Data Transmission Service	59,268	-	-	-	91,212	-	150,480
Storage and Custody of Documents Service	56,392	-	-	-	-	-	56,392
Accounting, Legal and Tax Consultancy	-	-	-	-	-	3,158,383	3,158,383
Total	481,851	-	-	-	1,660,358	3,158,383	5,300,592
TOTAL	2,221,869	849,774	2,027,742	874,644	5,230,313	4,463,135	15,667,447

Note: Information obtained from AFP FECU – Explanatory Note N° 40 “Service-Providing Contracts”.

It is worth pointing out that, of all the activities outsourced by the AFPs according to the information in the financial statements as of December 2005, a somewhat dissimilar picture emerges among the AFPs with regard to whether VAT is paid on the outsourced activities or not. In other words, in the case of the AFP that pays least VAT, it may be seen that 96% of the outsourcing costs appear not to be subject to that tax; while on the other hand, in the AFP that pays most VAT, 21% of its outsourcing costs are not subject to this tax. If the system is analysed as a whole, approximately 57% of the outsourcing costs are not liable to pay VAT.⁶⁷

⁶⁷ Analysis carried out on the basis of the Tax Consultations Handbook (October 2004 – N° 322) prepared by the AFIICH (Inland Revenue Supervisors Association).

Measures to eliminate tax barriers in outsourcing

During the discussion in Congress of the Pension Reform Bill, it was decided to implement a measure to correct the tax treatment of the outsourced activities in order to facilitate their use.⁶⁸ This measure consists in **establishing a credit for the Value Added Tax (VAT)** that has to be assumed by the AFPs when they outsource services, which can be **deducted from the First Category Tax** for which AFPs are liable. This allows the tax barrier to outsourcing, produced as a result of paying VAT, to be sidestepped by a mechanism that is easier to administer and less distorting than the proposals originally suggested. It is expected, therefore, that outsourced activities will increase, which should imply an improvement in the AFPs' productive efficiency and also a challenge for the work of supervision, since not all processes will be concentrated under the umbrella of the same institution.

From the analysis carried out in this section, it is possible to conclude that though paying VAT for outsourced services may be a barrier for outsourcing, its impact is relative and varies to a considerable extent from one AFP to another. Even so, it is still impossible to make use of a tax credit in the payment of VAT, which makes potential outsourcing of services more expensive. The solutions put forward originally were evaluated as difficult to implement, given their administrative complexity or potentially distorting effect. For these reasons it was decided to grant a tax credit arising from the VAT paid on outsourcing services, to be deducted from the income tax paid by the AFPs. In fact, in the Law it is stated explicitly that outsourcing services to the public and handling of accounts is possible.

It is hoped that this possibility of separating functions will enable more advantage to be taken of the different optimum scales of operation associated with each function. Voluntary separation also means that it will be market forces that decide the most efficient way of providing the services associated with pension fund management.

3.2.3.- Separation of the Disability and Survivorship Insurance

One case of particular importance among the functions taken on by an AFP is the SIS, since at present it represents over 50% of each AFP's costs.

The contracts signed by each AFP with an insurance company for SIS coverage are such that the premiums which the AFPs end up paying to the Insurance Companies reflect the actual claims rate of the AFP's members during the life of the contract.⁶⁹ This is so because the contracts are structured with an agreed provisional premium, but adjustments are made afterwards in the payments, depending on the actual claims rate that occurred in the period of the contract. This implies that the premiums paid are similar to the cost of the accidents/events that have occurred. In this scheme, in practice the AFPs are assuming the risk of covering their members' claims and the associated risk premium is "hidden" in the fee that they charge their members. This means that it

⁶⁸ The Presidential Advisory Council for Pension Reform had proposed extending the VAT exemption to the outsourcing of functions by the AFP or else eliminating the VAT exemption on the fees charged by the AFPs and establishing an automatic reimbursement mechanism to the member. The practical difficulty of implementing the two measures resulted in the alternative put forward in the Congress being adopted.

⁶⁹ See, for example, Inset III.4 of the Presidential Advisory Council for Pension Reform's report.

is impossible to identify correctly which part of the business's profit comes from fund management and which from providing this insurance.⁷⁰ Furthermore, the AFPs, by providing insurance, are behaving as though they were an insurance company without being regulated as such, which constitutes a "regulatory arbitrage".

The Council's report collects various important aspects of the SIS when it lists: "factors that may have a negative impact on the efficiency of the pension system, of which the following are most noteworthy: (a) since the costs of the SIS are so high, the prices of the AFPs tend to reflect the claims profile of their members rather than aspects specific to the activities of account and fund management, distracting the AFPs from being efficient in their main function; (b) the current SIS mechanism generates incentives for the AFPs to concentrate their marketing efforts only on workers with lower claims rates and cheaper claims; (c) since it is precisely the members with higher wages who are less risky, the SIS reinforces the interest of the AFPs in members with higher wages and their lack of interest in those with lower wages; (d) the reduction in the number of members who are attractive to the AFPs reduces the potential market, thereby reducing the number of firms that "fit" in the market."

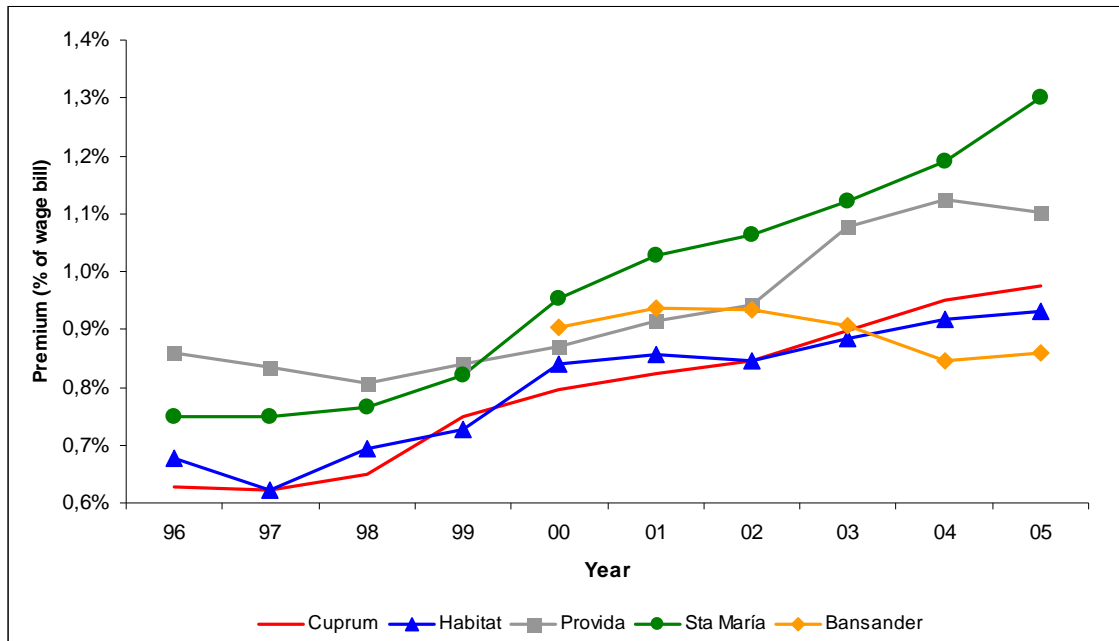
Effect of the SIS on Competition

The accounting data of the AFPs (taken from the FECU and Profit and Loss Statements) shows that, as a fraction of their payroll, the SIS costs mark an important difference among them. This heterogeneity, related both with the composition of the membership portfolio and aspects related to the structure of the contracts, is high and constant over time, as shown in the following diagram:⁷¹

⁷⁰ This situation was recognised in the aforementioned Council report, when it states: "Finally, with regard to the explanation of how the contracts operate, an issue arises related with the AFPs' risk profile, since, as can clearly be seen, the AFPs transfer very little risk to the insurance companies. To a certain extent, then, the AFPs are insuring themselves and, by doing so, assume a risk which generally has no clear specifications. Furthermore, this increased risk is, in one form or another, reflected in fees and makes the charges less transparent for the member."

⁷¹ AFP Planvital is not included because its merger with AFP Magister in the period analysed means that it is difficult to interpret the figures.

Figure 3.14
Moving Average SIS Premium of 3 years

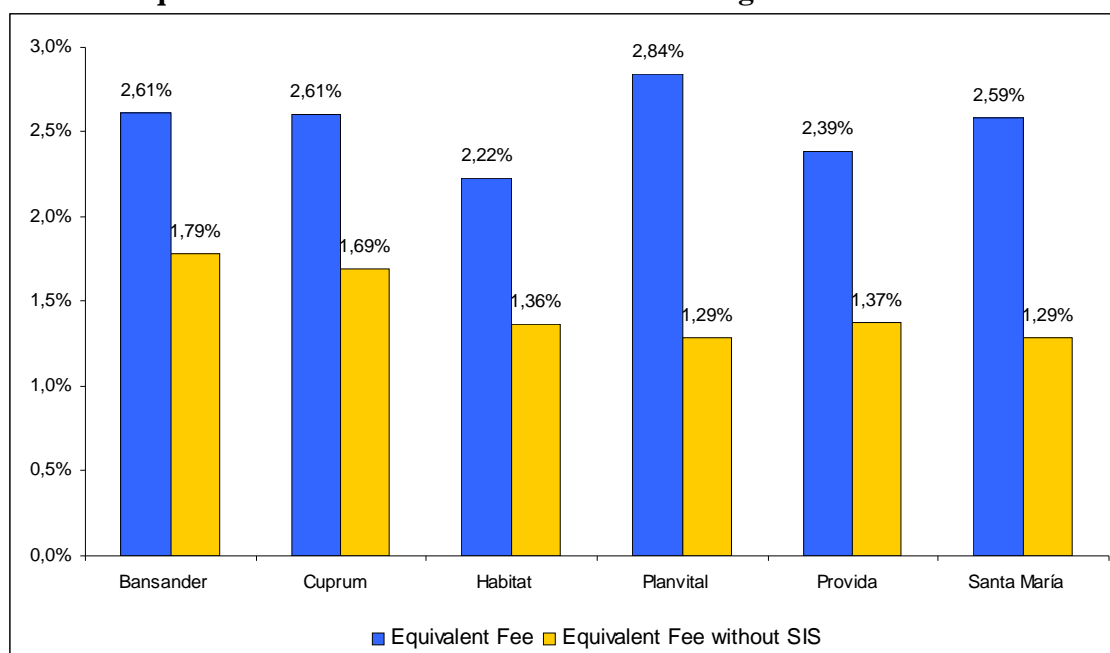


Source: Superintendencia of Pensions.

In order to schematise the impact of SIS costs on the relative position of the AFPs in price terms, the following chart contains the equivalent fees over salary⁷², with and without SIS costs. It is possible to see there that the AFPs with relatively higher prices would invert their competitive position if the SIS were not included as part of the AFPs' costs and prices.

⁷² The equivalent fee represents the sum of the variable and fixed fees. For each AFP specifically, the average salary of its contributors is used to re-express the different fees on the basis of a single equivalent fee.

Figure 3.15
Equivalent Fee with and without SIS – average values 2004-2005



Source: Superintendence of Pensions.

Therefore, having the cost of the SIS included in the costs of the AFP and charged together with the AFP’s monthly fee produces a distortion in the competition in the market. The price charged by the AFPs ends up reflecting the claims rate of the membership portfolio of the AFP itself, rather than the structure of costs related with the management of accounts and funds. This distorts members’ decision in their choice of AFP. On the side of the supply, incentives to discriminate among individuals of different ages occur and incentives to discriminate on the basis of income level are exacerbated, since these variables affect the claims rate of the membership portfolio. In fact, it can be seen that those AFPs that possess a portfolio of contributors with higher average income also have lower costs under the item of disability and survivorship insurance coverage. This constitutes yet another reason for each AFP to try and slant the composition of its client portfolio towards individuals with higher income. Since this is a mandatory system, if all of them do the same, they become involved in a zero-sum game that is expensive for the system as a whole.

Finally, since the SIS is such a high cost for the AFPs, they will have incentives to reduce it. A relatively simple way of doing so is to make application for a disability pension more difficult for members. Though the AFPs are obliged to remit each application for a disability pension to the corresponding Medical Board for assessment, they can adopt strategies that limit their number. If this practice is not based on medical criteria that allow “false invalids” to be weeded out, it ends up affecting the system and the access to its benefits.

Transparency and clarity in the SIS price

Finally, it is worth mentioning that the present design of the SIS does not allow to compute, in a simple and reliable way, the real cost of the insurance, and therefore what each member is paying for this benefit in the different AFPs, since the amounts that members are charged for this item, like the payments to the insurance companies, are

the result of complex calculations and forecasts that make it difficult to clarify the real figures. A mechanism that allows the price paid for the SIS to be separated from the price associated with the management of the account and the pension funds would increase the transparency of the system as a whole.

The new design of the Disability and Survivorship Insurance:

- The management of the SIS is separated from the AFP, and awarded at the level of the whole system to one or more insurance companies, via bidding by price.
- A single insurance premium for all members of the system, the only differentiation being by gender. (Difference in premium is accumulated in women's individual accounts).
- There are no adjustments for real claims rates, meaning that the single premium reflects the risk that the companies are prepared to charge in order to provide this insurance.
- The winning companies are responsible for paying the pensions.

Under this scheme of separation of functions, the members are not affected in any way, nor are they involved in the process. The system retains all its current conditions, including the disability assessment processes, except that the AFPs are no longer involved in funding the SIS; they are merely collecting agents.

The specific design of the auctioning process will be determined in the regulations. The idea is that all members of the system will be separated into homogeneous groups, differentiated by sex. These groups may be made up randomly of specific people or may correspond to percentages of the payroll, which would be awarded to the insurance companies in a co-insurance format. The award will be made, according to the lowest price offered for each package. The idea is that a maximum number of packages should be awarded to a single insurance company, to avoid excessive concentration of the system's risks. The single premium to be paid can be calculated as the weighted average of the premiums offered for each awarded package, or else as the highest price of the packages awarded (marginal price). In the first case, the calculation is made easier if the groups are made up as a percentage of the payroll, without individual identification.

In this way, the shortcomings described in the diagnosis will be solved:

- An independent SIS will make the effect of the "reimbursement of the excess SIS contribution" in women's pensions independent of the AFP to which the woman belongs.
- An independent SIS does not produce an incentive for AFPs to skim the market and helps to make the AFPs' fees reveal their efficiency and not characteristics related with the SIS cost of their portfolios. This also facilitates entry, because it makes it less necessary to aim for members with higher wages. Neither is it necessary to take out the SIS individually with an insurance company, with the uncertainty of not knowing the characteristics of the membership portfolio that the new AFP may be able to attract.
- Having a price for managing individual accounts and funds under administration, net of the SIS cost, facilitates competition around that price, especially by the auctioning for new members.
- Through a single price, society as a whole is informed of the real cost that the SIS will have for the complete period, at system level. At the same time, the single

- The institution providing the SIS will be regulated and inspected as an insurance company, which avoids regulatory arbitrage and provides the system with more protection.

3.2.4.- Modifications to the structure of fees charged by the AFPs

As was explained in the diagnosis section, at present AFPs can charge a variable fee as a percentage of covered earnings and a fixed fee per contribution. The first of these is deducted from the individual's net wage while the second is deducted from the balance. The existence of these two fees makes it difficult to compare costs among different AFPs, since the cheapest AFP for a certain income level may not be cheapest for a different income level. Furthermore, there are other fees that the AFPs are allowed to charge, which are deducted from the member's balance. This makes their impact less noticeable and endangers the level of individual savings accumulation for the pension.

This price structure makes it difficult for the member to understand, and he/she is already quite misinformed, as can be seen from the evidence gathered on the basis of the EPS shown in the first section of this chapter. It also makes the marketing efforts of an AFP more difficult, because although it can present itself as having the best yield over a particular period of time, it cannot claim to be the cheapest for all members. This difficulty in comparing and in basing sales efforts on this variable may be an element that explains the lack of importance of the price variable in the competitive dynamics of this industry.

The Pension Reform eliminates those fees deducted from the balance in members' individual accounts, such as the fixed fee per contribution deposit and the fee on transferring the balance of the individual account from another AFP, which currently produce a reduction in the pension savings and consequently in the pension. (See Inset 3.4) With the elimination of the fixed fee per contribution, it becomes easier for members and pensioners to compare fees and produces a positive impact on the pensions of lower-income workers.⁷³ Furthermore, fixing a single method of calculating price means that the price variable becomes more obvious, which in turns means that auctioning for new members, awarded to the AFP that charges the lowest fee, becomes possible to implement.

Inset 3.4
Impact of Fixed Fee on Accumulated Balances

The fixed fee prior to the 2008 Reform had a relatively insignificant role in the income of most AFPs, representing less than 10% of their income. On the other hand, it had a considerable impact on pensions, especially in the case of workers with lower incomes and higher contribution density. Castro (2005) estimates the impact of \$1,000 pesos of fixed fee for men and women workers of different income levels and contribution densities, discovering an important effect, especially in the

⁷³ Castro (2005) analyses the effects of the fixed fee on the system, showing that those who would benefit most from its elimination are members with low incomes and high contribution density.

case of women.

Impact of \$1,000 of FF on the final balance of each profile

Men					
Quintile density	Wage Quintile				
	1	2	3	4	5
1	37.70%	10.40%	7.40%	5.00%	2.20%
2	16.20%	10.20%	7.40%	4.90%	2.10%
3	14.90%	10.00%	7.30%	4.80%	2.30%
4	14.10%	10.10%	7.10%	4.80%	2.22%
5	10.20%	10.10%	7.10%	4.70%	1.90%

Women					
Quintile Density	Wage Quintile				
	1	2	3	4	5
1	36.90%	10.50%	7.40%	5.00%	2.30%
2	18.30%	10.30%	7.40%	4.90%	2.30%
3	16.70%	10.10%	7.40%	4.00%	2.00%
4	16.20%	10.10%	7.20%	4.80%	2.30%
5	15.90%	10.10%	7.20%	4.70%	2.20%

Men and Women contributing between 18-65 and 18-60 years respectively

On the other hand, the fees structure is one of the ways that redistribution occurs within the pension system, producing a series of crossed subsidies between workers. In general, the existence of fees per contribution means subsidies going from those who pay contributions frequently towards those who do so sporadically. As regards the variable fee, this implies subsidy from those who have higher incomes towards those with lower incomes. Therefore, the elimination of the fixed fee reinforces these subsidies towards workers with lower incomes.

Source: Castro (2005).

Furthermore, it will be possible to charge a fee for the management of voluntary savings accounts (Account 2), set as a percentage of the balance accumulated in that account, as currently charged on APV accounts. This makes it possible to eliminate the crossed subsidy that currently exists from those who pay mandatory contributions to those who hold accounts of this type, and brings the fee charged under the heading of mandatory contributions closer to the real cost of managing these accounts.

CHAPTER 4

PENSION FUND INVESTMENTS

The very nature of a defined-contribution pension system makes the investment of funds a key activity of the AFPs, since it is directly responsible for ensuring that the resulting pensions are reasonable, in view of the contributions paid, the prudent investment of the savings and the performance produced by the financial markets. In this sense, the pension system's history of more than 25 years shows satisfactory results in this field.

These results are, to a large extent, fruit of a history of constant innovation and learning.

In the early days of the system the investments were restricted to a very limited set of eligible instruments (mainly public and private debt). Subsequently, in 1985, authorisation was given for investment in public offering shares of non-concentrated companies, followed by permission to invest in shares of issuers with concentrated ownership. Later, in 1990, the shares of investment funds and foreign fixed income were added, with foreign equities being included in 1994.

Though all these innovations were made with the aim of extending the pension funds' investment opportunities, multiple considerations affected their implementation, among them being the limited development of the capital market at the beginning of the 1980s, the existence of State guarantees and the rapid growth experienced by the pension funds relative to the supply of domestic assets, to name but a few.

The successful performance in managing the investments, plus the growing importance achieved by the pension funds in the local capital market and the growing development experienced by this market, have gradually made room for increasing degrees of flexibility in the area of investment regulation. Nonetheless, there is still some way to go, since the regulations are still based predominantly on quantitative investment limits.

4.1.- Diagnosis of Pension Fund Investments

4.1.1.- Developments in investment regulation

The regulation of investments adopted by the Chilean pension system has been based since its inception almost exclusively on quantitative investment limits, whereas the use of a more prudential type of regulation (e.g. the prudent person rule) has tended to be the exception. The above has to do mainly with the low level of development shown by the fund-management industry at the beginning of the 1980s, in addition to the financial crisis of the period, all of which produced an environment that was less than propitious for advancing towards a more prudential style of regulation.

Consequently, in the first stage, investment was allowed only in certain fixed-income securities, such as term deposits, mortgage-backed certificates, corporate bonds and government instruments, each of which was subject to its respective investment limit. Subsequently, in 1985, authorisation was given to invest up to 30% of the pension funds in the shares of non-concentrated, open companies, with the shares of concentrated companies only being included as from 1989. Following this, in 1990, investment fund

shares and commercial papers were authorized. That same year also saw the authorisation of investment in foreign fixed-income securities. All the modifications mentioned were always accompanied by new investment limits.

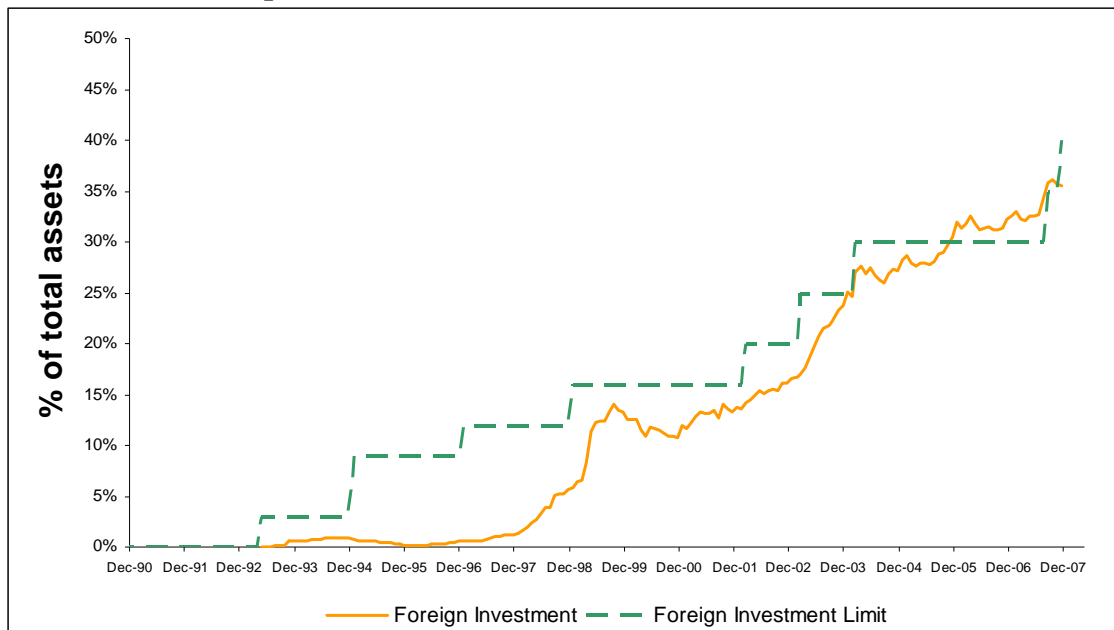
Then in 1994 other instruments became eligible (by the capital market law) - shares and share units of foreign mutual and investment funds, recognition bonds and shares not approved by the Risk Rating Commission (CCR) - and financial risk-hedging operations were authorized in international and local markets.

One of the most far-reaching modifications during these years corresponded to the Multi-funds Law in the year 2002, a reform which increased the number of funds offered by each AFP to five. These are differentiated by the maximum percentage of equities allowed. The motivation behind this measure was the belief that younger members have a natural preference for portfolios with a larger component of equities, unlike people approaching retirement. The definition of the rules for assigning individuals who have not expressly stated which fund they prefer followed this same line of reasoning.

The reform quoted above also increased the overall limit for overseas investment and incorporated new investment alternatives, such as instrument loan contracts, while at the same time establishing a limit on exposure in foreign currency without exchange-rate hedging. Another important element was the treatment given to investment regulation, which consisted in replicating the existing investment limits for each one of the five types of fund, which definitely raised the number of additional limits affecting an AFP.

As regards the evolution of investments in foreign instruments and the investment limits applied to these, it is possible to see in Figure 4.1 that from its beginnings (May 1993) until December 1997, investment in foreign securities was considerably below the maximum limits that had been set. However, as from that latter year it has increased significantly, mainly the equities component.

Figure 4.1
Developments of investment abroad and investment limits



Source: Superintendencia of Pensions.

4.1.2.- Developments in investment portfolios

During the period 1981-2007, the assets of the pension funds amounted to almost 60% of Chile's GDP, which, in absolute terms, is equivalent to almost US\$ 100,000 million. This makes them players of respectable size, by any standard, in the universe of fund-managers at worldwide level; Funke and Blommestein (1998) and Stultz (2007). During that period the composition of the pension funds' investment portfolios has changed significantly. As is shown in the following table, the AFPs began to invest in foreign assets following the changes in regulation in 1990 and 1994, opting preferably for international mutual funds, a decision influenced in part by the fact that it is the pension fund (and not the AFP) that incurs the trading costs by choosing this means of investment.

Table 4.1
Portfolio Composition of Chilean Pension Funds (%) 1983-2007

	1983	1990	1994	2000	2002	2003	2005	2007
State Sector	42.1	44.1	39.7	35.7	30.0	24.7	16.5	7.8
Government Bonds	16.5	1.5	0.2	0.0	0.0	0.3	1.9	1.5
Central Bank	25.6	42.5	38.5	31.9	24.4	19.1	10.6	3.7
Others	-	0.1	1.0	3.8	5.6	5.3	3.9	2.6
Financial Sector	55.8	33.4	20.1	35.6	35.0	27.3	29.8	30.3
Mortgage-backed Securities	42.9	16.1	13.7	14.4	11.1	8.8	5.0	3.6
Deposits	16.2	16.3	4.8	18.7	21.2	15.0	20.8	18.4
Others	0.7	1.0	1.6	2.5	2.7	3.5	4.0	8.3
Corporate Sector	2.0	22.4	39.3	17.6	18.4	24.0	23.2	26.2
Shares	-	11.3	32.1	11.1	9.0	13.5	13.9	14.5
Bonds	2.0	11.1	6.3	4.0	7.1	7.7	6.6	8.0
Others	-	-	0.9	2.5	2.3	2.8	2.7	3.7
Foreign Sector	-	-	0.9	10.9	16.4	23.8	30.4	35.6
Mutual Funds and Shares	-	-	-	8.9	11.9	20.4	29.3	34.7
Others	-	-	-	2.0	4.5	3.4	1.1	0.9
Liquid Assets	0.0	0.1	0.0	0.2	0.1	0.1	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Equities	-	11.3	33.1	23.1	24.2	37.9	48.0	54.7
Total Assets/ GDP	5.6	22.0	38.0	50.4	55.1	59.1	57.9	64.4

Source: Superintendencia of Pensions.

The following table shows that the composition of the portfolios of the various types of fund is consistent with the aims of the multi-fund scheme. While Fund A, designed to have more volatile assets, indeed possesses the highest level of local equities and foreign investment (mainly equities); Fund E, designed to be the least volatile fund, has the highest levels of domestic, government and corporate fixed income (mainly long-term). However, this result is to a large extent a consequence of the regulatory scheme. In particular, the AFPs currently have a limited range of action, having used practically all the equities permitted for the 4 funds that are allowed to invest in equities (80%, 60%, 40% and 20%, respectively), as also in foreign investment, where a global limit of 45% was applied to the sum of the investments of each AFP, prior to Law 20,255.

Despite the difference observable among the different types of fund, the introduction of the multi-funds does not seem to have changed the AFPs' investment base to any dramatic extent, meaning that the universe of the assets in which they invest is essentially the same as in the period prior to the Multi-funds Law.

The pension funds' portfolio in this period has also been influenced by lack of liquidity, a high degree of concentration and a relatively small local capital market. The rapid growth of the pension funds, due to the monthly contribution payments, creates the need for a constant "additional assets search", which is unusual in other relatively small countries.

Table 4.2
Composition of the Pension Funds per Type of Fund, Dec. 2007

	A	B	C	D	E	Total
State Sector	1.93	4.88	10.30	16.99	15.84	7.84
Central Bank	0.73	2.06	4.89	9.55	3.93	3.72
Central Govt.	0.59	0.93	1.98	2.64	2.38	1.49
Recognition Bonds	0.61	1.89	3.43	4.80	9.52	2.64
Financial Sector	19.98	28.96	33.25	42.01	55.83	30.34
Mortgage-backed Securities	0.99	2.15	4.69	7.01	15.76	3.63
Deposits	14.16	20.18	18.49	23.72	19.04	18.38
Financial Institution Bonds	3.48	5.40	9.05	10.61	21.03	7.23
Financial Institution Shares	0.59	0.70	0.78	0.49	0.00	0.68
Forwards	0.75	0.54	0.24	0.18	0.01	0.42
Corporate Sector	21.36	23.85	29.90	26.97	28.12	26.18
Shares	13.98	14.73	16.22	10.38	0.00	14.51
Bonds and Commercial Paper	2.42	5.42	10.19	14.58	28.10	7.96
Investment Fund Shares	5.02	3.68	3.45	2.00	0.00	3.68
Others	0.02	0.02	0.03	0.01	0.01	0.03
Foreign Sector	56.67	42.24	26.46	13.91	0.06	35.57
Mutual Funds Shares/Units	55.80	41.59	25.93	11.69	0.00	34.76
Fixed-Income	0.84	0.62	0.50	2.01	0.15	0.75
Forwards	-0.01	-0.01	0.00	0.00	0.00	0.00
Others	0.03	0.04	0.03	0.21	0.01	0.05
Disposables	0.05	0.06	0.09	0.11	0.06	0.08
Total Assets	100.0	100.0	100.0	100.0	100.0	100.0
Total Assets (Millions of US\$)	26,298	25,294	46,640	11,223	1,582	111,037
Total Equities	75.32	60.70	46.38	24.56	0.00	53.63

Source: Superintendencia of Pensions.

In comparison with the international environment, the composition of the Chilean pension funds presents some distinctive elements. The large stock of term deposits is an eye-catching feature, even bearing in mind the funds' needs for liquidity and possible interest-rate expectations. In the opposite direction, something similar occurs with domestic shares. Another aspect that grabs the attention is the fact that investment in the private shares segment (represented by investment funds) is almost non-existent, after over 20 years of the system's operation; this latter, despite the fact that this is an attractive asset class when well-managed, in addition to the contribution that it can make to innovation and the development of new companies.

Table 4.3
Composition of the Pension Funds(%): Chile and Selected Countries

Country	Disposable and Deposits	Bonds	Loans	Shares	Others	Total	Foreign Inv.	Assets/GDP
Chile (2005)	21.0	31.1	0.0	46.9	1.0	100.0	30.4	58.0
Australia (2002)	7.7	19.8	3.9	59.8	8.9	100.0	19.1	67.4
Canada (2001)	0.4	40.7	2.9	49.6	6.4	100.0	21.4	48.2
Denmark (2001)	1.3	49.2	1.6	45.6	2.3	100.0	25.0	23.8
Ireland (2001)	2.8	21.4	0.0	65.6	10.2	100.0	67.8	44.7
Netherlands (2001)	1.5	34.7	8.8	49.5	5.4	100.0	65.0	105.1
Spain (2000)	16.0	50.9	0.6	21.0	11.5	100.0	34.3	6.8
Switzerland	7.3	31.2	12.0	33.9	15.6	100.0	25.0	121.1
U.K. (2001)	3.2	13.9	0.0	60.9	22.1	100.0	22.9	69.2
U.S.A. (1998)	3.6	20.9	1.6	61.6	12.2	100.0	11.0	72.0

Source: Superintendencia of Pensions.

4.1.3.- Evaluation of the Regulation and its Impact on Investments

Quantitative investment limits

The logic behind the use of quantitative investment limits has to do with protecting the pension funds' investments from a number of factors. On the one hand there are limits that seek to achieve healthy management of the investments. This group includes maximum limits per instrument, group of instruments and issuer, which aim to guarantee either a minimum degree of diversification or differentiation of the different types of fund, according to the multi-fund scheme, and those directed towards limiting investment in securities that are non-liquid, those with no history, with a low risk rating or in firms with high ownership concentration. On the other hand there are investment limits designed to avoid the occurrence of potential conflicts of interest (e.g. limits with related issuers) or the possibility of the pension funds' acquiring a controlling interest in a company. In the evaluation carried out below, the approach is mainly directed towards the investment limits that seek to safeguard healthy management of the investments.

One of the most distinctive features of pension fund investment regulation in Chile is the fact that the vast majority of investment limits are stipulated directly in the Law, which obviously restricts the agility and flexibility with which regulations ought to react, in an area as dynamic as that of investments.⁷⁴

Furthermore, the almost exclusive use of quantitative investment limits as a regulation tool may not in fact pick up all the relevant risks in an appropriate manner. What is more, this form of regulation has costs in diversification, which are reflected in the fact that, for the same level of volatility (or value-at-risk, or tracking error of the pension funds, compared with a relevant reference portfolio) it would be possible to achieve higher expected returns than those being achieved at present. On this point, Berstein and Chumacero (2006) show that the losses in expected return, prior to the implementation of the multi-funds, may have bordered on 10% of the value of the funds under management for an average member, which is obviously a sign of the high cost that this type of regulation may involve.

On the other hand, there is the fact that the risk to which the pension funds' investments are exposed (whatever form may be used to measure it, provided that it is appropriate for achieving the purposes of the system) is an unknown factor for members, AFPs and the supervisory body.⁷⁵ As a result, the adoption of risk-based regulation for the case of investments would not only allow all those involved to take decisions on the basis of the variables that really matter, but would also allow improvements in the risk–return combination of the investments and, in the end, in the pensions to be received.

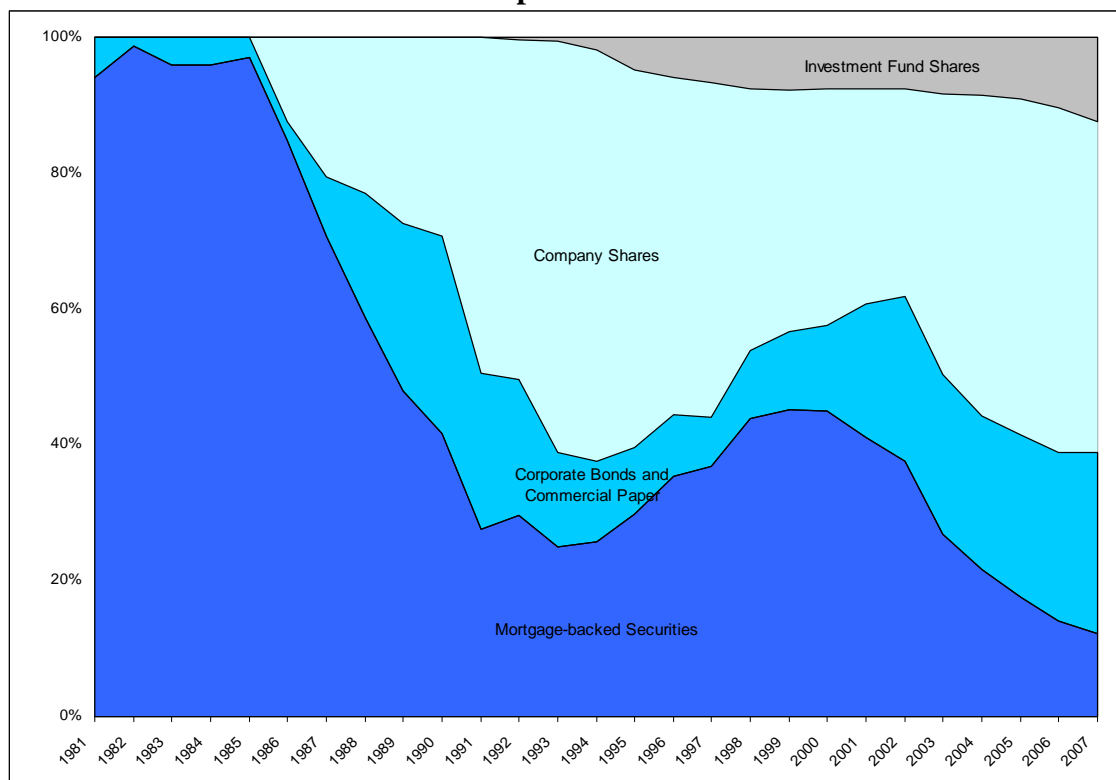
The use of quantitative investment limits may also encourage less intense competition among the AFPs. This is because it has a direct effect on the asset allocation that they carry out, and empirical evidence suggests that this has been guided to a considerable

⁷⁴ For an example, see articles 45 and 47 of D.L. 3,500 (1980), prior to the recent pension reform.

⁷⁵ It is worth stating that the AFPs keep a close watch on the relative volatility (or “tracking error”) of their positions in relation to those of the system. However, this practice serves to protect against only part of the risk that matters most for the members as a whole, whereas measuring the fluctuations to which the future pension is exposed is currently an area which has not been tackled by the AFPs.

extent by the structure of investment limits. In particular, in Figure 4.2 below it is possible to see that investment diversification reflects, to a large extent, the changes in regulation.

Figure 4.2
Developments of pension fund investment in securities that finance the local productive sector



Source: Superintendence of Pensions.

Specifically, as regards investment in securities that finance the local productive sector, it may be seen that, between the years 1981 and 1985, practically all the funds under management were invested in mortgage-backed securities. Then, from 1986 onwards, one sees a diversification of investments, with a movement into corporate bonds and company shares. Local investment fund shares, for their part, were added in 1991, and there was a significant increase in investment in shares, while in the last few years there has been more investment in shares, followed by investment in mortgage-backed securities and corporate bonds, with investment in local investment fund shares further behind.

The use of investment limits also leaves room for certain inconsistencies. One of these is the distinction made in the regulations between short and long-term debt, more room being allowed for the latter. Though it is possible (depending on the risk-free referent defined) that long-term equities may pose a lower reinvestment risk from a long-term investor's point of view, it is not clear that this is always the case. Another emblematic example is that of the differences between local issuers and foreign ones, which may potentially have lower credit risk, but this is not recognised by the regulations.

Another distinctive element of regulation via investment limits is that given by the numerous investment limits that were inactive or presented substantial amounts of unused capacity prior to the reform.

Investment Abroad

One of the regulations that calls for special mention is that referring to pension fund investments in foreign issuers, which, as we said earlier, was authorized in the early 1990s and began to assume real importance towards the end of that same decade.

Authorisation to invest in foreign issuers has undoubtedly been a controversial issue in all the countries that have emulated the Chilean pension model. In Chile it was surrounded by a number of different considerations. In the first place, there was the possibility of taking advantage of the benefits of diversification, which is a matter of particular relevance in Chile's case. This is because pensions represent the main source of income for the vast majority of pensioners [CASEN (2006)], making it even more important to have alternatives available so that the risk caused by recessive episodes, whether local or regional, can be reduced.

In the above case the pension funds would also have the possibility of gaining access to securities in industrial sectors that do not exist in the local market, which in turn allows the system's members to reduce the loss in welfare caused by the impossibility of achieving better risk allocation inside the economy.⁷⁶ In this same line of argument it is worth mentioning the possibility of access to financial instruments that do not exist in the local market, such as bonds with a greater life to maturity, which may allow the pension funds to cover fluctuations in future annuities, which by definition can be assimilated in a portfolio of fixed-income instruments. A further possible benefit would be the potential natural coverage that could be achieved by investing in currencies that tend to appreciate when faced with the recessive events occurring in the Latin American region. Furthermore, international diversification makes it possible to cover the investments against factors proper to the local market, such as natural disasters and economic cycles.

Towards the end of 2005 this investment limit had practically no unused space. In this respect, one of the arguments in favour of increasing it corresponded to the fact that its contribution to the volatility of the pension funds' volatility had been minimal, whereas the contribution to the average return of the portfolio had been substantial.⁷⁷ Furthermore, Ibbotson and Kaplan (2000) find that almost 90% of the return on managing a fund comes from the decisions concerned with allocation between asset classes, which points in the direction of avoiding the imposition of restrictions that might limit these decisions.

An element in addition to that of diversification has to do with giving the pension funds the possibility of accessing markets with more liquidity and depth.

⁷⁶ Notice that the argument requires individuals to be restricted whatsoever from access to foreign securities markets. Although a restriction of that nature is absent in Chile's case, the low participation of individuals in the stock markets is a well-documented fact that allows the point to be made anyway.

⁷⁷ Using information from January 1998 to June 2004, it is possible to demonstrate that the contribution to the volatility of the portfolio has been in the order of 0.01% per year (compared with a starting value of 1.56% resulting from investment only in domestic assets), while the contribution to average annual return has been 0.07% (compared with a value of 6.6%, resulting from investment only in domestic assets).

In this sense, it is necessary to analyse the ratio between the growth of pension funds and the supply of domestic instruments. With regard the supply of domestic instruments, the following table shows that the pension funds have a substantial share in the local fixed-income market – almost half the market of corporate, mortgage and government bonds and a third of the deposits. The only one of the main domestic markets in which the funds appear to be under-represented is the share market – less than 10% of the market. This relatively low investment may however be due to the structure of the local market, with companies that are highly concentrated. This may also be behind the AFPs’ timid incursion in the investment fund and private share market.

Table 4.4
Financial Assets (% GDP) and Supply of Securities (%), 1995-2006

Year	Market Capitalization (% GDP)	AFP (%)	Corporate Bonds (% GDP)	AFP (%)	Mortgage Backed Securities (% GDP)	AFP (%)	Public Bonds (% GDP)	AFP (%)	Deposits (% GDP)	AFP (%)
1995	102.2	10.7	3.4	55.3	10.3	60.3	27.3	49.9	23.2	8.3
1996	89.5	10.9	3.1	55.5	12.1	60.3	28.7	50.6	26.7	5.9
1997	90.9	10.0	2.4	53.2	13.4	54.3	30.3	46.9	29.8	14.0
1998	67.1	8.9	2.9	51.9	13.5	53.9	27.6	54.9	33.2	16.6
1999	97.1	6.3	3.7	51.0	14.3	58.8	29.1	52.4	36.6	21.7
2000	85.2	6.9	5.1	39.8	14.1	58.8	27.5	58.8	35.7	26.6
2001	85.3	6.6	9.3	35.4	14.6	54.7	28.1	57.0	34.6	27.0
2002	73.7	7.4	11.5	34.3	13.0	55.2	26.8	50.0	34.3	34.1
2003	100.2	8.4	11.4	38.9	12.3	48.3	20.1	56.2	30.1	29.0
2004	111.6	7.7	10.3	39.4	10.1	45.1	15.4	52.7	32.8	34.9
2005	105.6	7.6	9.5	42.9	8.4	50.5	14.5	55.5	35.4	34.5
2006	119.6	8.2	10.4	45.9	6.2	85.6	9.7	60.5	37.0	28.8

Source: Superintendencia of Pensions and Central Bank of Chile.

Furthermore, if one forecasts the growth of the average annual supply of domestic securities using the average growth of the last few years (3%), using the forecasts found in Zurita (2005), one finds that, by the year 2020, the percentage represented by the pension funds in the supply of domestic securities would have risen from 37% to almost 64%. All in all, these results suggest that the demand from institutional investors could generate pressures on the price of domestic assets in the long run, which would obviously have a negative effect on future pensions.

A third element to be highlighted concerns the fact that current regulation sets an overall limit on foreign investment. This fact, combined with the coming into force of the multi-fund scheme, has resulted in a kind of conflict of interests within the AFPs themselves. This is because the people in charge of managing the different types of fund are faced with the problem of allocating the amount available for overseas investment between the different types of fund managed by the AFP. Prior to the reform, the conflict had been resolved in favour of the A and B-Type funds, which showed over 40% of the portfolio in foreign investments, while the C, D and E-Type funds showed percentage between 25% and 2%, respectively.

Eligible instruments

As regards the availability of investment alternatives for the pension funds, though there are now a number of financial assets in existence, both fixed-income and equities, in

which the Funds' resources can be invested, prior to the reform there were various instruments that were not authorized by law, which could potentially have provided greater diversification and/or more return for the Pension Funds' investment portfolio. For example, the Law prohibited investment in fixed-income securities that were below investment grade, in other words, the Funds' resources could only be invested in instruments classified in risk categories equal to, or higher than, N-3 and BBB, for short and long-term instruments, respectively. This applied to both local and foreign debt securities.

In this respect, although the possibility of investing in a number of risk categories existed, the Funds' investments were concentrated in the instruments with lowest risk (Table N° 4.5, below), with limited exposure of the Funds in more risky securities, even in the case of the A-Type Fund, which by definition should be concentrated in instruments with higher risk. This situation may be explained by a limitation that the AFPs had imposed on themselves: that of excluding instruments with a borderline rating (N-3 and BBB) from the Funds' investment portfolios, due to the fact that a possible fall in rating would mean their having non-approved instruments in their portfolio.

Table 4.5
Pension fund investment by risk category
Figures as % of all assets as of June 2004

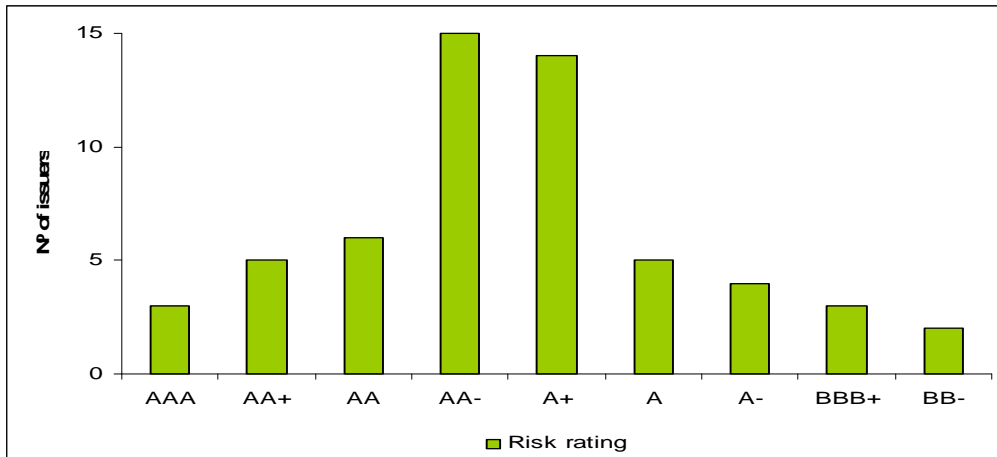
		AAA-AA and N-1	A and N2	BBB and N3	Government
Fund Type A	Total	16.97%	0.49%	0.10%	5.40%
	Local	16.45%	0.49%	0.05%	5.40%
	Foreign	0.52%	-	0.05%	-
Fund Type B	Total	29.48%	1.99%	0.16%	14.50%
	Local	28.15%	1.96%	0.09%	14.50%
	Foreign	1.32%	0.03%	0.07%	-
Fund Type C	Total	35.64%	3.37%	0.25%	20.98%
	Local	32.50%	3.30%	0.08%	20.98%
	Foreign	3.14%	0.07%	0.17%	-
Fund Type D	Total	42.12%	4.15%	0.51%	32.24%
	Local	37.44%	3.71%	0.16%	32.24%
	Foreign	4.68%	0.44%	0.35%	-
Fund Type E	Total	44.43%	5.66%	1.21%	47.52%
	Local	36.13%	5.29%	0.54%	47.52%
	Foreign	8.30%	0.38%	0.67%	-

Source: Superintendence of Pensions.

In any case, it can be seen that the bonds issued by local firms are rated mainly in the low-risk categories, mainly AA and A (Figure N° 4.3). One of the reasons that may explain this situation would be the fact that small and medium-sized firms have little interest in issuing instruments, since a low rating would limit their possibilities of obtaining funding from institutional investors such as the pension funds, given the existing restrictions.⁷⁸ This situation differs from the foreign case, where a high percentage of corporate debt is rated in categories A and BBB.

⁷⁸ Cifuentes et al. (2002)

Figure 4.3
Rating of Chilean corporate debt, number of bond issuers and line of bonds
July 2004



Source: Feller-Rate.

In another aspect, the Law limits the pension funds' use of derivative instruments exclusively to the hedging of financial risk, prohibiting their use as investment instruments. Even with regard to hedging, only rate and currency hedging was allowed. The aim was to insulate the Funds against the risks that such transactions might imply for the investments. However, this prohibition means costs in terms of efficiency, because the possibility of investing in assets such as financial indexes, for example, is limited to the use of investment vehicles such as mutual funds, which are normally more expensive than the use of derivatives.

Indirect investment

Prior to the reform, the investment regulations did not deal with the indirect investment arising from investing, for example, in investment funds or mutual funds. In the past, this led to the creation of investment vehicles designed exclusively to avoid complying with certain investment limits. This definitely distorts the investment instructions (as laid down in the Law) which the AFPs are bound to follow.

That also meant that operations that complied with the regulatory requirements if they were carried out in a particular manner, did not do so if the investment vehicle selected were a different one. This was the case, for example, with investment in debt securities when carried out via mutual or investment fund shares, since those vehicles are defined as equity instruments.

Risk-Rating Commission

Risk-rating the instruments in which pension funds can be invested constitutes an essential mechanism for purposes of managing the credit risk of the investment portfolio. At present, risk-rating is a requirement that has to be met by issuers of debt securities, in order for these to be eligible for the pension funds.

The CCR was set up in 1985, to make up for the absence of private risk-rating in the market. It consists of personnel from the three Superintendences of the financial area, in addition to members appointed by the AFPs. Some of its most important functions are:

- a) To approve or reject instruments representing capital, debt and risk-hedging that are eligible to be acquired with the Funds' resources.
- b) To assign a risk category to local debt instruments and approve, modify or reject the ratings granted by international bodies to foreign debt instruments.
- c) To establish risk equivalences for ratings of foreign debt securities carried out by international bodies.
- d) To establish the calculation methodology and value limit for the minimum requirements established by law for local shares.
- e) To establish specific approval procedures for the shares of local investment and mutual funds, foreign instruments representing capital and risk-hedging, hedging operations in the local market and other instruments referred to in letter l) of article 45 of D.L. 3,500 (1980).

Originally, the risk categories were assigned by the CCR in accordance with procedures established by the CCR itself. Subsequently, together with the development of the private risk-rating system which began to operate at the end of 1988, the private risk-rating firms were incorporated formally into the risk-rating process through a legal reform effected in 1994. This gave more weight to the reports of the private risk-rating firms.

At present, the industry of private risk-rating firms has accumulated experience, establishing itself as a consolidated industry that has contributed to financial disintermediation and has produced relevant information for discerning the credit risk of securities. Currently the three most important world risk-rating agencies are present in Chile through local agencies.

The consolidation of the risk-rating firms is reflected in the fact that the ratings granted by those bodies are ratified by the CCR in the vast majority of cases. The CCR also gives ratings to local equity securities, an area where it can be seen that, in the great majority of cases, those securities that meet the requirements stipulated by law are approved by the CCR. Meanwhile, in the case of foreign debt securities the CCR's work is almost nil, since for purposes of Pension Fund investment, the only reports considered are those of the international risk-rating firms, without the CCR being involved in this process.

The above details describe a scenario that shows a development in the CCR's role and in the need to rely on it in the various markets. In this sense, an area in which it is possible to see clear added value for the industry in the presence of the CCR is the case of foreign mutual funds.

Investment policies

The AFPs' task is strongly marked by the fiduciary duty surrounding the job of managing third-party funds. Among other aspects, that duty includes that of investing the resources in the best interests of the members, and this is captured in the legislation. The legislation states specifically that the AFPs' only purpose is to safeguard the adequate yield and security of the investments. Naturally, this declaration lacks substance to a certain extent if the "adequate yield and security" is not embodied in the AFPs' investment process, through their investment policy.

In the light of this, the SP issued a circular requiring the AFPs to prepare and publish their investment policies. However, in the Law prior to the reform there was no explicit mention of the AFPs' investment policies, a situation that contrasts with the importance that these ought to have and with what happens in pension systems established in other countries, where fund managers make the general outlines of their investment decisions public, as well as their positions in matters related with the management of the assets.

Though it is true that the regulations prior to the reform did not leave much room for AFPs to use investment strategies that meant their differentiating themselves very much from their competitors, the fact that the reform concedes higher degrees of freedom makes it necessary to introduce greater demands in relation to the AFPs' fiduciary duty. One of these obliges the board of directors and main executives (as best market practice) to prepare investment policies, which state publicly the criteria by which each AFP intends to fulfil the instructions that govern its operations. The same thing happens with preparing risk-management policies in the investment area, to include operating and legal risk.

The herding effect

Another of the components of investment regulation has to do with the scheme of rewards and penalties affecting the AFPs. The investment regulations specifically include a penalty for any AFP that obtains a lower average yield than the system, including certain degrees of latitude depending on the type of fund involved, according to the classification introduced by the Law on Multi-funds.

Although there is a penalty for a lower-than-average performance, there is no effective reward for a good performance. In fact, if an AFP did have a period of yield that was far above the average, considering a latitude symmetrical to that of the penalty, then a Yield Fluctuation Reserve had to be set up. This Reserve was invested in the Fund's own shares and, potentially, if the AFP fell below the minimum yield, it was possible to use those resources to cover the difference. The result of this in practice was that when a sufficiently high yield was achieved this was not reflected in increased profits for the members and in fact, by withdrawing the resources to make up the reserve immediately after the event, a fall in yield might occur for that very reason. For the AFP, meanwhile, it produced virtually no expected effect on net worth and, as far as the members were concerned, an undesirable transference of wealth took place.

It is worth stating that the introduction of incentives in the fund-management industry is a habitual practice internationally. A distinction is made between reward and penalty schemes based on external reference portfolios (relevant indexes of stocks and fixed income), and those that take the industry itself as the base; see, for example, Blake and Timmermann (2002). Whichever option is adopted, the basic idea is to encourage fund managers to weight their investment decisions with those derived from the corresponding reference portfolio.

The weighting in question will possibly be influenced by the AFPs' level of risk-aversion. Specifically, to the extent that they are afraid of being penalised, they will choose not to distance themselves too much from the reference portfolio.

Another of the natural consequences of this type of regulation is the resulting need to keep all the AFPs informed about the industry's investment portfolios, so that all of

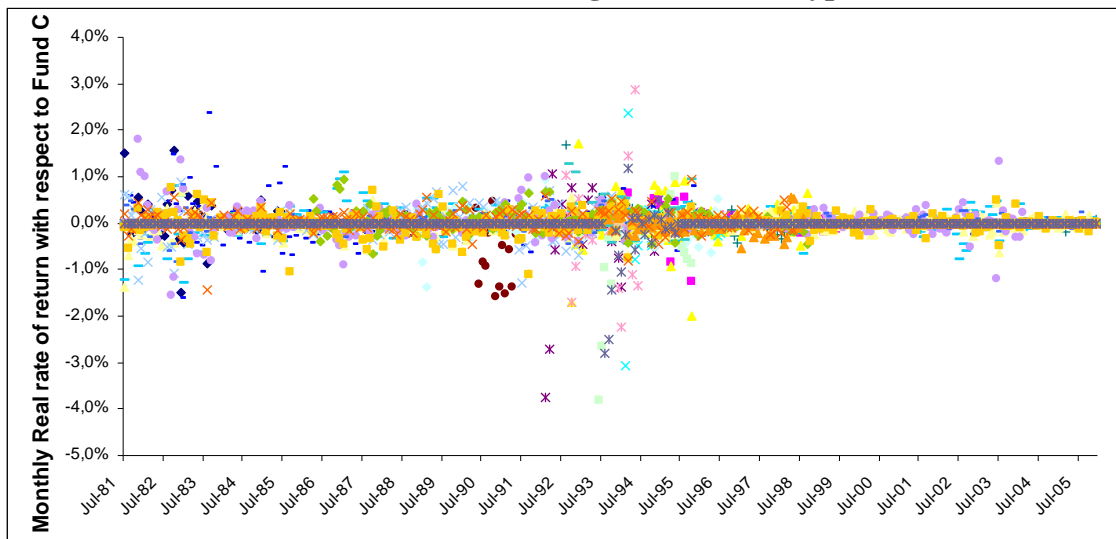
them are acquainted with the reference portfolio. This obviously entails the disadvantage of reducing the profitability of innovation in matters of investment decisions, since these are subsequently known by the rest of the competitors.

On this point, however, the type of competition that exists in the industry is also relevant. In this respect, if it is stated in terms of the yield ranking among AFPs instead of absolute differences in yield, it is possible that the investment strategies adopted would include only small deviations in relation to competitors, even in the absence of any type of regulation implying rewards or penalties on the basis of relative performance. This would be due to the fact that, for an AFP, the loss of competitiveness in the industry may be as equally or more relevant than the existing regulations.

To summarise, this means that, all things considered, the result observed will be the consequence of different factors, among which are: (1) the prevailing incentives scheme, (2) the quality and availability of information about the reference portfolio and (3) the way in which competition develops in the industry.⁷⁹

The following graph shows the monthly yield obtained by the whole group of AFPs in existence since the system began, compared with the average yield.

Figure 4.4
Return of AFPs versus average return on C-type funds



Source: Superintendencia of Pensions.

From the graph it is possible to infer the growing similarity in performance shown by the different AFPs, which is a reflection of increasingly similar investment strategies. Nevertheless, it is difficult to separate the role played in this result by each of the factors previously mentioned.

⁷⁹ Specifically, this means that the existence of the incentives scheme currently in force (i.e. the minimum yield requirement) may not necessarily be directly responsible for the “herding effect”.

4.1.4.- Investment regulation in other countries

The Role of Quantitative Restrictions

If one compares the investment regulations affecting Chilean pension fund investments with those existing in other countries, it is possible to observe marked differences arising from the characteristics of the pension system in question. In particular, it is possible to find differences based on whether the savings are voluntary or mandatory.

In the case of systems with voluntary savings, such as those prevalent in certain countries belonging to the Organization for Economic Cooperation and Development (OECD), it may be seen that all of them apply some kind of quantitative restriction, the most common being one that limits investment in issuers related with the person managing the fund's investments. Additionally, some countries have introduced restrictions per asset class and on investment in foreign issuers, mainly from countries that do not belong to the OECD. In any case, these restrictions are much more flexible than those observed by the AFPs in Chile.

Furthermore, in OECD countries with voluntary systems and more highly-developed financial systems, investment restrictions are generally based on the prudent man rule, according to which the managers of a fund's investments should manage those investments with the same care that a prudent individual would use when acting in his/her own interests. Nevertheless, there are very few cases in which the prudent man rules are applied in an extreme form. In particular, in the case of pension funds the prudent man rule is accompanied by quantitative restrictions for investments in related issuers or by standards that introduce concepts of maximisation for the security and yield of the investments; Davis (1998). In the case of pension funds in England and the United States, for example, regulations have been established to restrict investments in related issuers, among others of a more general nature.

On the other hand there are countries in the OECD with mandatory and voluntary systems of saving, where a variety of quantitative restrictions are applied to investments, including maximum limits for certain asset classes (mainly shares), company bonds, investment funds and real estate, in addition to restrictions for related issuers and investments in foreign assets. In this sense it is worth emphasizing that in all these countries the investment limits are set on the basis of the value of the fund and are quantitatively more restrictive than the Chilean case.

The results obtained by the OECD pension funds prove that the real yields obtained with regulations based on the prudent man have been higher than in the case of funds with less flexible regulations. This appears to be explained mainly by the percentage of shares in the investment portfolio. However, the differences obtained cannot be explained entirely by the scheme of investment regulations, since in some cases these turn out not to be restrictive; Rocha et al. (1999). In this sense, the specialized literature states that more restrictive regulations are appropriate for private pension systems with mandatory savings that are in the implementation stage, or with capital markets and a regulatory structure that lack development. The above is to protect investors who are obliged to participate in the systems that have been set up and who in most cases have very little experience in the matter. This literature also concludes that the regulations on investments become less important as regulatory frameworks improve and capital markets also develop.

In the case of mandatory savings systems, the restrictions imposed on fund investments are considerably greater than those established in voluntary systems. In particular, countries with shallower capital markets, where savers have less investment culture, present greater restrictions. In this same area, there are regulations on the performance of the funds, to guarantee that minimum yields are obtained. These seek to guarantee a minimum standard of performance and at the same time, to mitigate the fiscal cost of the guarantees offered by governments; Turner and Rajnes (2001). In the cases of Mexico and Poland in particular, it may be seen that Chilean regulation is considerably more complex and difficult to interpret than that of those countries. This is due mainly to the number of restrictions imposed.

Inset 4.1 International Experience

The OECD brings together a number of countries with pension funds. The vast majority of these are voluntary and coexist alongside (mandatory) pay-as-you-go schemes. Regulation of investment abroad for the OECD countries is wide and varies from total prohibition on foreign investment, as in the case of Mexico, to complete absence of restrictions. In addition to Mexico, the main OECD countries that do have restrictions on these investments are:

- Denmark: 70% of the value of the assets for issuers from OECD countries, except for bonds from countries that have no limits; 10% of the assets for other foreign securities from other countries.
- Portugal: without limits for issuers from OECD countries; 15% for countries outside the OECD and for unquoted securities.
- Spain: without limits for issuers from OECD countries; 90% for instruments quoted in recognised markets; 15% for deposits and other monetary assets.
- Canada: 30% of the assets.
- Finland: 95% of the assets may be invested in countries belonging to the European Economic Association (EEA). 5% of the value of the fund may be invested in OECD countries that do not belong to the EEA.
- Poland: 5% of the assets.
- Hungary: 30% of the value of the funds Up to 20% of the total invested abroad may be invested in countries that do not belong to the OECD.

For countries such as Australia, the Netherlands, Ireland, England, Japan and the United States, there are no restrictions on foreign investment.

Table 4.6
Main Characteristics of Investment Regulations in AIOS Countries

Question/Country	Argentina	Chile	Colombia	Costa Rica	Mexico	Uruguay
1. Compulsory risk measurement of Fund portfolio by law	No	No	Yes	Yes	Yes	No
2. AFPs send their investment policies to the supervisory authority and inform the public	No	No	Yes	Yes	Yes	No
3. The sending of investment policies to the supervisory authority and information to the public is supported by some body of law	-	-	Yes. Basic Legal Circular	Yes. Investment Regulations	Yes. CONSAR Circular 10	-
4. There are limits per instrument	Yes. Maximum limits	Yes. Maximum limits	Yes. Maximum limits	Yes. Minimum and maximum limits	Yes. Only maximum limits	Yes. Maximum limits
5. There are limits per group of instruments	Yes. Maximum limits. Exception: Regional economies have minimum limits (for state AFP)	Yes. Maximum limits. Exception: investment in equity instruments has minimum limit.	Yes. Maximum limits.	Yes. Maximum limits.	Yes. Maximum limits (per risk-rating level)	Yes. Maximum limits.
6. There are limits per issuer	Yes. Set as a percentage of the Fund	Yes. Set as a percentage of Fund, net worth, value of assets	Yes. Set as a percentage of the value of the Fund	Yes. Set as a percentage of the total investments	Yes. Set on the basis of the credit risk rating	Yes. Set on the basis of the AFAP's assets
7. Investment is authorized in issuers related with the AFP	No	Yes	Yes	Yes	Yes. Exception: when issuer is a financial institution	No
8. There is a body to approve the instruments in which the Funds can invest	No	Yes	No	No	No	Yes
9. For the above, who performs the function?	-	Risk-Rating Commission	-	-	-	Central Bank of Uruguay – Stock Market and AFAP Control Division
10. Requirements to be met by local debt instruments to enable Funds to invest in them	Authorisation to be quoted in some Market authorized by the National Securities Commission for the FJP and minimum rating (A and BBB as appropriate)	Being in a risk-rating category equal to or higher than BBB or N-3, as appropriate and approved by the CCR	Being in risk-rating category BBB and 3, as appropriate Inscription in the National Register of Securities and Intermediaries Exception: Public Debt		To be securities traded on the formal stock market (centralised and OTC) that are registered in the National Securities' Register	In general transactions must be carried out in the official markets of stock exchange (there are exceptions)

Source: AIOS. Asociación Internacional de Organismos de Supervisión de Fondos de Pensiones (International Association of Pension Funds' Supervisory Authorities).

The Role of Investment Policies

In the international sphere, the managers of mandatory pension funds in Hong Kong are obliged to stipulate their investment objectives, while in the case of United Kingdom pension funds, the investment strategy to be followed by the manager must be identified. Meanwhile, in a review of the mandatory requirement to have public investment policies, the case of the fund that manages pension savings for public employees in the State of California, CALPERS, is worthy of special mention. That fund has documents available for the general public which give a clear description of the management's investment policies.⁸⁰ In this respect, the fund's management describes, among other things, the asset allocation criteria, investment objectives, investment strategies, the people and groups of people responsible for investment decisions and handling of assets, the reference portfolios to be used and systems for monitoring the investments for different asset classes, such as shares, real-estate properties and corporate bonds.

In its policies this fund also explains its approach to management issues, such as corporate governance policies, the handling of confidential information inside the company, management of investment decisions, participation in boards of other companies, for example, among other matters. At the same time, policies are defined for drawing up investment plans and reviewing them within predefined periods, but with the power to make changes in specific situations.

Specifically, in relation to the investment policies for shares, the CALPERS management prohibits investment in tobacco company shares and defines guidelines for asset selection and use of currencies and derivatives, among other aspects. Meanwhile, for fixed-income instruments, it lists the duration or term requirements of the different types of instrument, limits according to the assets' risk rating, general guidelines for managing investment opportunities, use of derivatives and currencies and the prohibition to invest in tobacco company bonds.

Another example of public investment policies is found in the English pension funds, Hermes, which provides information on its Website about the general thrust of its investment policy and its principles in relation with conflicts of interest and matters of corporate governance.⁸¹

In another aspect, the investment policy laid down by the Dutch pension fund PGGM is worthy of special mention.⁸² It states the principles supporting its investment decisions, among them being the exclusion of investments that may involve the production and sale of arms and violations of human rights. Another principle is that of "best in class", by which a ranking of companies is made in relation to investment sustainability, with the aim of selecting shares to make up the Fund's portfolio. Lastly, a third principle is that of commitment, by which an active dialogue is maintained with the companies where the Fund's resources are invested, with the aim of encouraging practices related with social responsibility and environmental issues.

A final relevant example is that of the recent ruling of the European Community which has stipulated that bodies providing retirement coverage in countries belonging to the

⁸⁰ See www.calpers.ca.gov

⁸¹ See: www.hermes.co.uk

⁸² See: www.pggm.nl

European Union have the obligation to publish information on the fund's investment policy. With regard to this, it is suggested that publishing documents related with the funds' investment policies is a way of forcing fund-managers to take certain decisions concerning the management of assets and liabilities and act with a sense of perspective in their overall strategy in investment matters.⁸³ Specifically, the ruling stipulates that, provided that there are important changes in the pension funds' investment policy, information must be published every three years about the principles on which the investment policy is based, in relation with the nature and duration of its commitments under the item of pensions. Furthermore, the information must include a description of the methods used for measuring risk, and the risk-control processes that are employed. It is also stated that the documents must be sent to the supervisory authorities, who will check whether the real investments coincide with the principles expressed.

4.2.- Measures on investment issues contained in the reform

In view of the very nature of the investment function in a system of individually funded pensions, investment regulation has been one of the areas that has undergone most changes in these 25 years plus of the system's operation, always in the direction of moving towards more flexible rules, balanced by increased demands for management within the AFPs.

In fact, one of the main conclusions of the diagnosis carried out on the pension funds' investment regulation scheme, is the need to simplify and incorporate greater degrees of flexibility in the investment regulation process, gradually increasing self-regulation and healthy management requirements inside the AFPs. In this context, there is an obvious need for the AFPs to provide the users of the system, and the general public, with more information about their investment policies.

Another fact that can be inferred is the need to make restrictions on foreign investment more flexible, in view of the growing size that the pension funds are expected to reach and the limited supply of domestic instruments.

At the same time, emerging from the analysis carried out, is the need to advance towards measurement of the financial risk to which the pension fund investments are exposed, in order to gradually replace an imperfect risk-control tool, such as quantitative investments limits, with a tool that is better suited for that purpose.

Listed below are the main modifications in the area of Pension Fund Investment. The main core of these modifications is the greater flexibility provided by the Law. This implies the introduction of a new institutional structure in matters of investment regulation, which will consist of the SP and the Technical Investment Council (CTI). From their interaction will emerge what is known as the Investment Regime (RI), ratified by the Ministry of Finance. The RI is the standard that regulates the investment of pension funds in matters stipulated in the Law.

⁸³ Proposal by the Directive of the European Parliament and Council concerning the activities of the bodies that provides retirement pensions.

4.2.1.- Structure of investment limits

Leaving aside those investment limits designed to avoid conflicts of interest, which underwent no modification, the reform retained only 5 limits considered important to contain the risk to which the pension funds are exposed and also necessary for the continuity of the multi-fund scheme. Specifically, the following restrictions remained in the Law:

- a) A maximum investment limit in government securities (the same as that in force before the reform),
- b) A range (the same as that in force) to enable the Central Bank of Chile (BCCH) to fix the maximum limit for investment in equities, according to the differentiation set by the multi-funds (in addition to a 5% range of equities for the E-type fund),
- c) A range to enable the BCCH to fix the maximum limit of foreign investment for each type of fund (A: 45%-100%, B: 40%-90%, C: 30%-75%, D: 20%-45%; E: 15%-35%), in addition to a range for the overall limit of between 30% and 80%.
- d) A maximum limit for foreign investment without exchange-rate hedging and a range so that the BCCH can fix the maximum limit on investment in higher-risk instruments (10%-20%).

4.2.2.- Investment Regime

The importance of the RI lies in the greater flexibility that gives to the process of decision-making with regard to investment regulation. In particular, the Law authorises the RI to regulate all matters previously contained in the Law, and gives it power to introduce new ones if necessary. Specifically, the RI has to set limits for the following groups of instruments:

- Local and foreign debt BB or B and N-4,
- Local and foreign debt B and N-4,
- Local shares that do not meet eligibility requirements and local investment fund and mutual fund shares not approved by the CCR.
- Local shares and local investment fund shares with low liquidity,
- Promised payments to local investment funds,
- Foreign shares, investment fund and mutual fund shares not approved by the CCR,
- Other instruments approved by the SP,
- Derivative instruments, and
- Security lending.

On the other hand, the RI can only set minimum limits for capital instruments in order to differentiate the multi-funds and it is responsible for regulating indirect investment.

Furthermore, the reform authorises the RI to set limits on the basis of the investment portfolios' risk measurement (new article 50 bis of D.L. 3,500 (1980)), which opens the way to move towards an investment regulation based on the risk to which the pension fund investments are exposed.

4.2.3.- Technical Investment Council

The CTI is a council currently composed of a group of 5 experts in financial and investment matters (plus 5 replacement members). The appointment of its members corresponds to the President of the Republic, the Council of the Central Bank of Chile,

the AFPs and the Deans of Faculties of Economics, or Economics and Administration, at accredited Universities. The aim of this composition is to ensure that the Council is made up of people with knowledge in the areas of social security and finance and who represent a variety of sectors with interests in pension fund investment.

The setting up of this council is a response to the need to generate a balance in the new institutional structure. In particular, the CTI is the body responsible for advising the SP on issuing regulations for the investments that make up the RI. It is also entitled to veto RI matters, while the SP can reject its recommendations provided its decision is justified.

The new institutional structure has the advantage of including advisory work on a permanent basis. The CTI has the following functions and activities, among others:

- a) To pronounce on the content of the investment regime and on any modifications that the SP may suggest making to it;
- b) To issue a technical opinion on all those matters relating to investments of Pension Funds that are contained in the RI, and particularly those concerned with the structure of Pension Fund investment limits, mechanisms for measuring the risk of investment portfolios and operations with derivative instruments carried out by the Funds;
- c) To make proposals and issue reports on matters related with improving the Pension Funds' investment regime in those cases where the Council considers it necessary or the SP requests it;
- d) To pronounce on matters related with Pension Fund investments in response to consultations from the Ministry of Finance and the Ministry of Labour and Social Security;
- e) To present a public annual report to the President of the Republic, corresponding to the previous financial year; and
- f) To commission technical studies related with Pension Fund investments.

4.2.4.- Corporate Governance and New Responsibilities for the AFPs

Law 20,255 gives the AFPs greater flexibility but, to balance this, includes elements that improve their Corporate Governance, increasing their answerability and the general transparency of their investment decisions.

Autonomous directors

The Law requires the AFP's board to consist of at least five directors, two of whom must be autonomous. The autonomous directors have specific tasks associated with their participation in the Committee for Investment and the Solution of Conflicts of Interest (art. 50 D.L. 3,400 (1980)). The Law defines what is meant by an autonomous director and describes the type of relationships that would imply lack of autonomy.

So the same Law considers that those directors, who are defined as independent according to the Securities Law, are also reckoned to be autonomous for purposes of the AFPs. Meanwhile, in the case of a director chosen by the controller, the general definition of autonomy applied includes certain conditions under which lack of autonomy will be presumed. These are that, within the last eighteen months, one of the following situations has occurred:

- a) He/she had some link, interest or dependency, whether economic, professional, credit-related or commercial, of a significant nature and volume, according to the terms of the general ruling referred to in this article, with the persons listed in the previous sub-section;
- b) He/she was the spouse or had a blood relationship up to the second degree or a legal relationship up to the first degree with the persons listed in the previous sub-section;
- c) He/she had been a partner or shareholder who had possessed or controlled, directly or indirectly, 10% or more of the capital; had been a director, manager, leading AFP or executive of companies that had supplied legal or consultancy services for significant amounts, according to the terms of the general ruling referred to in this article, or external auditing, to the persons listed in the previous sub-section; and
- d) He/she had been a partner or shareholder who had possessed or controlled, directly or indirectly, 10% or more of the capital; had been a director, manager, leading AFP or executive of companies that supply goods or services worth significant amounts to the AFPs, according to the terms of the general ruling referred to in this article.”

In any case, the specific conditions that these directors have to meet will be contained in a general ruling issued by the SP. This ruling must be submitted to the consideration of the CTI before being issued.

The Investment and Conflicts of Interest Committee

The Law stipulates that the AFPs must set up investment and conflicts of interest committees in their Boards, and the autonomous Directors mentioned above form part of these. This will give greater formality to the management of pension portfolios. These committees must be made up of at least three Directors of the AFP and among their functions are those of designing the investment policies of each Pension Fund and a risk profile of each of them, plus supervising compliance with the policies approved by the Board and the Pension Fund investment limits laid down in the Law or in the Investment Regime.

Investment Policies

In order to give the AFPs greater real responsibility in managing the Pension Funds, Law 20,255 stipulated that the AFPs must design and implement the investment policies and inform the supervisory body and the public. The investment and conflicts of interest committee is responsible for approving and following up these policies. Penalties are included for failure to comply with the policies.

Appointment of Directors by the AFPs

The Law lays down a series of requirements in order to allow the AFPs to give their vote to directors in the public limited company in which the Pension Funds invest. The Pension Reform added a condition to these requirements, namely that the AFPs should vote for directors enrolled in a register of directors kept for this purpose by the SP. This Superintendence, by issuing a general applicable ruling, will lay down the basic criteria for enrolment and for remaining on the register and will regulate the enrolment procedure. In any event, the CTI must approve the content of the general applicable ruling.

Article 155 of Section XIV, on “Regulation of Conflicts of Interest”, already laid down a series of conditions for AFPs to be able to vote for a particular candidate. They may not therefore vote for:

- a) Majority shareholders or related persons who could elect the majority of the board;
- b) Shareholder or related persons who, with the votes of the AFPs, could elect the majority of the board;
- c) Shareholders or related persons with 10% of the shares, or more;
- d) Director or executive of the AFP or any company in the business group to which it belongs.

Despite the terms of a), the AFPs may vote for people whose only relationship with the controller of the business group is a result of their participation in the board and who have not joined the board as a result of decisive support from the controller.

To these requirements, the new Law adds the condition of being enrolled on the directors' register kept for this purpose by the SP. In order to be on this register, the requirements stipulated in the same Law, and those included in the general ruling issued by that Superintendence must all be met.

Measurement of risk in pension portfolios

Given the size of the investments and the shortcomings detected in the diagnosis with regard to a regulation based on quantitative restrictions, it has become necessary to advance towards a supervision scheme based on risk. This implies reducing this type of restriction, but at the same time including an appropriate risk measurement for investments of this type.

So far there is no international consensus on which the best way to measure and control risk in the case of long-term investments, such as Pension Funds. In the case of Mexico, a Value at Risk (VaR) model has been adopted, using historic data. However, this is not necessarily the best way of measuring the risk facing the workers, because it is traditionally used for short-term investments.

The Investment Regime could in the future incorporate rulings to measure the risk of the pension fund portfolios. The SP is also empowered to establish specific procedures. This is a process that starts with the Reform, so the Superintendence is working on a specific methodology to measure and control risk in this case (See Inset 4.2).

Inset 4.2

Methodological proposal for measuring financial risk of pension funds

The setting up of a system to measure financial risk for pension funds requires a methodology that is suited to the specific characteristics of that system. In particular, it is important to emphasise that, unlike other industries such as insurance and banking, the pension funds have no explicit liabilities in terms of defined amount and maturity periods. This therefore makes it necessary to identify the financial asset or investment strategy, free of risk, for the case of the pension system, in order to quantify the risk of the investments, using a risk measurement that illustrates the distance in relation to this latter.

Taking into account the final destination of the pension funds and the pension options currently in existence (annuities and programmed withdrawal), it seems reasonable to use the value of a unit of deferred annuity at the moment of receiving the pension, as

the system's risk-free asset. This is justified by the fact that, if an investment strategy consisting of investing all the funds in deferred annuities were to be followed, the pensions to be received would be known with absolute certainty at all times.⁸⁴

Given that the price of this instrument is not publicly on view, it would be necessary to identify the investment strategy (and finally the value of the portfolio) which is capable of copying the corresponding cash flow. This latter could be achieved in two ways: first, by using bonds with a long maturity (or the closest synthetic version); or alternatively, by adding an amount that will make it possible to fund the corresponding cash flows with a high level of certainty to the value of the portfolio capable of copying the annuity payment in question as well as possible, using for these purposes the assets available in the market.⁸⁵

Finally, the financial risk to which the pension funds are exposed can be measured as the relative value at risk or the relative volatility (i.e. tracking error) of the pension funds' portfolio, relative to the portfolio that finances the deferred annuity already mentioned. Given the differences in the ages of the individuals who keep their savings in the different types of pension fund available, the deferment of the annuity must be adjusted accordingly.

4.2.5.- Investment abroad

In the year 2006, the overall limit on investment abroad was fixed at 30% of the portfolio, which left practically no unused capacity. In addition to the arguments put forward in favour of increasing the aforementioned overall limit (better diversification, little contribution to the volatility of the portfolio, the existence of restrictions on the supply of internal securities), the section also suggested the conflict of interest that arises in managing the pension funds when it becomes necessary to allocate the foreign investment "budget".

While the Law of Pension Reform was still in process, a bill was enacted that increased the limit for investing the Pension Funds abroad from 30% to 45% of the value of the sum of all the Types of Fund within a single AFP, giving the Central Bank the authority to increase it gradually until that level was reached.

This limit is applied to the investment of Funds abroad as a whole. This means that the AFPs freely manage investment abroad for each of the Types of Fund that they have under management, while bearing in mind just one overall limit. As it was mentioned in the diagnosis, the fact that the limit is for the funds as a single group generates competition among the Funds to use up that overall limit.

The Law maintains two limits for this type of investment, together with the gradual increase of the limit for investment abroad: one joint limit for the sum of overseas

⁸⁴ In particular, it should be noted that if the funds were invested completely in such a way as to copy the payment of a deferred annuity at the date of retirement, the fluctuation of the resulting pensions would be nil. This fact makes it possible to use the deferred annuity as the asset (or investment strategy) that is relevant in the pension system for measuring financial risk.

⁸⁵ For this last, it is possible to use the historic information concerning re-investment risk, if the difficulty is the lack of fixed-income instruments with the maturity required, or to develop a mathematical model suited to the needs.

investment and one individual limit per Pension Fund Type, depending on the value of each Fund, so that for one AFP, the greater of these is always applied.

This makes it possible, on the one hand, to avoid distortions in the management of the investment portfolios as the overseas limit becomes restrictive and, on the other, corrects the problem that may arise with fixing individual limits for investment abroad in the event of members' transferring to Funds with more restrictive limits.

In detail, the Law stipulates the following:

For applying the limit on investment abroad, the Central Bank will have to fix two limits: one for the sum of the investment of all Funds abroad (overall limit) and another for investment abroad for each Type of Fund.

- a) For the case of the limit for the sum of the overseas investments of a single AFP's A, B, C, D and E-Type Funds, the Central Bank has to fix the maximum limit within a range that goes from 30% to 80% of the value of these Funds. It should be mentioned that Law N° 20,190 stated that, as from April 2008, this maximum limit should be 45%. The schedule set for gradually increasing this limit is the following:

Table 4.7
Overall Limit for investment abroad
(Central Bank fixes the limit within the range)

	Minimum	Maximum
General Rule	45% of the value of the sum of the funds	80% of the value of the sum of the funds
First 12 months of Law's enactment	45% of the value of the sum of the funds	60% of the value of the sum of the funds
Thirteenth month onwards	45% of the value of the sum of the funds	80% of the value of the sum of the funds

- b) In the case of limits per Type of Fund, the Central Bank will have to fix the maximum limits for investment abroad within a range that goes from 45% to 100% of the Fund for the A-Type Fund; from 40% to 90% of the Fund for the B-Type Fund; from 30% to 75% of the Fund for the C-Type Fund; from 20% to 45% of the Fund for the D-Type Fund and from 15% to 35% of the Fund for the E-Type Fund. The schedule set for gradually increasing this limit is the following:

Table 4.8

	Fund A		Fund B		Fund C		Fund D		Fund E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
General Rule	45%	100%	40%	90%	30%	75%	20%	45%	15%	35%
First 12 months of Law's Enactment	25%	80%	20%	70%	15%	60%	10%	30%	5%	25%
Thirteenth month onwards	45%	100%	40%	90%	30%	75%	20%	45%	15%	35%

The inclusion of an overall limit for investment abroad in addition to a limit per Fund is designed to avoid the existence of conflicts of interest when managing investment abroad per Fund Type, when the limit on these investments becomes restrictive. Furthermore, the overall limit on overseas investment changes in accordance with members' movements, which implies greater flexibility.

4.2.6.- Authorized securities

With regard to the authorisation of securities that are allowed for pension funds, the reform contains the following modifications:

- a) Shares of open real-estate companies are eliminated.
- b) The restriction on the maturity date of commercial paper (12 months) is eliminated.
- c) Foreign instruments that are traded on the local market are included in overseas investment (for purposes of applying limits).
- d) The Central Bank's power to authorise "other public offering instruments" is eliminated and that power transferred to the SP.
- e) Derivative instruments, other than those for hedging risk, are added. The basic conditions are stipulated in the Law, leaving the detailed regulation of the underlying assets to the RI (currently foreign derivatives are regulated by Regulation and local derivatives by rulings from the Superintendence).

Table 4.9
Changes in the list of authorized instruments
Included in article 45

D.L. 3,500	Law 20,255
<ul style="list-style-type: none"> a. Government b. Financial institution deposits c. Securities guaranteed by financial institutions d. Letters of credit of financial institutions e. Public and private corporate bonds f. Bonds exchangeable for shares g. Open plc shares h. Open real-estate plc shares i. Shares of investment funds and mutual funds j. Commercial paper with maturity no greater than 1 year k. Foreign securities l. Other public offering instruments authorized by the BCCh m. Risk-hedging operations in local market, defined in SP ruling n. Loan of financial instruments from local issuers 	<ul style="list-style-type: none"> a. No change b. No change c. No change d. No change e. No change f. No change g. No change h. Eliminated i. No change j. Maturity limit eliminated k. Certificate of Deposit (CDV) added and derivatives removed from this letter l. Authorisation passed to SP, on basis of BCCh report m. Object of investment is added, local and foreign derivatives are grouped and specific regulation will be defined in the Investment Regimen n. No change

4.2.7.- Risk-Rating Commission

With regard to the CCR, the reform advanced in the direction of limiting the role of this body to those areas in which it is felt still to have a subsidiary role with the industry. Specifically, the reform eliminated some of the functions of the CCR, among which are the following:

- a) Elimination of its current power to approve local and foreign debt instruments, meaning that the AFPs only have to take into account the ratings given by private institutions.
- b) Without undermining the above, the CCR's power of veto is maintained for local debt securities, meaning that this body can make evaluations a posteriori. These would be done through the CCR's authority to request a third private rating and reject one of the previous ratings.
- c) Elimination of its role to approve or reject local shares. In this respect, these securities will be reckoned as approved once they meet the minimum requirements laid down by law and in the second instance, according to the rating granted by the private industry.

On the other hand, among the functions of the CCR that are retained in the reform, the most noteworthy are:

- a) To carry out the approval of investment fund and mutual fund shares, both local and foreign. In this regard, in the case of local investment funds, that function implies benefits for the industry. At the same time, in the case of foreign investment funds and mutual funds, there is broad consensus regarding the need to keep the current function of the CCR, since it is felt that the body has wide knowledge and experience in these matters.
- b) To approve or reject foreign shares. With regard to this point, it is felt by the actors involved that the CCR should continue doing that job, because of the expertise it has achieved.
- c) To approve or reject other public offering instruments of financial innovation, when requested to do so by the SP.
- d) To establish equivalences between local ratings of foreign debt securities and the local categories.
- e) To approve or reject counterparts for purposes of operations with derivative instruments.

Table 4.10
Criteria for approving securities

Instruments	D.L. 3,500	Reform
Local debt	Approval or rejection by CCR on basis of private risk-rating firms	Only private rating, with CCR's having the possibility to request third rating and reject private ratings.
Foreign debt	Approval or rejection by CCR on basis of private risk-rating firms	Private rating only, by international bodies that the BCCCh includes for investing its own resources.
Local shares	Approval or rejection by CCR on basis of: 1° Minimum requirements defined by the CCR. 2° In case of previous rejection, two risk-rating reports.	1° Minimum requirements mentioned in the Law and defined in the Investment Regime. 2° Two private risk ratings.
Foreign shares	Approval or rejection by CCR.	Approval or rejection by CCR.
Local mutual and investment fund shares	Approval or rejection by CCR.	Approval or rejection by CCR.
Foreign mutual and investment fund shares	Approval or rejection by CCR.	Approval or rejection by CCR.
Other assets authorized by SP	Approval or rejection by CCR.	Approval or rejection by CCR when requested by the SP.
Derivatives	Approval or rejection of counterparts	Approval or rejection of counterparts
Free availability	Applicable for local shares, mutual and investment fund shares and foreign shares and fund shares which are traded on the local market and not approved by the CCR. Special limits stipulated by law.	Applicable for all securities that do not meet the legal requirements for approval. Special limits defined in the RI.

4.2.8.- Minimum yield and yield fluctuation reserve

With regard to minimum yield and the yield fluctuation reserve, a few changes are introduced which are concerned with reducing the potential herd effect and increasing competition between the AFPs to achieve better yields for their members while at the same time limiting the risk of the investments.

It is important to mention in this respect that the Law includes a multi-fund scheme in which the main factor of differentiation occurs in terms of the portfolios to which members have access. This is why, although significant differences are to be expected among AFPs of a single type of fund, it is to be hoped that these will not be too large.

The modifications included in the Law with regard to the rewards and penalties scheme are the following:

- a) The band is made wider for funds with less than 36 months in operation.
- b) The yield fluctuation reserve is eliminated.
- c) Giving out detailed information about the investment portfolios by AFP and Fund, is postponed.

With regard to the first modification, the widening of the band is intended to facilitate the entry of competitors to this industry. This is because when an AFP is just entering the market with five relatively small Funds, its ability to produce a performance similar to that of the rest of the AFPs is subject to a greater risk. There is the possibility of having returns that are significantly higher or lower in a particular month and this volatility may complicate the entry of new AFPs. At the same time, for the sake of those people who join this new AFP and have to confront this greater volatility in their funds, this must be for a limited period, meaning that it may well produce zero impact on their pensions. In the case of workers who have been assigned according to the process described in Chapter 3, their fees are by definition lower, so they benefit from a lower cost. Since their funds are very small and they have a long investment horizon, the possibly higher volatility has a relatively minor impact compared with the benefit of the lower cost. At the same time, there is always the possibility of changing AFP once the 24-month period is up, and the same is true for all members who may have switched freely to an AFP just entering the market.

As regards the elimination of the Yield Fluctuation Reserve, this measure was adopted to encourage competition among AFPs on the basis of better yields and avoid possible transfers of wealth between members. This Reserve, as was mentioned in the diagnosis, meant that if the AFP achieved a better-than-average performance, this good performance could not be reflected in its yield and might even produce a negative effect on that indicator by being turned into a reserve. There was therefore no benefit for the AFP as a result of this good performance, but rather a cost. For the members, on the other hand, there was no resulting benefit either and it could even imply transfers of wealth, because the reserve could only be used in the case of falling below the minimum yield, and that might benefit other members and not the same ones who were in the AFP when the reserve was constituted.

Finally, delaying the detailed publication of the AFPs' portfolio, Fund by Fund, to four months also aims in the direction of encouraging more competition in the industry, to produce better yields. This is achieved by placing more value on the investment decisions of the AFPs by protecting their confidentiality for a minimum period. In this way, the AFPs will have a greater incentive when investing to find better investment opportunities. This has a logic similar to that of "patents": it would be difficult for us to have any innovation if that innovation received no reward to justify having invested in it. All in all, transparency in information is maintained by detailed system-level publication on the one hand and with a greater level of aggregation in the case of the most recent information by AFP. At the same time, after four months the detailed information available today is published with a time-lag of 15 days.

4.3.- Expected results

The recent pension reform represents one of the main landmarks in the reforms to financial regulation of the pension funds. The step from a relatively rigid regulation scheme to a new one endowed with a regulatory institutional structure that includes balances and counterpoises (e.g. the CTI) is clearly an advance in the direction of providing the flexibility needed to allow the pension funds' investments to take advantage of the opportunities that exist in the market, with the due safeguards and the corresponding diffusion of the changes than investment policies may experience in the future.

Another point worth emphasising is the possibility given to the RI of establishing risk measurements that are different from the traditional quantitative investment limits. This opens the door to the use of instruments that are more appropriate to the nature of fund management and the final purposes of the pension system.

The modifications quoted above will also help to reinforce the fiduciary duties incumbent on those who manage third-party resources, by giving the AFPs an administrative structure today that is better suited to its obligations and the potential conflicts of interest that might arise.

At the same time, it is also to be hoped that these greater degrees of flexibility will contribute to greater development of the capital market in Chile, which will in turn have a positive impact on the performance of the pension funds in particular, and on the economy in general.

CHAPTER 5

PENSION BENEFITS

The purpose of a pension system is to provide monetary benefits in the contingencies of old age, disability or death, which trigger the benefit payout. In the previous chapters we have analysed the aspects of coverage, competition and investments in the pension system. The importance of these considerations lies in that they aim to improve the benefits of as large a part of the population as possible (coverage), to reduce the cost and improve the service whereby the benefits are obtained (competition) and to increase the yield of the pension resources within a frame of adequate security for those resources (investments). The design of the manner and conditions in which the pension benefits are paid may turn out to be as important as these earlier considerations in ensuring that the system meets the objectives that are set.

The modifications proposed in matters of pension benefits arise mainly from the regulatory authority's observation of how the system works, over the course of its more than 25 years of existence. On the basis of this observation, imperfections have been detected which produce situations that are asymmetrical or unfair for members and which, with simple modifications, would enable the efficiency and effectiveness of the system to be improved.

In this chapter we shall be analysing in the first place the different pension options, in other words, the various alternatives for transforming pension savings into a flow of payments. These benefits may be for old age, disability or survivorship, with the alternatives for receiving the payments being the same in the three cases. Then we shall deal with the transition phase between the active stage, when contributions are paid, and the passive stage, when benefits are received. This point is crucial, precisely because people can choose between different pension options, each of them with specific characteristics. Finally we shall be looking at specific issues that have a direct impact on disability and survivorship benefits in particular. With regard to each of these issues, a description of the diagnosis is given, followed by the measures contained in the Pension Reform.

5.1.- Diagnosis

5.1.1.- Pension Options

The various pension options available for a member to choose, in other words, the ways his/her pension can be paid, are classified basically into two major options (programmed withdrawal and annuity) and various combinations or modifications of the two (temporary income with deferred annuity, programmed withdrawal with immediate annuity, annuity with special coverage conditions). These options differ in the institutions that administer and pay these pensions and in the risks covered by each of the products.

Each option has specific characteristics that make it more suitable for a particular member. In the case of the annuity, its main characteristic is that it covers the member against investment and longevity risks. In other words, the pensioner receives a fixed

amount in Unidades de Fomento (UF)⁸⁶ until he/she dies, whenever that date may occur, and a proportion of this amount for legal beneficiaries until they die or cease to be eligible. Unlike the annuity, the programmed withdrawal covers neither of these risks, but allows the member to retain the ownership of the funds in his/her individual account, so that they may constitute part of his/her estate. So, in the case of people with a shorter life expectancy (as a result of illness, for example), people who wish to protect heirs who are not legal beneficiaries, or individuals who are able to absorb these risks by other means, this second option may be preferable.

With regard to the programmed withdrawal option, although this plays an important role in the system, drawbacks have been detected that must be dealt with. These have to do with the interest rate used to calculate the payments and the longevity risk facing pensioners who decide in favour of this option.

Programmed Withdrawal Interest Rate

The technical interest rate of programmed withdrawal is that used to forecast the future balance of the pension fund in the retirement stage and it is used in calculating the Necessary Unitary Capital (CNU) to determine each annual pension payment instalment under this option.

This rate is currently calculated as a weighted average between the historic yield of the pension funds and the implicit interest rate of the annuities purchased in the last 12 months, and is fixed once a year. The purpose of this rate is to predict the future yield that the funds will have, so it is essential to use the best possible predictor of that yield. However, using the historic yield of the pension funds does not necessarily produce a good predictor of the funds' future yield. The implicit rate of annuities could in principle indicate a future expected yield for the time-scale that is relevant for a pensioner, given that it corresponds to the estimation that the insurance companies make when reckoning the future flow of payments associated with the annuity. However, this rate includes the administrative cost of providing the annuity, and it does not seem reasonable to transfer that cost to the programmed withdrawal rate, considering that this has its own charge as a commission deducted from flow. Furthermore, the fact that the programmed withdrawal is connected to the implicit rate of the annuities means that if the annuity market becomes less competitive, involving a fall in the implicit rate of annuities, this fall would be transferred to the programmed withdrawal rate, producing a doubly harmful effect on members about to retire, because they would receive worse conditions on both products. Finally, the providers of annuities are subject to regulations imposed by the SVS, which seek to guarantee the match between the company's assets and the obligations acquired. The AFPs are subject to regulations of a different nature and their funds are therefore invested in instruments of another kind.⁸⁷

Longevity Risk

One feature of the programmed withdrawal pension option is that it does not provide protection against longevity risk, which may be seen as an important disadvantage. In fact, given the way it is calculated, every year of the pensioner's life means that his/her survivorship is greater than the probability (strictly less than 1) on which his/her pension was calculated the year before, and this implies that at some point the amount of the pension will start to decrease. This is due to the fact that the annual recalculation

⁸⁶ The UF is a Consumer Price indexed unit of account.

⁸⁷ By way of example, the Reform allows Fund E to include a small proportion of equities.

has to adjust the pensioner's life expectancy, which has now increased by comparison with the year before, meaning that the amount of the pension will fall (unless there is a considerable increase in the accumulated fund as a result of its yield). At the cut-off point, the calculation is made in such a way that the amount of the pension will be zero at 110 years of age, but the pension may fall long before that to levels below an amount considered to be acceptable. Furthermore, since there is a possibility of adjusting the payments to the amount of the minimum pension currently in force, the balance in the individual account may in practice be exhausted long before the age of 110 is reached.

Given the scheme of the new Solidarity Pillar, the decreasing profile of the programmed withdrawal over time may generate pressures for access to the benefits of the Solidarity Pillar. The most extreme case is that of a person who is not entitled to the benefits of the Solidarity Pillar when he/she retires, because he/she has a pension higher than that entitling him/her to a State payment. However, due to the way of calculating the programmed withdrawal, his/her pension gradually decreases until it is even lower than the PBS. At that point, the pensioner may feel that he/she is at a disadvantage compared with a person who chose an annuity or one who is entitled to the APS. Although that perception would be mistaken, given that the individual did not sign a contract for a product that would provide longevity insurance, the comparison of his/her day-by-day situation or even the impression that the State should also take responsibility for his/her situation, may produce social pressure from this group to gain access to state benefits of some type.

If it is the case that people do not evaluate the risk of longevity correctly⁸⁸ or that, even if they do, they have an incentive to opt for programmed withdrawal in the hope that the State will take responsibility for their situation later on (Moral risk against the State), it makes sense to oblige people in some way to provide themselves with an longevity insurance.

The question that then arises is how to provide this coverage. There are various alternatives that can be designed to provide this protection. In the end, all of them seek to achieve a profile of pension payments over time that includes at least a bottom level for the pension amount.

The alternatives that can be envisaged range from a variety of insurance products, such as deferred annuity, immediate annuity or a complementary insurance for a desired minimum amount, to modifying the way of calculating the programmed withdrawal, either by way of an adjustment factor or a reserve for accumulating funds when the yield is higher than forecasted. The practical implementation of each of these alternatives has advantages and disadvantages, listed in the following Inset. It is worth emphasising that in the case of insurance products, the market for these products needs to be developed further, while the implementation of alternatives that modify the way of calculating the programmed withdrawal is more feasible but, although they provide coverage, they do not do this by an insurance mechanism.

⁸⁸ According to the EPS 2006, women aged 60 expected on average to live to 79.2 years and men aged 65, to 79.7 years, whereas the life expectancies of pensioners at legal retiring age, according to the RV-2004 mortality tables, were 87.9 and 82.7 years respectively.

Inset 5.1
Advantages and disadvantages of longevity insurance alternatives

	Advantages	Disadvantages
Temporary Income with Deferred Annuity	<ul style="list-style-type: none"> • Most widely-discussed mechanism in literature for providing longevity insurance. • Provides certain income as from a fixed point in the future. • Potentially cheap because it uses probabilities of death in favour of the insurance provider. 	<ul style="list-style-type: none"> • Uncertain market feasibility. • Lack of long-term instruments to enable the insurance to be funded. • Difficulty of finding an adequate level of insurance that allows the Temporary Income to be matched with that of Annuity.
To modify method of calculating the programmed withdrawal	<ul style="list-style-type: none"> • Simplicity • Viability 	<ul style="list-style-type: none"> • This is self-insurance, which implies a higher cost than collective mechanisms (insurance) to achieve the same coverage.
To individually purchase a complementary guaranteed pension insurance	<ul style="list-style-type: none"> • Lower cost than deferred annuity. • Allows greater mobility of the funds. 	<ul style="list-style-type: none"> • The coverage to be offered must be defined. • If fixed flows are paid from a fixed moment in time, there is no certainty that the pension will always be above a tolerable minimum amount. • If it pays the difference between programmed withdrawal and minimum amount from the moment when that difference becomes positive, it includes a source of risk that may be very costly.
AFPs collectively purchase a complementary guaranteed pension insurance	<ul style="list-style-type: none"> • Lower cost due to risk pooling across all pensioners. 	<ul style="list-style-type: none"> • Potential Moral Risk: having this insurance may affect the decisions of AFPs or members.
Immediate annuity for a minimum amount	<ul style="list-style-type: none"> • Simplicity • The product already exists. 	<ul style="list-style-type: none"> • Obligation to purchase annuity may not be best optimal. • It drastically limits the role of programmed withdrawal.
Reserve for over-accumulation in the programmed withdrawal	<ul style="list-style-type: none"> • Simplicity 	<ul style="list-style-type: none"> • Marginal potential effect. In fact, if the discount rate of the programmed withdrawal is “correct”, the expected effect should be nil. • Requires fixing the discount rate artificially low, to achieve some effect.

5.1.2.- Disability pensions

The experience on the way of how the disability pension system operates has shown some elements that could improve its functioning. These elements are related fundamentally with situations that may be considered unfair or that lead to moral risk. These two aspects are generally in opposition to each other; in trying to be fairer, opportunities occur to misuse this insurance, while on the other hand, in the attempt to control moral risk, access to benefits may be excessively limited. The design of the system must therefore seek to balance these two aspects.

One of the situations that may be considered excessive concerns the three-year transitory period for those declared to be disabled, whether totally or partially.⁸⁹ This transitory period means that a person who is declared totally disabled is paid a pension temporarily and the additional payment needed to fund his/her definitive pension is not made until this period has expired. Once this period has elapsed, the person must submit to a new assessment to decide whether there has been any change in his/her degree of disability.

This means a situation of uncertainty for the person, loss of capital if he/she dies before the transitory period is over and the additional stress of being submitted to a new assessment. All this would be justified if there were a certain possibility of recovery. However, the assessment process includes an explicit evaluation of whether the disease or condition has any possibility of recovery. If that possibility exists, the decision states that the figure of disability does not exist and therefore no entitlement to pension is granted. At the same time, consistent with this, the system includes no plans for recuperation or assistance. This means that, in the case of total disability, what has been seen in practice is that it is highly unlikely that people declared totally disabled in the first decision will not have this confirmed in the second instance. In fact, 94% of those totally disabled have their assessment confirmed after the three-year transitory period. Therefore, though re-assessment is justified where there is a ruling of partial disability, it is not particularly useful in cases of total disability.

Another of the issues that should be considered as far as the system's fairness is concerned is the fact that although the AFP, the Insurance Company and the member can appeal against disability decisions, the latter is not currently represented during the assessment process. In the case of the Insurance Companies, a medical observer is appointed by them to follow the assessment process, whereas there is no equivalent figure for the member. Although currently the Medical Boards are allowed to call the member's own doctor, this is a measure which in practice is not applied and furthermore, it can only be at the request of the Regional Medical Board and not of the member.

An element that can be considered from both angles, i.e. fairness and moral risk, without there being any conflict between the two, has to do with the base income for establishing the amount of the disability pension. This is defined as the average income of the last 10 years or since the date of enrolment, if this occurred less than ten years ago, with a minimum of two years. This opens up the possibility of people who are aware of some illness or medical condition than may mean a possible disability,

⁸⁹ Total disability refers to the permanent loss of 70% of the ability to carry out work activities, whereas partial disability considers 50% loss of ability.

enrolling in the system late, with the sole aim of obtaining the coverage of the SIS, thus producing an increase in the claims rate and increasing the cost of the insurance premium, which would lead to a subsidy to them from the rest of the members. At the same time, in the case of a person who has enrolled very young and then, for being studying or other reasons, does not pay contributions for a long period, the early enrolment date marks the moment from which the wages are averaged for purposes of calculating the base income, producing a highly detrimental effect on the amount of his/her pension.

5.1.3.- Survivorship Pensions

In the case of survivorship pensions, the system also shows flaws related with the changes in our society and to particular situations which in some senses mean a certain unfairness. Both things occur in the case of defining the beneficiaries of survivorship pensions. According to the Law prior to the Pension Reform, male members had their children, their wife and the mother of their children born of a non-matrimonial relationship as pension beneficiaries; whereas female members had their children as pension beneficiaries, and their husband, but only if he were declared partially or totally disabled. This corresponded to the reality of society and the labour market in which the wife was contributing less to the family income. Today that situation is changing and we are seeing a large number of women who are heads of household. This asymmetry produces a subsidising group (women) and a subsidised group (men) as far as the disability and survivorship insurance is concerned, since both sexes pay the same insurance rate on the same wages, but women have fewer legal beneficiaries. Although, due to its being a collective insurance, it is possible to find other crossed subsidies (such as that received by middle-aged members from the young and the old, and that received by married people from single), that from women to men is the only one that is systemic in nature. Although this asymmetry is corrected with the separation of the SIS premium for men and women - the measure described in Chapter 3 -, the asymmetry between beneficiaries would still remain.

Another element of unfairness in the design refers to child beneficiaries over 18 and under 24 years of age. In the case of these young people, their student status at the time of the originator's death has to be proved in order to qualify for a survivorship pension. For most young people, the age-range given above includes the transition stage between secondary education and university, a period when there is a greater probability of spending a year without studying. If the death of one of the young person's parents occurs precisely during that year, he/she will not qualify for a pension, even though he/she starts studying later.

Finally, there is also a certain unfairness in cases where a member dies without leaving a spouse who is entitled to a pension and the balance in the individual account has to be paid in a few monthly instalments to those who are legal beneficiaries. For example, where there is more than one child, but only one of them is a student under 24 years of age, he/she will be the only one to receive the accumulated funds in monthly instalments, calculated until he/she reaches the maximum age for which he/she qualifies as a beneficiary, to the detriment of other members of the family group (such as other children who do not qualify for a pension but are entitled to an inheritance, for example).

5.2.- Measures contained in the reform concerning Benefits

5.2.1. Interest rate of programmed withdrawal

Bearing in mind that the weighted average between the historic yield of the pension fund and the interest rates implicit in annuities do not necessarily constitute the best way of estimating this interest rate, the Law eliminated that method of calculation. In order to ensure that the methodological proposal is thorough and its application stable, the method of calculation is now enshrined in a joint Supreme Decree from the Ministries of Finance and Labour. In order to produce this method of calculation, the SP and the SVS, in their capacity as competent technical bodies, have the task of producing a methodological proposal, to be based on previous studies of the matter and on a consultancy specially commissioned on this occasion. In Inset 5.2 it is possible to see the grounds that were taken into account in producing that proposal.

Inset 5.2

Proposals for modifying the interest rate of programmed withdrawal

The objective sought in determining this rate is to have the best possible prediction of the pension funds' future yield at the relevant and representative horizon for the population of pensioners who have chosen this option, a conservative criterion being of prime importance.

In order to achieve this, an analysis was made of adopting the Advisory Council's proposal to use a discount rate consisting of a long-term rate, free of risk, plus a spread that takes into account the risk-return profile of the portfolio in which retired members' investments are held. As a result of a consultancy specially commissioned for this purpose, the paper by Díaz and Arriagada (2008) provides various alternatives for implementing this proposal. In the first place, it proposes using the temporary structure of interest rates of instruments issued by the Central Bank or other institutions that have a state guarantee, as a risk-free rate. This makes it possible to include expected variations over time in the risk-free rate. In order to determine the spread over and above this temporary rates structure, at least four alternatives are proposed:

- a) For each fund, to use weighted spread per family of assets in the fund concerned
- b) For all the funds, to use weighted spread of the asset family of Fund E
- c) For all the funds to use spread of AAA Bonds
- d) For all the funds to use spread of AA Bonds.

With regard to the possibility of differentiating the technical interest rate of programmed withdrawal (TITRP) per type of fund, though it is reasonable to expect that a fund with more exposure to equities will have greater long-term yield, it may not be advisable to translate that difference to a different TITRP. Since a higher TITRP results in a higher pension, the doubt that arises has to do with the advisability of allowing a member, *ex ante*, to withdraw his/her funds at a faster rate simply because he/she has invested in a fund with higher investment risk. The problem is that the pensioner who is exposed to more investment risk does not see any increase in his/her wealth until the expected returns actually materialise. Though it is widely known that more risky investment portfolios have a higher expected yield in the long

term, it is not possible to ensure that they will have higher yield at all periods.

With regard to the other alternatives, the one that seems most reasonable, when applying a conservative criterion which is relevant for the universe of retired members, is that using the weighted spread per asset family in Fund E. The limiting factor in this case is a practical one. The information necessary for calculating the spreads is not available or is not sufficiently accurate for some asset classes in which fund E invests, such as local equities, for example. With regard to the rest of the alternatives proposed, historic information shows that using the spread of AA bonds is fairly close to the actual yield of fund E, which would make it a good proxy. However, this could change when the Pension Reform comes into force, which allows up to 5% of fund E to be invested in equity instruments. This might mean that in the future a spread based only on the rates of AA bonds could consistently underestimate the yield obtained by fund E.

Source: Díaz and Arriagada (2008).

5.2.2.- Longevity Risk

Law 20,255 states that the programmed withdrawal pension shall be calculated to include a factor that is actuarially fair when beneficiaries of the Solidarity Pension Payment are involved. If the pensioner does not meet the requirements to qualify for the Solidarity Pillar, it is also stipulated that this should be corrected by a factor. Specifically, according to the Law, the programmed withdrawal “shall be corrected by an adjustment factor, decided in accordance with a general ruling from the Superintendence, provided that the member’s self-funded reference pension is greater than the Maximum Pension with Solidarity Payment (PMaS) or that the member does not meet the requirements to qualify for the system of solidarity pensions”.

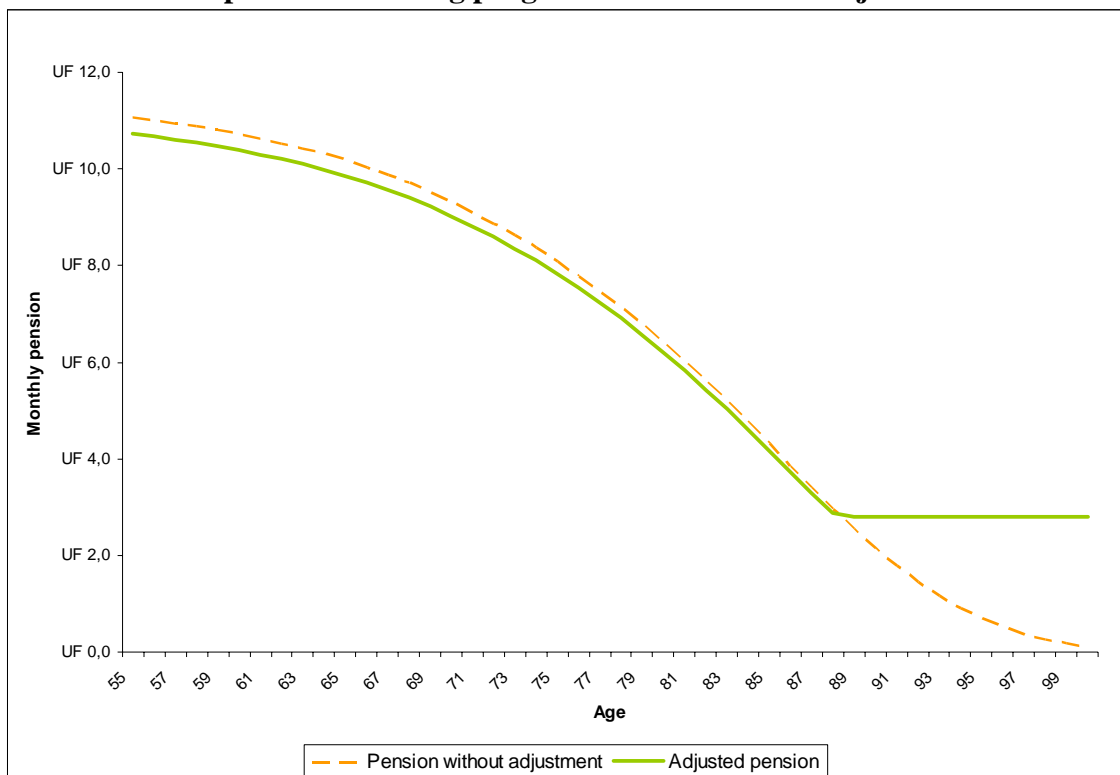
The motivation for including the actuarially fair factor is based on the fact that these pensions will eventually receive a subsidy from the State and at the same time, it is the State itself that ensures that the amount of the pension does not fall below the level of the PBS. This implies that it is not just a subsidy that is being given, but also partial longevity insurance to these pensions when the programmed withdrawal option is chosen.⁹⁰ The actuarially fair factor may be understood to be the corresponding payment that the State makes for that insurance. In Inset 5.3 there is a more detailed description of the logic of the actuarially fair factor in the case of pensions that qualify for the Solidarity Pillar.

Meanwhile, for pensions higher than the PMaS this insurance does not exist if programmed withdrawal is chosen. For the reasons explained in the diagnosis, it was considered necessary to include some kind of protection against longevity risk. Finally, for reasons of simplicity and for its similarity with the incorporation of the actuarially fair factor, the Pension Reform introduced an adjustment factor into programmed withdrawal. This adjustment factor must be defined in such a way that the payments profile of programmed withdrawal shows a smoother development over time, avoiding important falls in the amount of the pension that occur when the pensioner reaches an advanced age.

⁹⁰ The insurance would be partial to the extent that it does not insure the initial pension until death but does guarantee a pension at least equal to the PBS.

The specific methodology dealing with how to calculate and apply the adjustment factor of programmed withdrawal is a matter for regulation by the SP. Considering the alternatives presented in Inset 5.1, it was decided that this factor should be calculated in such a way as to make it possible to keep sufficient balance in the individual account to pay a pension of at least the value considered to be minimally acceptable, from the moment when the forecasted profile of payments for programmed withdrawal without adjustment falls below that value. In other words, the adjustment factor must manage to achieve a modification of the programmed withdrawal payments profile in a way similar to that shown in the graph below:

Figure 5.1
Forecasted pension including programmed withdrawal adjustment factor

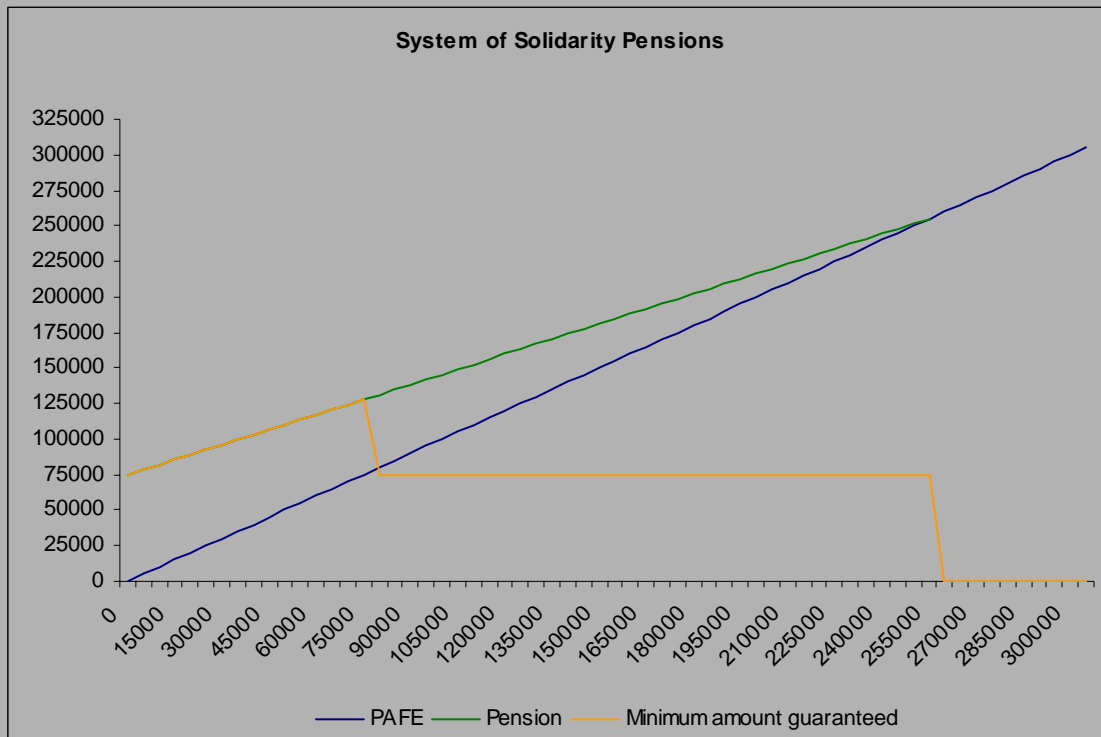


Source: Superintendence of Pensions.

Inset 5.3
Actuarially Fair Factor for Solidarity Pillar Benefits

The Solidarity Pillar already includes some type of protection mechanism for longevity. In fact, a person who is not enrolled in the system and meets the requirements for access to the Solidarity Pillar will be entitled in the year 2009 to a life-time pension of \$75,000 per month (PBS) provided by the State. Members whose Self-Funded reference Pension (PAFE) is less than the amount of the PBS are entitled to a **guaranteed final pension** amount. With a PMaS of \$255,000, the maximum guaranteed pension amount granted in this way is \$127,941. For members whose PAFE is greater than the PBS but less than the PMaS, the amount of the solidarity pension payment is guaranteed, which is added to their self-funded pension. In this band, the Law offers the possibility of purchasing an Immediate Annuity or a programmed withdrawal adjusted by an actuarially fair factor, so that the pension

never falls below the PBS. This means that for people who qualify for the Solidarity Pillar in this band, the Law includes a longevity protection equivalent to the amount of the PBS. Those who have a PAFE higher than the PMA_S would not be protected for longevity if they choose programmed withdrawal.



Source: Superintendence of Pensions.

The actuarially fair factor is calculated in such a way that the present value of the state payments, in the case of choosing programmed withdrawal, are equivalent to those paid in case of choosing Annuity. These payments may differ in one case or the other because, while the annuity remains at a constant value, the decreasing profile of the programmed withdrawal means that the amount of the final pension could be less than that of the PBS. In order to avoid this, the state has to make payments in addition to the amount of the solidarity supplement in periods when the programmed withdrawal and the pension top-up payment fail to add up to the amount of the PBS.

5.2.3 Modifications in the area of disability pensions

Elimination of the transitory period for total disability assessment

It is not considered necessary to have the transitory period of the disability pension for those members declared totally disabled; in other words, the three-year waiting period prior to the definitive disability declaration for these members. This is due to the fact that, as mentioned in the diagnosis, the probability of rehabilitation of people declared totally disabled is low, and the three-year wait prior to the moment of the definitive declaration implies a source of unnecessary uncertainty and prevents them, in some cases of premature death, from qualifying for the additional payment from the SIS. By making total disability definitive, once the single statement declaring this has been made final, the member can dispose of all the balance in his/her individual funding

account, plus the additional payment in the case of those covered by the SIS, for funding his/her pension.

New way of calculating base income

This modification states that, regardless of the date of entering the System, the calculation of the base income used for determining the additional payment that must be made by the Insurance Companies in case of a claim, for all workers with less than 10 years membership, will be made by dividing the sum of their incomes by 120, except where the claim is caused by an accident, in which case the present provision, which take the average income from the date of enrolment, remain unchanged. This is to limit a potential moral risk in late enrolment. On the other hand, in order to protect people who join the system early, the present way of calculating the base income is modified to use whichever way is less prejudicial to the member if the accident/event occurs before he/she reaches 34 years of age, taking the average of incomes from the date of enrolment in the system or alternatively, from the date when the member reached 24 years of age.

Incorporation of member's medical advisor

According to the legal modification, a member entitled to coverage by the SIS will have the possibility of designating a physician/surgeon to advise him/her in the process of disability assessment and to attend, as an observer, the sessions of the Medical Board in which his/her application is analysed. This medical advisor may be paid by the member at his/her own expense or he/she may ask for one to be appointed from a register kept for these purposes by the Superintendence. However, in this latter case the medical advisor must first analyse the background details underlying the application, to weigh up whether this is duly justified. Only in that case will a medical advisor be appointed to follow up the member's case without cost to him/her. Otherwise the member will only have the option of appointing a trusted doctor at his/her own expense.

5.2.4. Modifications to survivorship pensions

Elimination of gender asymmetries

The Pension Reform incorporates as women's survivorship pension beneficiaries the non-disabled husband and the father of a child from a non-matrimonial relationship who is single and lives at the originator's expense. The SIS will also cover women who are not retired, aged between 60 and 65 years who continue contributing in the system.

Survivorship pensions to transitory beneficiaries

It is stipulated that when the beneficiaries of survivorship pensions are temporary, as in the case of non-disabled children, the survivorship pensions in programmed withdrawal shall be limited to two hundred percent of the member's reference pension, leaving the remaining balance available for inheritance purposes.

5.2.5. Other improvements in the benefits area

Choice of Funds

Members who have reached the age of 51 years in the case of women, or 56 years in that of men, and members who are already retired, may assign resources from their

individual funding account to the A or B-Type Funds⁹¹, where these are in excess of the amount needed to fund a pension equal to at least one hundred percent of the PMaS and seventy percent of the average wages of the 120 months prior to the month in which they retired.

Funeral grant as part of the additional payment

According to the regulations prior to the Pension Reform, there was a funeral grant of 15 UF set aside for burial expenses in the case of members' decease. Article 53 of D.L. 3,500 already included the amount necessary to fund survivorship pensions plus the funeral grant equivalent to 15 UF in the additional payment that Insurance Companies have to make in claims concerning the death of covered members. The modification introduced in Law 20,255 therefore extends the payment of that funeral grant to those members who die without beneficiaries and with a balance of less than 15 UF in their account.

5.3.- Expected Impacts on the Disability and Survivorship Insurance

Many of the measures mentioned in the previous sections, together with others presented in this section, imply changes in the way in which the disability and survivorship insurance operates. These changes move in the direction of providing greater coverage and eliminating asymmetries between different groups covered by the insurance, thereby improving the protection and fair treatment provided by this component of the pension system. At the same time, various of the measures included in the Pension Reform affect the cost of the SIS, either because they increase its coverage or modify the way of calculating the benefits. Although the measures that provide greater coverage do tend to increase its cost, there are measures that have a borderline effect or even tend to decrease it.

The cost of this insurance has tended to rise over time and, in the absence of the reform, this trend would undoubtedly have continued because it is a consequence of the demographic change experienced by the group of members that it covers. In fact, the trend towards ageing in this population increases the cost of the SIS, since the incidence of disability and death becomes greater as the age of the members increases. According to Castro (2005) this effect has been of the order of 3.5% per year over the period 1997-2003, a level that should tend to decrease as the age profile of the population reaches its steady-state level.

Given below is a list of the measures included in the Pension Reform, describing what they aim to achieve and the way in which they affect the cost of the insurance, over and above the trend implicit in the development of the members' characteristics, with an analysis of their expected effect. These measures can be classified in three types: those that modify the form in which the insurance is purchased and organized, those that change the definition of beneficiaries or the universe of members covered, and those that modify the method of calculating the benefits.

⁹¹ At present, members over 50 years of age in the case of women and 55 years in that of men cannot choose the A-Type Fund to manage the resources from the mandatory individual funding account, while pensioners cannot choose either the A or B-Type Fund.

5.3.1.- Measures that modify the organization of the Disability and Survivorship Insurance

Joint contracting of Disability and Survivorship Insurance with Single Premium Rate

The Pension Reform imposes a new way of contracting this insurance, by means of a joint auctioning process involving all the AFPs, which will be obliged to award the service to the best economic offers that enable to cover the risk of 100% of the members. As was mentioned in Chapter 3, this measure seeks to make the cost of the disability and survivorship insurance transparent, making it more visible to its users and eliminating wrong incentives for AFPs to skim the membership portfolio, in an attempt to reduce the costs of this item and so improve competition in the pension system.

The fact that the contracting is done jointly allows a better pooling of risk than that obtained by segmenting it between different AFP portfolios, so this could result in a lower cost. Meanwhile, by charging a single premium rate, with no possibility of adjustments for the real claims rate, the insurance companies will demand a risk surcharge, which will tend to increase the rate. The AFPs on the other hand should reduce their fees by the proportion corresponding to this insurance coverage that they currently provide directly. As the risk surcharge demanded by the AFPs to provide this coverage may be different from that demanded by the insurance companies under the new scheme, the effect on the total pension cost is unclear.

Risk coverage by Insurance Companies

In addition to the centralised contracting process, the insurance must now be taken out with a fixed premium rate, without claims-rate adjustments. This means that the Insurance Company that is awarded the tender will indeed be covering the risk implied in this insurance. This measure seeks to ensure that the risk is assumed by institutions whose main activity is precisely that of covering risk and which are therefore adequately regulated and supervised to perform that job. Furthermore, in this way the provision of this insurance is separated effectively from the activities of the AFP, which relieves the cost structure of the AFPs by as much as 50%, making entry to the industry easier and improving competition.

As regards the process of applying for assessment, when a member decides to apply for a disability pension, the first step is to go and present the pension application at the office of the AFP in which he/she is enrolled. Given that in the present situation the cost of the SIS directly affects the AFP's costs, the latter has every incentive to try to reduce the presentation of these applications. With the Pension Reform, the member will still have to approach his/her AFP in the first instance, but this is now no longer affected by the cost of the SIS, because it will be covered by the insurance companies. However, in order to conclude that this change will affect the cost of the SIS, at least one of the following conditions must be fulfilled:

- the efforts made by the AFPs are preventing members who really are disabled from obtaining the corresponding benefit ,
- the system of disability assessment, based on Regional Medical Boards, a Central Medical Board and a System of Medical Observers is not capable of discerning the disability status of members who come for assessment, with a reasonable degree of precision.

In fact, let us assume in the first place that the system of disability assessment does in fact function properly. If the AFPs were to stop making efforts to hamper applications and these corresponded only to people who were not in a condition of disability, the medical boards would reject these cases and the cost of the insurance would not rise. The cost of the insurance would only rise if these new applications were from individuals who really were disabled. In that case, the increase in costs would be a result of an improvement in the fairness of the system, allowing access to more individuals who are in a condition that entitles them to the benefit stipulated in the Law. For the possible increase in the cost of the insurance to be an inefficient one, it is necessary to assume that the system of assessing disability is inexact. This implies assuming that all the bodies involved in this system, including the system of medical observers from the insurance companies, are incapable of performing a reasonable job. An increase in the cost of the insurance will only occur in this case if the result of the AFPs no longer paying the cost were an increase in the number of non-disabled members who present an application for a disability pension.

Separation of the premium rate by sex and over-contribution for the group with a lower claims rate

In addition to the above, the Law stipulates that the premium charged be separated by gender. This measure seeks to improve gender fairness in the disability and survivorship insurance by stipulating that each person pay the cost that corresponds to him/her by gender, eliminating the crossed subsidy that has existed historically from women to men. This measure has the effect of increasing the cost of the SIS for the group with the higher claims rate (men) and lowering that cost for the other group (women). If there were no other modification, the average cost of the SIS would remain unchanged. However, the method of implementing this separation of the premium rate is achieved by means of an over-contribution paid into the individual funding accounts of the members with the lower insurance cost. In other words, instead of charging two different prices according to gender, the rate charged will be that corresponding to the higher-cost group and the difference with the premium rate charged by the insurance companies for covering women's claims will be paid into their individual accounts. This over-contribution will increase their contribution rate and therefore the balance accumulated in their funding accounts, reducing the additional payment that the insurance companies have to pay in the event of a claim. This over-contribution therefore reduces the cost of the SIS for women.

Inclusion of the member's medical advisor

This measure seeks to bring the position of members in process of disability assessment into line with the position of the insurance companies in the process, which should help people presenting themselves for disability assessment, mainly by improving their ability to defend themselves against the appeals made by the medical advisors of the insurance companies. The Law also assigns him/her the task of checking the medical details justifying the disability application before this is assessed, as a prior step to assigning a medical advisor to the member free of charge. This should prevent cases that are nowhere near being in a real situation of disability from having this kind of advisory service free of charge, so it should not cause any great impact on the cost of the insurance if the quality of the assessment process performed by the system of Medical Boards is maintained.

5.3.2.- Measures that modify the definition of beneficiaries and members covered by the insurance

Incorporation of the non-disabled husband as beneficiary of a survivorship pension

This increase in coverage, which eliminates asymmetries of gender in defining beneficiaries, tends to make the insurance more expensive for women. Although women tend to live longer than men and couples, on average, consist of wives 3 years younger than their husbands (CASSEN 2006), the impact of this measure may be considerable in the cost of the insurance for this group. Given the separation by sex of the premium rates, this impact will be reflected in a reduction in the over-contribution rate for women, rather than in an increase in the rate of the premium paid for the insurance, which will be fixed on the basis of the cost of the insurance for men (the group with higher insurance cost). Estimates made on the basis of historic survivorship data and the study by Pablo (2007) show an impact from this measure of between 20% and 28% in the cost of insurance for women, which is equivalent to a reduction of the difference of the costs of the SIS for men and women from 0.30% at present to about 0.17% of taxable income.

Extension of SIS coverage to women up to the age of 65 years

This measure is included with the aim of maintaining disability or survivorship coverage for women who contribute in the system beyond the age of 60. As in the previous case, this increase in coverage tends to increase the cost of the insurance for women and reduce the difference of premium with men. According to the study made by Pablo (2007), granting this coverage would affect the cost of the insurance for women by about an additional 3%, leaving the difference in costs with men at about 0.10%.

Incorporation of voluntary members

The Pension Reform incorporates the category of “voluntary member”: people who will be covered by the insurance with rules similar to those currently used for self-employed workers (the requirement is to have contributed in the month prior to the claim). This enables those who carry out unpaid activities, or possess sources of income other than work, to save in the pension system to fund a future pension.

In general, the incorporation of a new mass of members covered by the insurance will affect its cost, depending on how the claims rate of the marginal group compares with the average claims rate of the group already covered. If the voluntary members tend to suffer more claims for disability or death than the average, a rise in cost is to be expected. If for example it is expected that this group will be more concentrated on women and their claims rate is similar to that of women covered at present, the average cost might fall.

Perhaps the most important way in which this group might affect the cost of the SIS could be through opportunistic behaviour that could occur. Notice, however, that the new method of calculating base income reduces substantially the level of the benefits open to a person who starts to contribute with the aim of making use of the SIS.

Incorporation of self-employed workers

Making contribution mandatory for self-employed workers, as discussed in Chapter 2, aims to increase the coverage of the pension system. For purposes of its impact on the cost of the SIS, this corresponds once again to the incorporation of a new group of members to be covered by this insurance. However, this is one of the most difficult measures to analyse in terms of its impact on SIS costs, because there is little knowledge about the claims rate of this group. This is so because these workers are not usually covered by pension systems or social security. To the extent that this group has the coverage of an industrial accident insurance, the effect of its incorporation on the cost of the SIS may be limited, because otherwise most of those claims would have to be covered by the SIS.

5.3.3.- Measures that modify the calculation method or the amount of the benefits

The Pension Reform stipulates that in the event of a disability's being declared total at the first ruling, this is now definitive. At present the cost of the SIS is made up of the transitory pensions, the additional payment in case of death during the transitory period, plus the additional payment or contribution at the point when the disability is declared at the second ruling, as appropriate. With the reform, in the case of total disability declarations, the cost will represent only the additional payment that has to be made when the disability is declared. In other words, the payment of transitory pensions is eliminated and the payment of the additional contribution is "brought forward". This additional contribution is calculated in such a way that it is sufficient to pay the member's pension or necessary payments in case of death, as appropriate, using the mortality tables in force for the system. If those tables estimate the likelihood of death correctly, the amount of the additional contribution should be equivalent to the expected present value of the components of the cost of the SIS in the current situation mentioned above. If these tables overestimate the likelihood of death, particularly during the first three years, the initial additional contribution will be less and the cost of the SIS would therefore fall, due to the elimination of the transitory period.

In addition to the above, although it is expected that the cost might be equivalent, in practice the insurance companies face the risk of changes in the interest rate during the first 3 years, meaning that the additional payment at the point of the second ruling may be different from that expected at the point of the first ruling. The elimination of the transitory period for total disability will produce a reduction in the premium rate charged by the insurance companies, because it removes a considerable source of risk for them, bringing down the cost of the insurance for the members.

Modification in determining base income

As was explained earlier, the Pension Reform includes a modification to the way of calculating the base income which serves to decide the originator's reference pension in case of claim. The setting of a 10-year minimum for calculating average income, regardless of the date of joining the system, reduces the cost of the SIS on two counts. In the first place, this average will necessarily be lower for people whose claim occurs less than ten years after enrolment, reducing the amount of the additional payment. It also discourages people with a disabling condition or physical impairment from enrolling late in the system, with a view to obtaining a disability pension funded by the SIS.

On the other hand, this method of determining the base income increases the cost of the SIS in the case of members whose claims occur before reaching the age of 34 because, at present, periods without contribution between enrolment and claim are included, whereas with this measure the method of calculation used is the one least prejudicial to the member. However, this increase in costs may be limited, since only a small proportion of claims occur before the age of 34⁹².

Young worker subsidy

This measure has the same effect as the over-contribution for women, in the sense that it allows greater balance accumulation for the same level of taxable income, thus reducing the amount of additional payments needed in case of a claim. Given its amount, 5% of the minimum wage for a maximum period of 24 months, the impact that it may possibly have on the cost of the SIS should be rather small. A simulation using data from pension histories assuming this measure to have been in force since the beginning of the system (fully-functional effect) shows a fall of between 0.22% and 0.26% in the cost of the insurance.

If workers join the pension system as a result of this measure, who would otherwise have remained in the informal sector and would not therefore have been covered by the insurance, the cost of the insurance may see a slight alteration, depending on the claims profile of the marginal group.

Division of balance in case of divorce

According to the marriage and separation statistics, this measure should tend to push SIS costs up, but only moderately. This is so because in the case where a claim occurs after the divorce, the additional payment will be greater for the party paying compensation and less for the party receiving compensation. Due to the characteristics of the first group in terms of higher income and a higher claims rate, the net effect expected is an increase in the cost of the SIS. The size of this will be limited by the incidence of the number of separated couples over the total number of members covered by the insurance.

Payment of funeral grant in cases where deceased members have a balance of less than 15 UF

Although this measure tends to increase the cost of the SIS, its impact is very marginal, due to the fact that the probability of a contributing member's dying before accumulating 15 UF in his/her individual account is low. Having analysed all the Applications for Funeral Grant during the year 2002 in one AFP (778 cases), 7 cases (0.9%) were found to be in the situation described. If the disability and survivorship insurance had covered the total payment of the Funeral Grant, it would have meant an additional cost for that AFP of U.F. 45.03 under this item in the year 2002. The above can be stated as an annual cost of U.F. 0.000546 per contributing member, in other words, less than 1 peso per month (\$0.94).

Equalisation of the Minimum Taxable Wage for domestic workers

In steady state, the fact of workers receiving a higher wage does not imply the SIS having a higher percentage premium, since the base income determining the amount of the benefits increases by the same proportion as the amount of the contributions.

⁹² As of December 2007, less than 12% of people receiving disability pensions were 35 years old or younger.

However, in the transitory state, which lasts for a number of years, the abrupt rise in taxable income may reduce the costs of the SIS, because the increase in the amount of contributions is immediate, whereas the increase in benefits grows at a rate of one hundred and twentieth (1/120) per month, due to the method of calculating the base income.

Greater investment flexibility

This is one of the measures that should reduce SIS costs in the long term, because it is expected that better average return on the funds and the existence of larger funds will reduce the amount of the payments made by the SIS.

Table 5.1
Summary of expected effects on the cost of the SIS

Measure	Direction	Effect
Joint SIS contracting	-	Magnitude depends on gains from pooling risk
Single premium in SIS contract	+	Magnitude depends on risk surcharge demanded. Should be offset by lower fees
Risk coverage by Insurance Companies	+	Magnitude depends on real effectiveness of AFPs in processing assessment applications and the precision of the assessment system
Separation of premium for men and women	0	The cost for men rises and that for women falls. The average remains unchanged
Higher contribution rate of women	-	Reduces women's cost. Effect depends on spread of costs between men and women
Widower included as beneficiary	+	Increases women's cost between 20% and 28%
Increased coverage for women up to 65	+	Increases women's cost by about 3%
Elimination of transitory status in total disability	-	May produce cost savings depending on the precision of the mortality tables. Reduces important source of risk for the insurance companies
New way of calculating base income	-	Reduces base income in some cases and discourages "abuse"
Contribution subsidy for young workers	-	Between 0.22% and 0.26%
Division of balance in case of divorce	+	Depends on incidence of divorces and average difference of accumulated balances
Funeral grant for deceased with balance < 15 UF	0/+	Negligible increase
Incorporation of member's medical advisor	+	Slight, if it means cases being approved that would be rejected in other circumstances
Equalisation of Minimum Assessable Income for domestic workers	-	Slight, for a transitory period of up to 10 years
Incorporation of voluntary members	+/-	Depends on the relative importance of this type of member, if there is no "abuse"
Incorporation of self-employed workers	+/-	Depends on their claims-rate profile

CHAPTER 6

INFORMATION IN THE PENSION SYSTEM

In a pension system like the Chilean one, based on mandatory individual savings managed by private institutions that compete among themselves, the quality of information available to members is important for the decisions that they take and for the good performance of the system in general. Being a defined-contribution system, the level of the benefits will depend fundamentally on the frequency and amount of the contributions made and the yield that these obtain. Although the system is a mandatory one, members have a series of options that affect these variables. For example, they may decide whether to pay contributions when self-employed, or not to do so; to pay on part of their wage or attempt to evade their pension obligations with the connivance of their employer; or to contribute in a voluntary pension savings plan. They can also choose the type of fund in which to keep their pension savings, the AFP to manage those funds or the moment to apply for a pension, among other variables.

On the other hand, as was mentioned in Chapter 3, the level of costs and the quality of service with which the AFPs operate will be determined by the degree of competition that exists among them. The more information members have with regard to the relevant variables and their differences among the various AFPs, the better their decisions will be in terms of their choice of AFP, and the more intense the competition will be between the companies with regard to those variables.

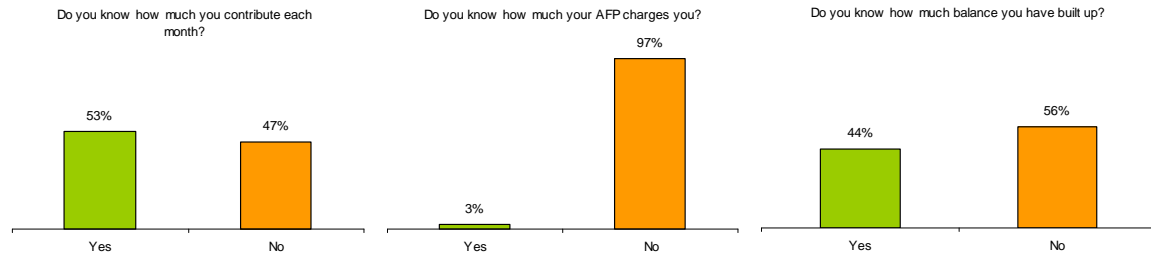
This chapter introduces the diagnosis of the available information to members of the pension system and the level of understanding about how this system works. It also shows the progress made in this area during the past few years and the measures contained in the Pension Reform.

6.1.- Diagnosis of members' knowledge

Given the importance of information in an individually funded system with private fund-management, it is worrying to find that 25 years after the implementation of the pension system in Chile, with components that make the involvement of the members an important factor to enable it to perform well, the level of knowledge with regard to basic characteristics of the system is so low, both among members and the population in general. The diagnosis in this respect comes mainly from the EPS carried out in 2002, which included a series of questions on general knowledge about the pension system, applied to a representative sample of members.

In relation to some of the basic aspects of the system, 44% of those interviewed state that they know the amount of the deduction made each month to fund their pension. However, when asked specifically about the amount, only 28% come up with reasonable figures and less than 6% know the covered earnings ceiling for contributions. 44% of the interviewees state that they know the balance in their individual account, and 29% how the pension funds are invested. One of the most worrying results is that only 3% say that they know the amount of fees charged for managing the individual accounts in the AFPs and when asked how much that fee is, less than 5% give a correct answer. This obviously limits any price competition that might exist in the system.

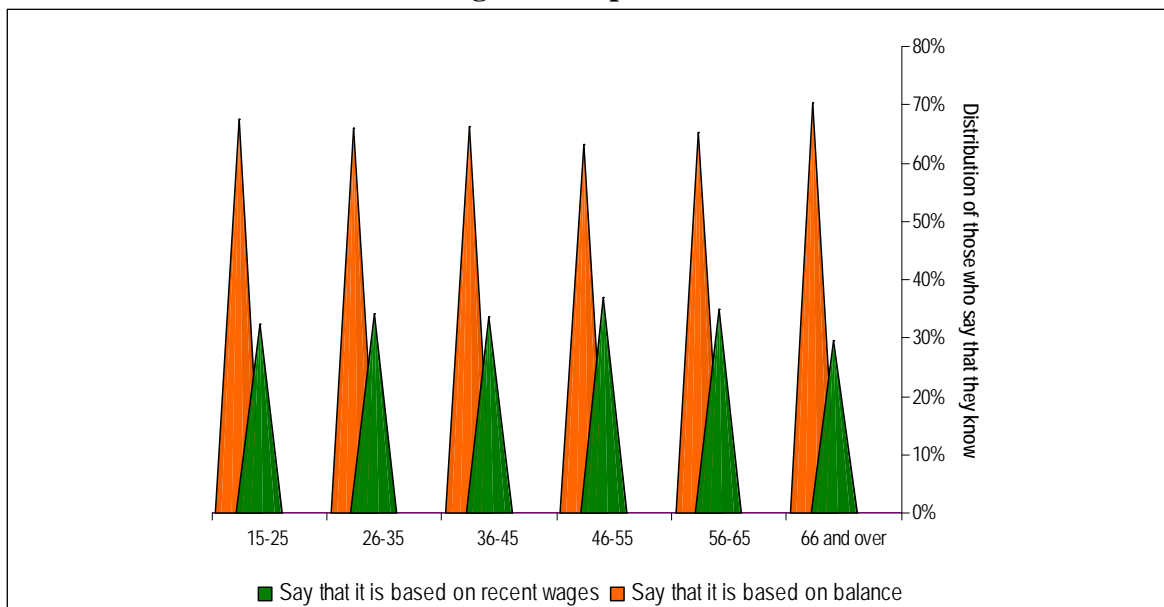
Figure 6.1
Members' knowledge about the pension system



Source: EPS 2002.

There is also considerable confusion with regard to how the future pension is funded and the amount calculated. In fact, whatever the age of the member, approximately a third thinks that the pension is calculated using the final years of earnings. This may have very negative effects on the system, since it is actually the contributions paid at an early age that are most important in funding the pension, due to the effect of compound interest. The final contributions, by contrast, have only a marginal effect on the final pension. When one sees the behaviour of young people, where informality is very high, it is clear that if there is no awareness of the need to contribute at that stage of life, there will be increased incentives not to do so.

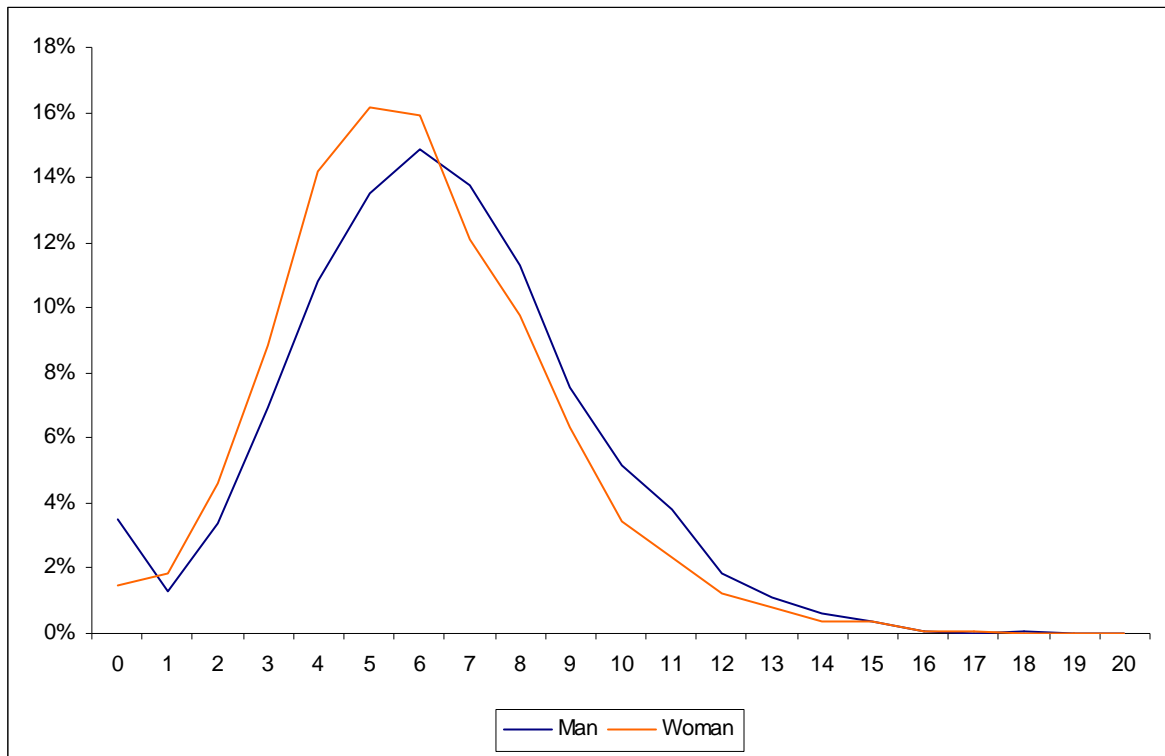
Figure 6.2
Members' knowledge of how pensions are calculated



Source: Social Protection Survey (EPS) 2002.

Of a total of 20 “knowledge” questions contained in the EPS 2002, over half of those interviewed answer less than 6 knowledge questions correctly. On a scale of 0 to 7, the average grade of members on matters of knowledge, based on these 20 questions, would be 2.8. The questions that show better levels of knowledge are those referring to legal retiring age, with up to 85% of knowledge, and the possibility of taking early retirement, with 75% of knowledge.

Figure 6.3
Distribution by sex of the number of questions answered correctly



Source: Social Protection Survey (EPS) 2002.

Based on this same survey, Berstein and Ruiz (2005) constructed an index of knowledge that made it possible to classify members into three relative knowledge groups. The results of an econometric estimation using an ordered *logit* specification show that women, young people, those with less education and lower income have a lower level of knowledge. In the process of analysing different alternatives for improving the information provided for members of the pension system, which led to the measures listed in the following section, studies and focus groups were carried out which also provided information about the members' general level of understanding of the system. These studies suggested that some of the aspects that make understanding the pension system more difficult for people are the technical language associated with concepts such as interest rate, or the need to understand values expressed in percentages. In this sense, the lack of pension knowledge is a reflection of a lack of general financial education at the level of the adult population. Another phenomenon that undermines the interest in understanding the system is the fact that the benefits and consequences of the decisions made in the present are perceived in a future that seems very far away. This might explain why the level of knowledge tends to rise as people approach legal retiring age. Unfortunately, finding out at that stage may be too late for taking corrective actions (such as depositing or increasing pension savings).

Table 6.1
Probability of different levels of knowledge
according to members' characteristics

Variables	Probability of Degree of Knowledge:		
	Low	Medium	High
Gender			
Feminine	33.12%	51.92%	14.96%
Masculine	24.51%	54.34%	21.15%
Age			
15-20 years	43.08%	46.60%	10.32%
20-30 years	31.14%	52.71%	16.15%
30-40 years	27.34%	53.86%	18.80%
40-50 years	25.63%	54.19%	20.17%
50-60 years	22.52%	54.42%	23.06%
60-70 years	30.66%	52.88%	16.46%
Education*			
Level 1	43.82%	46.14%	10.05%
Level 2	25.23%	54.25%	20.52%
Level 3	19.79%	54.12%	26.09%
Level 4	15.98%	52.61%	31.41%
Level 5	17.71%	53.48%	28.80%
Income**			
Minimum Earnings	32.01%	52.38%	15.61%
Average Earnings	27.53%	53.82%	18,65%
Ceiling Earnings	9.71%	45.54%	44.75%

Level 1: Primary Education; Level 2: Secondary Education; Level 3: Technical Training Centre and Professional Institute (incomplete); Level 3: Technical Training Centre and Professional Institute (qualified); Level 4: University (incomplete); Level 5: University (complete) and Postgraduate degree.

** Average Earnings of US\$336.7, Minimum Earnings of US\$154.5 and Ceiling Earnings equivalent to the Maximum Covered Earnings, amounting in December 2002 to US\$1,398.

Source: Berstein and Ruiz (2005).

6.2.- Measures Implemented prior to the Pension Reform

The situation reflected in the studies mentioned above drove the SP to carry out initiatives to improve the information provided in the system, without needing to change the Law. These have resulted in:

- Redesign of the appendices about yield and costs on the four-monthly statement, as from 2004.
- Incorporation of an appendix with a Personalised Pension Projection on the four-monthly statement, as from July 2005.
- Production of a Service Quality Index for the AFPs (ICSA), as from July 2005.
- Information on variability of the pension funds' return and launching of web tools "Compare AFP" and "Compare Fund" during 2007.

6.2.1.- Redesign of Yield and Costs appendices

The studies carried out revealed that part of the explanation for the low responsiveness to the price charged by the AFPs was due to the complexity of the fees structure, associated with the existence of a fee expressed as a percentage of the covered earnings and a fixed fee deducted from the balance. This is why, in the year 2004, the Appendix on costs was modified on the statement to include personalised information on the

pension cost. The cost of the AFP in which a person is contributing is calculated for that person and is compared with the competitor AFPs, also showing the annualised cost difference. An example of this table of costs can be seen in the following diagram. Furthermore, a tool was made available on the Superintendence's website to enable any member to calculate his/her pension cost.

Table 6.2
Example of personalised costs table
 (Individual with covered earnings of \$395,000 in December 2007)

FEE COSTS

If you were to contribute monthly on a wage of \$395,000 for 12 months, the total annual fee* that you would pay in each AFP would be:

A.F.P.	Total annual percentage fee**		Total annual fixed fee	Total annual fee	Annual difference compared with the lowest-cost AFP
	%	(\$)	(\$)	(\$)	(\$)
		(1)	(2)	(1) + (2)	(1) + (2)
Bansander	2,66%	\$ 126.084	\$ 0	\$ 126.084	\$ 16.542
Cuprum	2,48%	\$ 117.552	\$ 0	\$ 117.552	\$ 8.010
Habitat	2,23%	\$ 105.702	\$ 3.840	\$ 109.542	\$ 0
Planvital	2,89%	\$ 136.986	\$ 8.280	\$ 145.266	\$ 35.724
Provida	2,39%	\$ 113.286	\$ 0	\$ 113.286	\$ 3.744
Santa María	2,42%	\$ 114.708	\$ 5.400	\$ 120.108	\$ 10.566

* This calculation assumes that the fees will not vary in the next 12 months. The AFPs can change the fees, providing they give 90 days notice

** Includes \$42,600 corresponding to the average annual cost of the disability and survivorship insurance.

Source: Superintendence of Pensions.

With regard to yield, the previous appendix presented the result of each of the AFPs for five different periods, using a technical language that was difficult for members to understand. Having so much information available made making the effort to understand it less attractive for the individual, so it was decided to reduce the number of periods reported from five to two, maintaining the information on the annual yield for the last 12 and 36 months per type of fund for that AFP. Furthermore, the language was simplified. This information, like the information on costs, is available in the "Compare AFPs" section of the SP website.

6.2.2.- Personalised Pension Projection

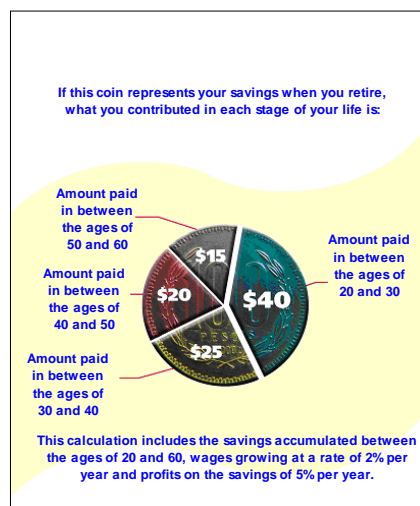
One of the important points detected during the year 2002 was related to the lack of knowledge about the pension calculation, since this can have a direct impact on people's behaviour and pension results. Ignorance or misleading information can mean that people come to awareness late in life, when measures to improve the pension may be ineffective or excessively expensive. This is why the SP required the AFPs, as from July 2005, to include an Appendix with the four-monthly statement, with a Personalised Pension Projection. This is an exercise that may turn out to be very difficult for the average member to carry out, even though he/she has the basic information in the four-monthly statement.

The methodology for preparing a pension projection involves knowing the accumulated balance, the age and the sex of the individual, in addition to making a series of assumptions concerned with variables such as: the future expected yield of the pension funds, the frequency and amount of future contributions, the age of retirement and the pensioner's family group at the moment of retirement.

It was decided to include a personalised appendix, based on the member's age and sex. In the case of members under 30 years of age, a graph is presented showing the importance of contributions paid at an early age. For members older than 30 and younger than 55 and 50 for men and women, respectively (thus with more than 10 years to reach the legal pension age), the appendix contains a forecast that assumes a real yield of 5% per year under two extreme cases of contribution density: a scenario in which contributions are paid every month until legal pension age and one in which contributions cease at the moment when the projection is made. This projection allows the individual to understand the importance of his/her contributions more clearly and, at the same time, to take the necessary actions (for example, making voluntary contributions) if he/she considers that the projected pension amount will be insufficient. Finally, with regard to those close to retirement, the simulation includes a scenario in which the person retires on reaching legal pension age and another in which he/she postpones this decision for three years. This allows people to make a better evaluation of the effect of the retiring age on pensions.

Starting on the basis of information compiled on the July 2005 statement, Fajnzylber, Plaza and Reyes (2008) made an impact evaluation to measure the effect that receiving this information had on the probability of starting to save voluntarily for pensions. The results obtained show that those who receive the statement with the PPP have a probability of saving voluntarily for pensions after receiving the statement that is up to one percentage point more than a comparable group of members to whom the statement was not sent. This represents an increase of up to 66% in that observed probability for members included in the sample that was used.

Figure 6.4
Examples of information contained in Personalised Pension Projection
Extract from the Chart in the Appendix for young members



Extract from the Appendix for a male Member between 30 and 55 years of age

What would happen to your pension if you...	You would receive an Estimated Pension of
... never contributed again and retired at age 65?	\$ 113,018
... continued to contribute every month on a wage of \$317,419 until you retired at age 65?	\$ 176,054

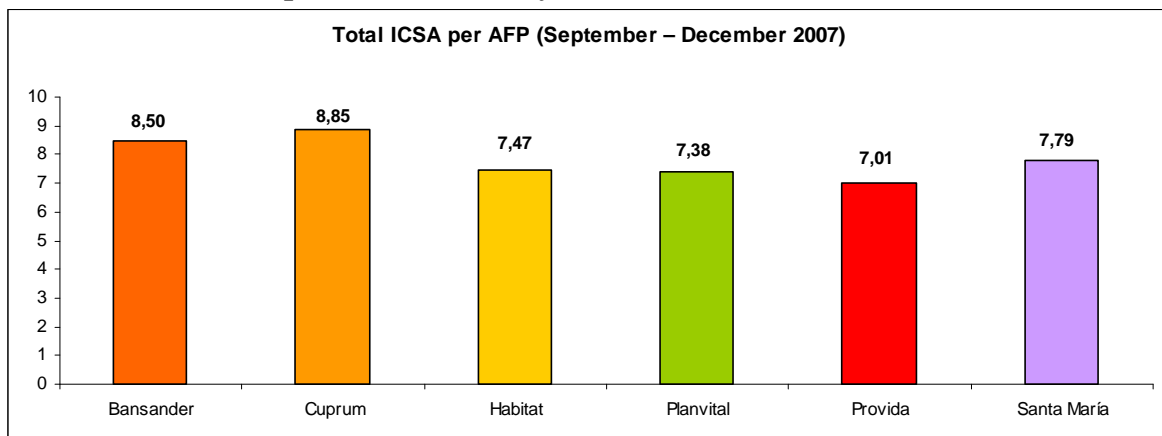
For purposes of calculating the Estimated Pension, a yield of 5% per year is assumed and to have a wife 2 years younger as beneficiary.

Source: Superintendence of Pensions.

6.2.3.- AFPs’ Service Quality Index

Since July 2006 under “Compare AFPs” section of the Superintendence’s website is posted the AFP’s Service Quality Index. Unlike costs or yield’s report, there was formerly no structured information available to make it possible for members to find out the differences among the various AFPs in terms of service quality. In an attempt to fill this gap, the Superintendence developed a methodology to compare the quality service of each AFP. In this way, members have a new element of comparison when deciding on the AFP that best suits their own needs and requirements. Seeking to make things as simple as possible, the AFPs’ ICSA was created. The most important elements featured in this index are described in Inset 6.1. By way of illustration, the chart shown below presents the result of the overall ICSA measurement for the period September-December 2007.

Figure 6.5
Example: Service Quality Index as of December 2007



Source: Superintendence of Pensions.

Inset 6.1
AFPs' Service Quality Index (ICSA)

From July 2006 onwards, the SP began to measure and publish the ICSA. The construction of the index starts with the measuring of over 40 variables (initially there were 38) related to the various services provided by the AFPs, which can be identified under the three areas considered the most important in the service renders by an AFP; **Relationship with the member, Accounts Management and Pension Processing**.

In the aspect of the **Relationship with the member**, an attempt is made to measure efficiency, effectiveness and the ability of the AFP to respond to the queries and needs expressed by its members or the general public and to provide relevant information. Some of the variables included in this area are: Delay in mailing the four-monthly balance statements, AFP staff over total membership, and Availability of the AFP's web site.

Efficiency and effectiveness in **managing members' accounts** and the resources managed by an AFP are measured by variables such as: Average time taken to credit personal accounts, Percentage of resources credited in personal accounts, Handling of contributions declared without payment, Type of risk measurement carried out to analyse the Pension Funds investments, Penalties imposed by the Superintendence related to the financial and accounts administration area.

The quality of the **pension processing process** is related to the AFP's efficiency and effectiveness in the paperwork carried out by its members and beneficiaries for obtaining pensions. Examples of variables included in this area are: Average time taken in processing a pension application, Number of relevant delayed pension applications, Errors in processing pension applications, Assessing and re-evaluating degrees of disability and Penalties imposed by the Superintendence in matters affecting members' benefits.

The measurement is carried out every four months, as of April 30th, August 31st and December 31st each year, and published on the Superintendence's website. For each of the variables, the grade obtained is based on the performance achieved by all the AFPs in one calendar year. In other words, it is an index of relative performance. The results obtained by each AFP are shown by an overall grade (including all the variables), a grade for each area (which includes the variables making up that area) and the grade obtained in each variable. The scale of evaluation is one to ten, where ten is the best.

Because of its methodological design, the results can be compared among the different AFPs, within a single year. Given the changes experienced by the index in terms of definition and inclusion of variables, the results are not comparable from one year to another.

The AFPs are authorized to use the results in their advertising, in accordance with a special rule issued by the SP.

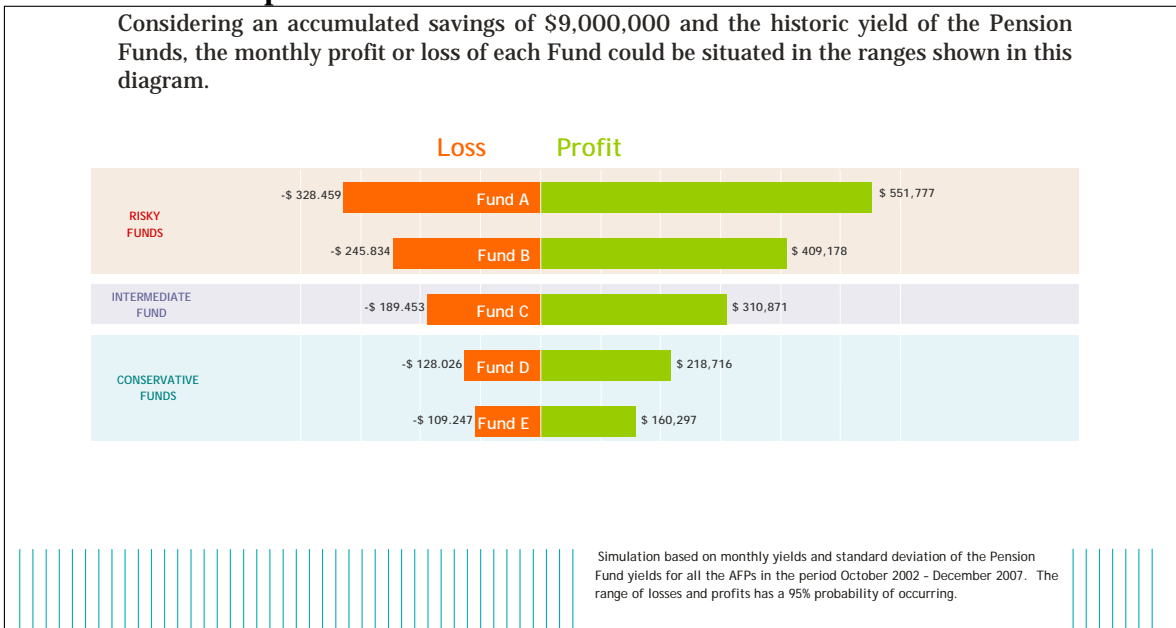
6.2.4.- Pension Fund Volatility Index

The multi-fund scheme implemented in Chile since 2002 gave members the possibility of choosing among different alternative investment strategies, according to their own needs and preferences. The five types of funds that exist are differentiated mainly by their degree of exposure to equity and therefore, their level of expected yield and risk. Furthermore, the system includes a default mechanism for assigning members by age when the fund is not elected. The younger members are assigned to fund B, those of middle age to fund C and those who are less than 10 years short of legal retiring age, to fund D. The message clearly indicates that younger members may be in a better position to tolerate the risk associated with more aggressive investment strategies in order to profit from the greater expected return, while for older members it is more advisable to adopt more conservative strategies.

However, in the first 5 years of the multi-fund scheme's operations, members basically only had information about the yield obtained by the funds, without there being any information that clearly showed the risk aspect associated with the choice of funds. In view of this, during 2007 the Superintendence worked on preparing an index to show, as clearly as possible, the variations that the value of the pension funds may suffer over time. Various alternatives were tested, but an important condition for producing it was having sufficient data to show information based on real facts. For this reason, it was decided to use the variability of monthly returns, despite this not being a relevant investment horizon for pension funds, in the hope that members would be able to extrapolate from that information the fact that, if the pension funds could vary so much in just one month, then the volatility to which they are exposed is not insignificant.

The information shown in the index corresponds to a yield band that occurs with a probability of 95%, according to the historic data of monthly yield for each of the five types of fund. In order to make it easier to understand, this range is shown in pesos, using the average balance in members' individual accounts at the date of the calculation. The chart illustrating the index, shown in Figure 6.6, was tested with various focus groups, it displays the funds arranged from greater to less in their range of losses and profits, classifies the funds into risky, intermediate and conservative, and provides a message on the relative advisability of the various alternatives, according to the member's investment horizon. This information is published in the "Compare Funds" section of the SP website, which also contains historic information on the real yields obtained by the various pension funds.

Figure 6.6
Example: Pension Fund Risk Index as of December 2007



Source: Superintendence of Pensions.

6.3.- Measures concerning information contained in the reform

The diagnosis presented reveals great ignorance about how the pension system works, and considering the importance of the actions taken by individuals throughout their lives for the system's performance, it is crucial to advance in improving this aspect of the system. As we saw in the previous section, considerable efforts have been made in the past few years, but it was thought necessary to reinforce these initiatives by means of the specific legal changes described below.

6.3.1.- Pension Education Fund

In view of the situation described earlier, the Advisory Council for Pension Reform proposed to set up a Competitive Fund to finance initiatives designed to improve the population's Pension Education. Through this fund, it would be possible to finance projects such as large-scale information campaigns, pension courses, information guides, etc. Law 20,255 sets up the Pension Education Fund, financed out of the government's budget and with donations or contributions received. The fund's resources will be allocated by public competitions subject to a proposal from a Selection Committee. The Selection Committee will include representatives of the Undersecretary of Social Pensions Office, the IPS and the SP, in addition to the Chairman of the system's Users' Committee. In order to encourage regional decentralisation of these initiatives, the Law stipulates that at least 60% of the funds be dedicated to financing education and diffusion projects or programs whose beneficiaries live outside the Metropolitan Region, provided that there are enough of such initiatives that meet the technical requirements necessary to apply for financing from this fund.

The aim of this fund is therefore to allow a variety of initiatives to be funded and executed within a coherent communications strategy to improve knowledge of the

pension system, providing a logical framework to initiatives that would otherwise not be carried out at all or would have a very limited impact, due to limited coverage or being an isolated effort.

6.3.2.- Users' Commission

The Advisory Council for Pension Reform proposed setting up a Users' Commission for the pension system, in part thanks to the good experience reported as a result of having a Users' Commission for the Unemployment Insurance. This insurance, created in the year 2002, based on individual accounts and a solidarity fund managed by a single operator selected by international tender, included a Users' Commission from the outset of the system, made up of representatives of workers and employers and chaired by an academic. So far this Commission has played an important part in the operation of the Unemployment Insurance.⁹³

Following this model, Law 20,255 stipulates the creation of the pension system's Users' Commission, made up of one representative of the workers, one of the pensioners, one of the public institutions and one of the private bodies in the pension system, chaired by a university academic. The function of this commission will be to channel the evaluations concerning the operation of the pension system which are made by those it represents to the corresponding public bodies, in addition to proposing education and propagation strategies for the system. In other words, it will be a useful instance where users can collect information about the system's operation in a structured manner, carry out their own analyses and prepare proposals for improvements and refinements. In addition, one of its main roles will be that of keeping an eye on the quality of the information available to members for their decisions and proposing the main points to be followed by the pension propagation and education policies, on the basis of that background data.

6.3.3.- Pension Advisors

The Law creates the figure of the Pension Advisor, where pension advice is conceived as an ongoing process throughout the member's life, due to the fact that this can be needed during the fund accumulation stage as well as at the point of taking a decision with regard to selecting a pension option.

The Law states that the purpose of having a pension advisory service is to provide members and beneficiaries of the System with information, considering in a comprehensive manner all the aspects that have to do with their particular situation and that are necessary in order to adopt an informed decision with regard to the benefits included in the pension system, in accordance with their needs and interests.

With regard to members and beneficiaries who meet the requirements for retirement, there is some advice available today, provided by the AFP itself or by insurance brokers. The advice of these institutions at the moment of retirement should provide specific information on the ways to collect a pension, according to the options existing in the pension system; the requirements for choosing among them; and other benefits for which they may qualify, depending on the case, with an estimation of their amounts.

⁹³ See Berstein et al (2007) on this issue and the annual reports of the Unemployment Insurance Users' Commission.

However, the member may not consider this advice to be impartial and objective as far as the pension option is concerned, because the AFP may have incentives to persuade the member to remain in the AFP by opting for a programmed withdrawal, while the insurance broker has an interest in the member's choosing a annuity pension, because otherwise the broker receives no monetary compensation.

This stage is one of the most important because in the case of the annuity, this is an irreversible decision. That is why the Law incorporates the figure of the pension advisor, giving him/her the status of a well-prepared professional advisor, with any conflict of interest under control.

The pension advisory service established in the Law will support members both in the decisions they have to take during their active life in order to incur lower pension costs and maximise the accumulated capital – by choosing the most convenient AFP, taking advantage of the tax incentives provided by the System, among others, and planning the level of their future pension – and in the decisions that lead to the most appropriate pension for each member, evaluating his/her personal preferences as well as the risks of investment and longevity.

With regard to the transition between the active and passive stages, the pension advisor replaces the current figure of the insurance broker. All the specialised advisory functions concerning insurance will remain in force; however, these functions are extended to a much wider field, which no longer corresponds to insurance in particular but to the pension field in general. Therefore, according to the definition of Pension Advisory Services laid down by the Law, those who have worked or are working in the area of annuity broking will need to broaden their knowledge in order to be included on the register of Pension Advisors kept jointly by the SP and the SVS.

The pension advisory service will be financed by the member. However, given the importance of the decision involved in choosing a pension option and considering that, in the case of annuities, there is already an intermediation fee paid to the insurance brokers that directly affects the pension, it has been felt advisable to give members who qualify for retirement and wish to choose the programmed withdrawal option, the possibility of funding this advisory service with funds from their individual funding account. In this way a considerable asymmetry between the annuity and programmed withdrawal options is reduced, meaning that the recommendation arising from the advisory service will be better aligned with the relative suitability of one or other alternative for the member, without there being a conflict of interest with the advisor.

Even so, if the fee deducted from the balances accumulated by the members directly affects the amount of the pension, this must be reflected clearly on the pension offer certificate, or by the mechanism designed for the purpose. There will also be a maximum ceiling on the fee that can be deducted from such balances, equivalent to 2% of the funds, with a maximum ceiling of 60 UF during the member's lifetime.

Given the fact that the member, by choosing programmed withdrawal, may in the future request a change of option to annuity and need further advice to make the change, the Law states that the maximum fee in the case of choosing programmed withdrawal must be lower than the maximum fee where annuity is chosen. Even though this may mean keeping the asymmetry between the two options to a certain extent, it was felt necessary

to leave a margin, to fund possible advisory assistance in the event of a change of option. The SP and the SVS will be the bodies responsible for inspecting the pension advisory service. For these purposes, the two Superintendences will keep a joint register of pension advisors. In order to be included on this register, people must meet the requirements stipulated in the Law and prove their knowledge of pension insurance matters.

In fulfilling this function, the Superintendences will have to supervise:

- The quality of the advice given.
- The way in which payment is made.
- To ensure that the payment amounts deducted from the member's Individual Funding Account are in line with the maximums established in the Law and regulations.
- To ensure that incentives or fees are not being paid to the pension advisors by the AFPs, since the latter receive fees for managing the Funds during the member's active life or by handling the programmed withdrawal.
- Compliance with the legal requirements for practising as pension advisors.

CHAPTER 7

REGULATION AND SUPERVISION OF THE NEW PENSION SYSTEM

The recent Pension Reform created the SP as the unifying supervision and regulation agency of the civil pension system, including both the system of solidarity pensions and the mandatory and voluntary systems managed by the AFPs, and the pay-as-you-go system administered by the IPS.⁹⁴ The purpose of doing this was to reinforce the ability to react of the bodies responsible for decision making, to facilitate administrative work and to avoid duplication of competencies, thereby giving an all-embracing character to the new Pension System.

The SP, in addition to being the legal continuator of the SAFP, takes on new functions as a result of the system of solidarity pensions created by the reform, and takes responsibility for activities that previously fell within the sphere of competence of other public bodies, such as the SUSESO. Due to the fact that the SP has been created on the basis of the accumulated experience of the SAFP, the former has naturally taken charge of the challenges inherited from its originator. In this sense, the conception of the reform coincided with a period of deep analysis into the supervisory methods used in the tasks of supervising and regulating the AFPs. From this analysis, prepared with the assistance of the World Bank and the Financial Sector Reform and Strengthening Initiative (FIRST)⁹⁵, was born the interest in progressing towards a scheme of eminently preventive and prudential supervision and regulation, in contrast to the more classical, essentially reactive approach, that acts in response to contraventions of the rules.

7.1.- The pre-reform diagnosis

7.1.1.- Role of the institutions making up the pension system

The pension system's operation necessitated the interaction of numerous institutions. When the Reform was being designed, it was clear that there were multiple institutions involved in the pension system in Chile, without these necessarily being articulated in a coherent and integrated manner. In fact, one of the elements highlighted by the Advisory Council for Pension Reform in its final report was the institutional dispersion prevailing in the Chilean pension system, which was reflected in the spread of the executive, ruling and regulatory functions of the different schemes included in the pension system among a variety of public and private institutions. On the public side, for example, the following institutions were involved in operating the various schemes included in the pension system: the Undersecretary of Social Security, the SUSESO, the SP, the Budgets Department, the General Treasury of the Republic, the Ministry of Planning (MIDEPLAN), the INP, and the regional and municipal authorities.

This can be explained because, in the situation prior to the Pension Reform, there were disjointed programs that were incompatible with one another and pursued different aims

⁹⁴ However, the SVS and the SBIF still have the duty of inspecting the Voluntary Pension Savings plans offered by institutions in their field of supervision.

⁹⁵ See <http://www.firstinitiative.org/>

in certain cases. For people over 65 years of age in a state of poverty, without any contributory pension, there was the PASIS. This had to be applied for at the municipal offices, it was funded by the State and awarded and paid by the INP. The poverty qualification was verified through the Social Protection Record, formerly the CAS card, designed by MIDEPLAN and implemented by the applicant's municipality. For workers included in the pension system before the year 1981, who had not changed to the new pension system implemented as from that year, there was the pay-as-you-go, or old system, based on pension providers ("cajas") unified under the INP in that same year, 1981. As we know, those who transferred to the fully-funded system or joined the labour market after the year 1981 receive a pension funded with their savings accumulated in individual accounts managed by the AFPs.

Prior to the Pension Reform, the SAFP exercised supervisory functions restricted to: the operations of the AFPs and Unemployment Fund AFP (AFC) in providing their services and managing their funds; regulating the operations of those institutions; receiving complaints and queries from the public; signing on doctors for the medical boards that assess disability, inspecting these boards and also carrying out studies aimed at evaluating and improving the performance of the pension system. The SUSESO meanwhile was responsible for regulation and rule-making over a variety of components of the social security system: answering complaints about sick-leave, inspecting the mutual insurance societies and the INP, in addition to the Family Allowance and Compensation Funds (Cajas de Compensación). Finally, the INP was in charge of administering the benefits of the old system, collecting contributions for other public institutions and administering the Job-Related Accidents and Diseases Insurance for its members.

As a result of the Pension Reform, these institutions, in the main, retained all their functions. Nonetheless, the design of an all-embracing pension system, in which the solidarity pillar is included and complements the pensions funded by the contributory pillar, made it necessary to establish complete supervision of the civil pension system as a whole. The Executive's diagnosis agreed in this sense with the need to coordinate the functions of the various institutions in a better way, so that a complete picture of the pension system could be given.

7.1.2.- Evaluation of the task of supervision and regulation⁹⁶

Financial supervision and regulation has been in the eye of analysts generally, in the most varied spheres and countries of the world. Privately-managed pension systems, both defined-benefit and defined-contribution, mandatory or voluntary, have also been the subject of this type of analysis. This is due to the fact that over the past few decades pension systems managed by private agencies have moved from being a supplementary way of providing income in old age to being an element that is important, and in some case, such as the Chilean one, crucial to the social security systems.

With the start of the new millennium, various factors combined to show the need to speed up changes in supervision methods. The private pension funds in a series of countries accumulated assets for amounts exceeding those of more traditional financial

⁹⁶ The central ideas of this section pick up the discussion put forward by Brunner and others (2007) and Cohen and Ferrer (2008). It is suggested that the interested reader should consult those references for a deeper analysis.

institutions, in some case over 100% of the Gross Domestic Product (GDP). This led to a corresponding increase in interest, due to their systemic importance. Furthermore, the coincidence of a rapid fall in interest rates and the collapse of share prices showed up the fragility of the funding requirements of the remaining Defined-Benefit schemes (DB).⁹⁷

On the other hand, certain worries about the ability of the new Defined-Contribution (DC) plans to produce adequate pension levels were also a focus of attention, causing a number of countries (Germany, Australia, Costa Rica, Denmark, the Netherlands, Kenya, Mexico, the United Kingdom and South Africa among them) to re-evaluate their supervision systems.

The general path adopted in these countries has been, in both the regulation and supervision areas, to move on from an initial emphasis on ensuring compliance with laws and rules, with relatively simple methods to limit investment risk, towards a much more comprehensive approach, designed to ensure appropriate management of all the risks associated with a complex institution responsible for providing a source of retirement income. This new approach is known by the name of Risk-Based Supervision (SBR). It is in the light of this new approach that Chile's case is being analysed in particular, identifying those areas in which progress should be made to ensure that the system performs better.

Inset 7.1

Main elements of Risk-Based Supervision

One of the main objectives of SBR in the banking sector and the insurance industry is to ensure that institutions adopt robust risk-management procedures and maintain appropriate levels of capital. These institutions recognise that solid risk-management practices are in the interests of the shareholders and are rewarded by the market, as shown by the growing concern for the quality of internal risk management by risk-rating firms

Pension supervisors meanwhile face challenges that are similar in many ways to those confronting supervisors of banks and insurance. In particular, they need to move towards an approach that emphasises solid risk management on the part of the supervised institutions, in order to reinforce their financial stability and ensure more efficient and reliable results for pensioners. The challenge facing pension fund supervisors is to ensure that all the authorized institutions comply with minimum risk-management standards.

The architecture of SBR includes various components: 1) the supervised institutions, 2) the supervisory body and 3) the other participants in the market that are capable of influencing the decisions and actions of the pension funds (e.g. members, auditors,

⁹⁷ National pension systems can be classified according to the contractual arrangement between the person saving and the person providing the final payment. In the case where that contract makes an explicit promise with regard to the benefit to be received (subject to certain contribution requirements), the pension system in question is called a defined-benefit scheme, whereas when that contract refers to the amount and quantity of the contributions and not of the benefits to be received, it is called a defined-contribution system.

actuaries, risk-rating firms and market analysts). With regard to the first component, one of the main objectives of SBR is to ensure solid risk management at the level of the supervised institution. This area includes the institution's ability to identify, measure and manage all the relevant risks. This should in turn be reflected in the existence of a solid internal architecture of management, which includes an appropriate risk-management strategy, evidence of involvement on the part of the board, the existence of risk-management functions in the hands of competent, independent and responsible professionals, and appropriate internal controls.

In the case of the second component, there are elements that range from the supervisor's powers to issue rulings (including rulings concerned with the architecture of risk management and the risk-management procedures of the supervised institutions), to the existence of a risk-rating model to guide supervisory strategy and procedures. Furthermore, there is the need for the supervisor to have an organizational structure that is consistent with the requirements of the previous elements, establishing areas focused on relationships with the supervised institutions and other technical units more specialised in quantifying and analysing the different types of risk.

The third component, meanwhile, is made up of those market participants that can contribute to market discipline and the adoption of solid risk-management practices on the part of the institutions, which may also in turn depend on the rulings issued by the supervisor. For example, the role of the auditor can be improved by expanding the horizon of the audits to include an analysis of the effectiveness of risk-management systems and internal controls and imposing the obligation to inform the supervisor about potential threats discovered. The influence of the members, risk-rating firms and other market participants may be reinforced thanks to good handling of accounting, auditing and the rules governing the disclosure of information issued by the supervisor.

This supervisory framework is visualised as a continuous process of Evaluation, Follow-up and Learning. This process involves: (1) the definition of a strategy of supervision by the supervisory body, (2) the reaching of agreements with the supervised institutions with regard to weaknesses that need to be overcome, and (3) follow-up to ensure compliance with the agreements reached. At the same time that process involves supervision work by specialised teams, evaluation by an evaluation committee and the presentation of results to the top management of the supervised institutions.

The purpose of the aforementioned evaluation is to identify the institution's overall management ability (specifically in risk management), identify the main weaknesses, provide feed-back for the supervision strategy, define commitments to correct weaknesses, define follow-up procedures and identify situations that may give rise to special actions or responses. This process involves knowing and understanding the key aspects of the supervised institution, and that is achieved by direct contacts, database analysis, on-site inspections and maintaining an information system.

Source: Cohen (2008).

The SP began the process of studying and analysing the supervision approach at the beginning of 2005, arriving at the conclusion that it did not comply fully with the

main SBR guidelines and defining in 2006 the need to adopt these main guidelines as one of its institutional projects. It was felt necessary to advance towards supervision that was more:

- *Effective*. Meaning that it includes all the relevant risk factors, using a preventive perspective, which will leave it in a better position to produce a stable pension system, providing adequate benefits (according to local and international parameters) within a framework of limited risk.
- *Efficient*. Supervision should be such that key risk factors can be identified in each supervised institution. This should result in a more efficient use of its human and material resources. In other words, the supervisory effort would be allocated in proportion to the overall risk of each institution, and would be focused, for each one of them, on the most important areas of vulnerability.
- *In line with best practices*. This means coming into line with the global trend, which is always important in an increasingly globalized financial market. On this point, the incorporation of SBR criteria in the supervision of financial institutions is one of the points assessed by the OECD in the process of incorporating new countries, as is the case of Chile.

All in all, it is necessary to put an all-embracing, preventive process of supervision in place. The fact of being all-embracing implies reviewing all the relevant risks in each activity: financial, operating, credit, technological and legal risks, for example. Of course, the importance of each of these will vary according to the particular characteristics of the supervised institution and in particular the nature of its operations. Meanwhile, with the aim of being preventive, the evidence shows that the most important variable in predicting situations of weakness is the quality with which the supervised institution handles risk management and the internal controls associated with its main operating processes.

The effective supervision of the AFPs' fiduciary role also requires this job to be carried out comprehensively. With this aim in mind, supervision should include an evaluation of both the factors specific to each institution (vertical view) and their capacity to manage the main operating processes and risks pertaining to this industry (horizontal view).

The importance of evaluating in detail the factors pertaining to each institution could be sustained by a whole set of arguments. In the first place, it is said that concern about the quality of risk-management policies usually emanates from the cupola of corporate governance. At the same time, any weakness in that governance is reflected throughout the whole organisation, and this occurs too due to flaws in the strictness of internal control policies, the power of the role of the audit office and the quality of strategic planning. As a reflection of the above, the supervisor must require those ultimately responsible for the supervised institution to produce the plans of action that must be carried out in order to tackle the main weaknesses detected during the supervision process, and not the managers of the respective processes in which such weaknesses are found to be present.

In general, risks are not found in a pure state. Operating risk, for example, affects financial risk and credit risk. This situation also contributes to supporting the importance of evaluating each institution as a whole. This vertical view must in turn be complemented, in matrix form, with a detailed review of the risk-management processes

proper to this industry, in order to know the AFP's ability to meet the objectives mentioned above in a comprehensive way.

Even though the evaluation of the work of supervision and regulation carried out by the SP during over 26 years of existence has been positive, as shown in the Advisory Council's report, the complexity of the financial markets and operating and technological processes makes it necessary to progress towards a supervisory approach that takes charge of the aspects put forward in this section. All of them are to a certain extent present in the way in which supervision is carried out nowadays, but the relative weight and manner in which these elements are coordinated show that there is room for greater flexibility in regulation on the one hand, while, as a counterpart to that, there is the need to prevent possible problems in the supervised institutions in an effective and efficient manner.

7.2.- Measures contained in the reform concerning the institutional framework

From the institutional point of view, the implementation of a system of solidarity pensions as a complement to the contributory system gives rise to the need of providing the system with an organic institutional framework in response to the need to give an all-embracing view of the pension system.

The administration of this new solidarity system fell to the current public AFP of the pay-as-you-go system, the IPS, in view of its experience and knowledge in handling pension benefits provided by the State. Considering that the INP, in addition to this function, includes coverage for the Job-Related Accidents and Diseases Insurance through its INP Active Sector division, a new institution was set up, based on the INP, called the Social Pensions Institute (IPS), which will take charge of the pay-as-you-go and solidarity pension systems, while the current work of the INP Active Sector passed to the Institute of Safety in the Workplace (ISL).

The Pension Reform echoed the preceding diagnosis to a great extent, in the sense of grouping all the supervision and regulation functions of the new pension system in the recently created SP. This Superintendence is the legal continuator of the SAFP and in addition to all its functions and attributions now includes the supervision of the system of solidarity pensions and the old pay-as-you-go system, both administered by the IPS. This latter function has been transferred from the SUSESO. Apart from the addition of this new supervised body, there are also new functions resulting from the regulatory changes introduced by the Pension Reform.

Given below is a list of the additional functions that correspond to the SP as a result of the Pension Reform, divided according to the three macro-functions of the SP: supervision, regulation and provision of services and information to users. Meanwhile the necessary modifications are made to advance towards a supervisory approach in accordance with the main points identified in the diagnosis, which leads in the end to a SBR scheme.

7.2.1.- New Tasks for the Superintendence of Pensions

The Supervision Function

The new functions in the supervision area are as follows:

- a) **To oversee the system of solidarity pensions administered by the IPS.** In order to unify the inspection and regulation of the civil pension system in a single public institution, which will include the solidarity pension system, the mandatory contributory system and the voluntary contributory system, the supervision of the solidarity system is transferred to the SP. This job implies the inspection of the IPS's operations, including the Comprehensive Pension Advice Centres (CAPRI).
- b) **To supervise the IPS in matters concerning the old pension providers (cajas).** The SP will oversee the IPS as the legal continuator of the INP in its function as administrator of the pension schemes of the "cajas" and the Social Insurance Service. It will also supervise the other benefits provided by that IPS, except for those that refer to the Job-Related Accidents and Diseases Insurance, which will be transferred to other organization.
- c) **To ensure compliance with legislation in matters relating to the process of disability assessment in the case of beneficiaries of the system of solidarity disability pensions and those contributing in the pension providers administered by the IPS.** In order to homogenize the process of disability assessment, it is stipulated that the Medical Boards that currently assess members of the AFPs shall also assess disability in the case of these new beneficiaries of the solidarity pension system.
- d) **To supervise the National Ergonomic Commission and the Appeals Commission.** This new function means that the SP will have to supervise these Commissions, issue the operating rulings required to rate jobs as "heavy" and check that the commissions are duly fulfilling the functions that correspond to them. Furthermore, the Superintendence will be responsible for receiving the requests for "heavy jobs" assessment, and will keep a public register with experts that can be appointed to provide advice in the job assessment process.
- e) **To supervise the functioning of the services that an AFP has outsourced, where these are related with its corporate purpose.** The SP must stipulate the requirements to be met by the contracts signed by the AFPs for provision of services related with their corporate purpose. At the same time, the Superintendence must continually be inspecting the performance of the services outsourced by the AFPs and has the authority to oblige the service provider to give information, or to access its premises or files.
- f) **To appoint one of its staff, by a justified resolution, as delegated inspector at an AFP, in order to protect the safety of the Pension Funds.** The appointment of a delegated inspector at an AFP must be based on serious facts that place the safety of the Funds in imminent jeopardy and necessitate the adoption of urgent measures. The circumstances leading to the appointment of a delegated inspector, defined in the Law, must be constantly monitored by the SP.
- g) **To supervise the joint auction for the SIS that has to be carried out by the AFPs.** The SP and the SVS will have to draw up the Bidding Conditions to carry out the SIS auctioning process, and before doing so must analyse and evaluate the most appropriate procedure for this new way of bidding for the SIS. In addition, the process of insuring the risks of disability and survivorship of the members of the system, resulting from this Reform, must be monitored with particular attention

- h) **To supervise the stipulations in terms of the corporate governance of the AFPs and the companies in which the Funds are invested.** One of the main new stipulations in matters of corporate governance is the requirement to have autonomous directors for the AFPs' boards of directors. A director is considered to be autonomous if he/she has no link with the AFP, the remaining companies in the business group to which it belongs, its controller, nor the principal executives of any of these, that might cause him/her a potential conflict of interests or hamper the independence of his/her judgement. This aspect must be regulated and inspected by the SP.
- i) **To follow up the policies for investment and solving conflicts of interest raised by the boards of the AFPs.** The Superintendence shall establish, by means of a general ruling, the minimum subjects that must be included in the policies for investment and solving conflicts of interest, the timing and scheduling with which these must be reviewed and the way in which the Superintendence and general public is to be informed of them. In addition, the Superintendence must supervise compliance with the policies defined by the AFPs and make any failures to comply available to the general public. It can also penalise the AFPs in these cases.
- j) **To supervise the contribution of self-employed workers, who will be obliged to pay contributions as from the year 2012.** In matters concerning self-employed workers, the SP will have to check compliance with the obligation to contribute and thereafter carry out the same functions with regard to these workers as it currently does with regard to employees.
- k) **To coordinate with the relevant institutions in matters of inspecting the declaration and payment of monthly contributions.** In order to achieve the recovery of unpaid contributions in a quick and efficient manner and reduce default in the pension system, the SP will have to coordinate with the corresponding institutions, particularly the Labour Office.

The Regulation Function

- a) **To set up the regulation of the pension funds' investments through the Investment Regime, subject to the report from the CTL.** The rules to be contained in the Investment Regimen must be issued by the SP and backed by the technical opinion of the CTL.
- b) **To authorise new financial instruments for the investment of pension resources.** The SP is assigned the role of authorising public offering instruments for the investment of the supervised funds, other than those listed in the Law. This new function may be exercised, subject to the report from the Central Bank.
- c) **To set up procedures for measuring the risk of the Pension Funds' investment portfolios.** The SP will be able to set up procedures to enable the AFPs to carry out the risk evaluation of the investment portfolios for each of the types of Fund that they manage, determining the periodicity with which the risk measurement must take place and the way in which the results of the measurements taken will be made public.
- d) **To carry out public bidding processes every 24 months to award the service of managing the individual funding accounts of new members.** The SP must hold public bidding processes to award the management service of the individual funding accounts for people who are enrolling in the AFP system for the first time. This job

- e) **To constitute and administer a register of candidates for the boards of directors in the companies whose shares have been acquired with the Funds' resources.** The SP must establish the basic criteria for inclusion on a register of candidates as members of the board of directors in the companies in which the pension funds invest.
- f) **To establish and control the payment of maximum fees by the pension funds to agents entrusted by the AFPs with the management of investments abroad.** The Superintendence must establish annually the maximum fees chargeable to the Pension Funds that can be paid to the foreign institutions to which the AFP entrusts the management of all or part of the Pension Funds' resources that are invested in foreign securities. In addition, it must inform the general public once a quarter of the fees actually paid to the agency institutions.
- g) **To adjust the mortality tables currently in force on a regular basis and carry out the technical and actuarial studies necessary to exercise its powers.** In order to be constantly evaluating the quality of the system's pensions, the SP must carry out the technical studies necessary to develop and reinforce that system.
- h) **To determine the adjustment factor for programmed withdrawal.** The amount of the pension under programmed withdrawal will be corrected by an adjustment factor, which will make it possible to smooth the changes in the pension amount caused by the recalculation of the withdrawal. This factor must be determined by the SP and its effects monitored periodically.
- i) **To regulate the operating process of contribution payments by voluntary members.** The SP will have to regulate matters related with contributions paid by voluntary members into the system, establishing aspects such as procedures for deciding the assessable income, charging the corresponding commissions and the method of paying the contributions.
- j) **Regulation of APVC which is paid into the AFPs.** The SP, SVS and SBIF will issue a joint general ruling to set out the requirements that must be met by the contracts and plans of APVC. Meanwhile, the SP will have to check that the AFPs do not make the signing of a APVC contracts conditional on the enrollment or transfer to that AFP of the workers who wish to be included in the contract.
- k) **To regulate the operating of the state bonus associated with APV and APVC.** This function corresponds jointly to the SP, SVS and SBIF and implies the issuing of a ruling to set out the procedures to make this bonus operational. In other words, the timing of the application, its processing and payment must all be established. Furthermore, it will be necessary, together with the SII, to lay down the rules governing the manner and deadline for sending the SII the information needed to calculate this bonus, from the institutions managing the voluntary pension savings.

Services and information for the user

- a) **To constitute the Technical Secretary's Office of the CTI.** As a result of the creation of the CTI, SP will act as the technical secretary's office of that Council.
- b) **To constitute and administer the Register of Pension Advisors.** This register is to be kept jointly by the SP and the SVS, and the persons or institutions that offer pension advisory serves must be included in it.
- c) **In cases of nullity or divorce, to send the courts the corresponding technical studies about economic compensation in terms of pensions account balance.** The SP must have general technical studies available for the courts in order to help

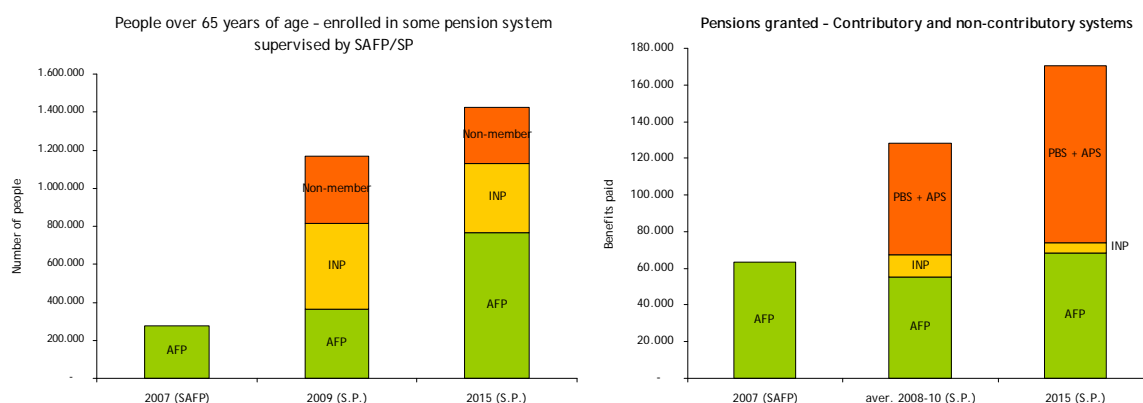
- d) **To administer and keep a Public Register of members' medical advisors in the process of a disability assessment.** Physicians/surgeons hired by the SP on a fee-paying basis will be able to enrol on the register. Their job will be to inform the Regional Medical Board as to whether the application of members covered by the SIS who present themselves for disability assessment, is duly justified. In that case, they must advise the member in his/her disability assessment process.
- e) **To carry out public bidding processes every 24 months to award the management service for the individual funding accounts of the new members.** The SP will have to hold public bidding processes to award the management service for the individual funding accounts of people joining the AFP system for the first time. This job implies preparing the Bidding Conditions and organising and holding the events.

7.3.- Institutional challenges of implementation

Given below is an analysis of the gaps that it was possible to foresee in terms of the staffing, skills and fields of competence of the SAFFP, compared with those visualised as being required by the SP. The analysis presented below is a response to the joint demands originating in both the Pension Reform and the adoption of the new SBR approach.

With regard to the staffing gap, the estimated increase in personnel was based on the work positions needed to carry on the new functions that the SP will have to perform. The positions required were obtained from two sources: (1) the Pension System Projection Model [Castro, Fajnzylber and Pino (2007)] and (2) the use of an expert criterion based on interviews with the heads of the units responsible for carrying out the new tasks.

The chart on the left shows the impact of the Pension Reform measured in terms of the universe of pensioners who will require information services. The immediate impact, measured in relation to the members of the contributory pension system, is estimated at about 220% in the year 2009, while towards 2015, the growth in the beneficiary population compared with the members in the contributory system registered in 2007, amounts to 410%. These figures point towards a reinforcement of the “information to the user” function. Meanwhile, the chart on the right illustrates the impact of the reform on supervision of the benefit-granting process and, therefore, of the prior operating processes.



Source: Produced on basis of Castro and others (2007).

The immediate impact, measured as the average of benefits to be paid out between 2008 and 2010 implies an increase of over 130% in the number of benefits processed compared with the current system of contributory pensions. That figure will climb steeply to about 150% in the year 2015. From this latter chart it is also possible to see the rapid reduction of benefits having to be processed by the IPS on behalf of the system of the old pay-as-yo-go system, and, by contrast, the enormous importance assumed by the benefit payment process associated with paying the PBS and APS.

With regard to the gap in competences and skills originating from the functions that the SP must carry out and the adoption of the SBR approach, an expert criterion was applied, using as a basis the literature specialising in the effects implied in the adoption of SBR [see, for example, Brunner and others (2007) and Stewart (2007)] and the experience of the banking regulator in this area (SBIF). In order to achieve the strategic goals listed in the previous chapter, the SP needs to have personnel who possess the competences and skills necessary to:

- a) Supervise the work of all the supervised institutions using the SBR approach, which means achieving a thorough understanding of how the supervised institutions function, including their business mission and vision, their strategic plans and goals in the long and medium term, their corporate governance, organizational structure, human resource policies - including incentives mechanisms - and their information systems;
- b) Develop supervision methods that are better suited with a greater volume of investment in issuers and markets outside the country and with authorisation for Pension Funds to invest in derivative assets; and
- c) To carry out the new functions and services entrusted to it (e.g. actuarial studies, studies for the CTI, studies on economic compensation, tasks involving valuation of derivative assets, drawing up conditions and procedures for the new-member bidding process).

All the competences and skills identified in the tasks mentioned above can be grouped into two types: (a) methodological and technical knowledge of supervision resulting from the adoption of the SBR approach, and (b) specialised knowledge in technical matters.

In relation to the competences and skills for the first type, the SP needs supervisors who possess the competences and skills to: (1) evaluate the quality and execution of the policies, procedures and practices used by the supervised institutions to deal with the risks previously recorded as material, as also the knowledge and skills of the administration, (2) learn from the response and behaviour of the supervised institutions in terms of the execution of the corrective plans that have been agreed, and (3) rank the threats represented by the supervised institutions in relation to the supervisor's objectives, in order to dedicate more supervisory resources to those that present a higher degree of vulnerability.

In terms of the potential gaps that can be foreseen in this area, one of the most obvious is the re-formulation of competences, from those associated with tasks involving the auditing of failures in processes and procedures to those with a greater emphasis on abilities of an analytical nature (e.g. to evaluate management quality in the identification, evaluation and control of risks).

Likewise, the shift from activities designed to make sure that rules are being kept to those designed to evaluate the quality of risk management, creates a greater demand for skills of critical sense and leadership and abilities to establish fluid and assertive personal relationships with the top executives of the supervised institutions. This latter, because of the need to persuade the top management of the supervised institution to accept the faults discovered and make a formal commitment to improve.

A third focus of attention is supplied by the need to use evaluation methods that are consistent with one another. The purpose of this is to enable a comparison to be made between the vulnerable areas of the various macro-processes of an institution (e.g. collection and recording, investments, benefit payment, depending on the case), as also between the various supervised institutions, in order to facilitate the correct allocation of the resources available for supervision. This need creates an increased demand for team-work and conflict management skills.

As an advance, the above point provides the motivation for part of the discussion in the following section, in the sense that the use of common and consistent supervision criteria is a response to the need to have a comprehensive view of the supervised institutions. This naturally calls for priority to be given to an organizational structure based on the supervisory body's functions (supervision, regulation and information) rather than a structure based on the existing specialities (mainly operations and investments).

As regards the competences and skills required to meet the demand for technical knowledge, the SP needs analysts with knowledge of actuarial and financial issues. The gap foreseen in this area was therefore smaller, due to the high degree of specialisation already achieved by the SAFP staff.

7.4.- Organizational structure of the Superintendence of Pensions

The reform stipulates that the organizational structure of the SP is the Superintendent's preserve. He/she must decide on the internal organisation and on the corresponding names and functions. The above is subject to the maximum number of staff, which was fixed by a Decree with Force of Law on 4th July 2008.

As far as the SP is concerned, the maximum staff includes two deputy chair positions and eight divisions. Given below is the analysis that was carried out for purposes of deciding on the organizational structure of the recently created SP.

7.4.1.- Considerations for defining the Superintendence of Pensions' organizational structure

In the course of the Chilean Pension System's existence - over 25 years – it has passed through various stages. At the beginning, the supervisor's focus of attention was directed towards stabilising the system's operating processes. Subsequently, it was directed towards improving those operating processes and developing supervisory tools to guarantee the safety of investments made abroad. Currently the system is in a state of relative maturity and shows an operating history without great starts or important faults in the provision of its services.

In this context, there are two initiatives that mark the SP's challenges for the short and medium term: (1) the successful implementation and launching of the Pension Reform and (2) the adoption of the SBR approach.

With regard to the challenges arising out of the Pension Reform, these are manifested in a series of new activities for the supervisor (section 7.2). The following are some of these new activities, classified by function:

a) Supervision

- To supervise the IPS
- To supervise disability assessment for the whole system
- To supervise the Ergonomic Commissions from an administrative point of view
- To supervise the SIS auction process
- To supervise new regulation on corporate governance
- To supervise the contribution payments of voluntary members
- To supervise APVC

b) Regulation

- To issue the RI
- To issue rulings on portfolio risk measurement
- To issue the bidding conditions for the new-member bidding process
- To authorise new financial instruments

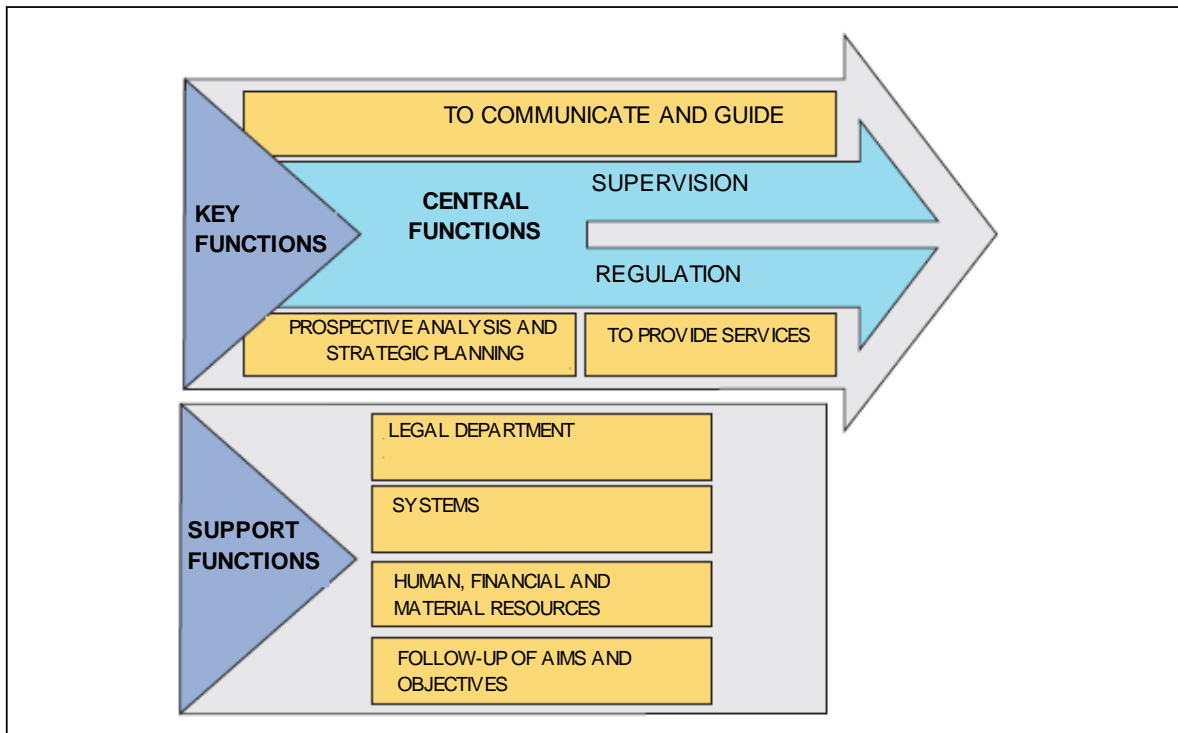
c) Services

- To support the CTI
- To carry out studies into economic compensation
- To adjust the mortality tables on a regular basis.

The decision to adopt the SBR approach, on the other hand, is consistent with bringing the supervision methods of the SP into line with international standards in matters of supervision and with the supervisor's considered conviction of its merits.

Key functions of the Superintendence of Pensions

The starting point of the analysis consisted in identifying key functions and support functions in the SP's tasks. The proposed system makes it possible to analyse the SP's raison d'être, over and above the existing structure of the SP.



Within the key functions, a distinction was made between those that are central for the SP, given its role in the system, and those which, although key, are not central to the SP's "raison d'être".

First the central key functions were identified. In this case the following functions were identified as central:

- a) **To oversee** the functioning of the supervised institutions from the point of view of their risks and how they manage them, and deciding on appropriate corrective actions. This includes defining the SP's supervision model, checking compliance with the rules, carrying out inspections and evaluations, coping with extra-ordinary events (e.g. entry, exit, mergers, etc.), issuing supervision reports and imposing corrective actions, among other matters.
- b) **To regulate** those areas in which principles or guidelines are necessary for activities to be performed well, in an effective, efficient and preventive manner. This includes managing a compendium of the regulations and keeping it up-to-date, standardising and harmonising the regulations, checking that the body of regulations is consistent, among others.

Then the key functions were identified. In this group were placed those functions that have great added value for the performing of the central key functions, or those intrinsically related with the SP's raison d'être.

- a) **To carry out prospective and strategic planning studies.** It is thought that carrying out prospective exercises that help to visualise the trends of the system represents an important input for performing the central key functions. This includes identifying high-level strategic implications for the country, the industry or the SP, maintaining a high degree of knowledge about best regulatory and supervisory practices of other bodies, both local and international, among others.
- b) **To explain and provide guidance about the Integrated Pension System.** Due to the experience acquired in the SAFF, the SP reckons itself to be one of the entities with most knowledge of the system and with clear interests in explaining and providing guidance about it. This includes informing beneficiaries of the key elements for taking decisions, explaining the merits of the regulations, promoting the strategic agenda to the relevant audiences and managing the relationship of the SP with the corresponding government bodies.
- c) **To provide the services stated in the Law and regulations.** Although the function of service provision, whether to the industry or the beneficiary public, is not a typical function of supervisors, the high degree of specialisation of the matters involved and the mandatory nature of the system have resulted in the SP being asked for a series of services (e.g. valuation of international assets, processing and attending the public in matters of international agreements, calculation of state guarantees, calculation of parameters for the system, among others). Because of the nature of these tasks, this service-provision function has been included among the SP's key functions.

Then the functions supporting the SP were identified. Among these are the following:

- Legal Department (to check the legality of the SP's acts)
- IT Systems
- Human and physical resources
- Follow-up of goals and objectives

Later the strategic aspects of the support functions were classified. The relevance of each support function was decided on the basis of its breadth and scope, with reference to the key functions. Most important in this context were:

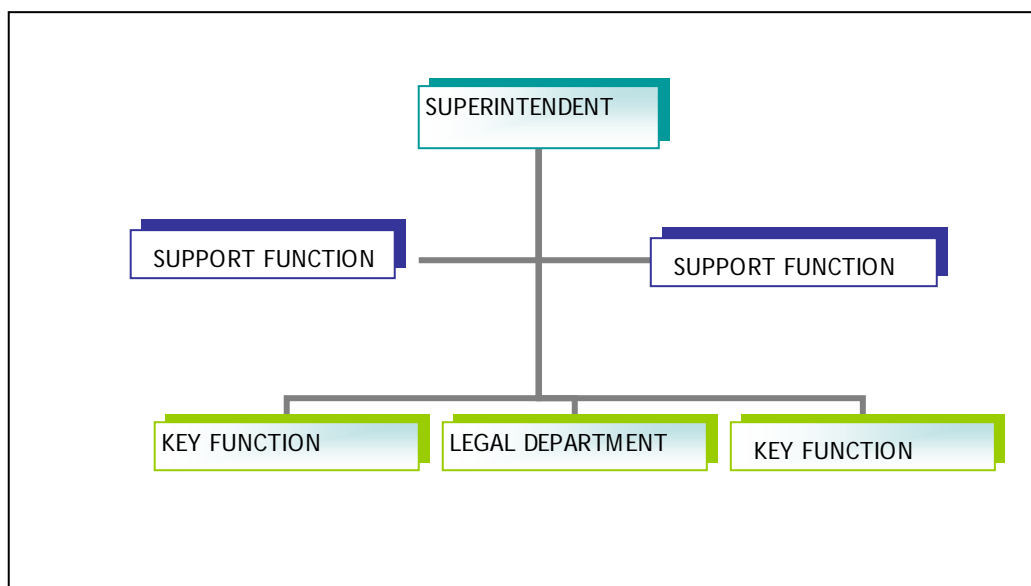
- The strategic aspects of the support functions (e.g., due to the role of the SP, the Legal department is essential for the correct execution of the central functions)
- The operational aspects of the support functions (e.g. human resources).

In view of the quantity of actions involved in the tasks of supervision and regulation, the need to verify their legality and regulate the supervisory procedures in order to guarantee a due process in case of penalties being imposed, it was decided to include the Legal Department at the same level of importance as the central key functions. As a result, the first line of functions consists of: Supervision, Regulation and the Legal Department. Then the criteria were considered for grouping the functions in areas. In particular, the following criteria were included:

- a) **Strategic alignment:** to ensure the SP's ability to respond and be consistent with the strategic priorities that it is introducing: the Pension Reform, the adoption of the SBR approach and the development of the system.
- b) **Separation of functions:** in general, to respect a clear separation of functions, with emphasis on strategic and operational aspects.

- c) **Specialisation:** to encourage economies of sphere within the areas, which can be achieved with greater professional homogeneity.
- d) **Consistency:** to achieve a homogenous institutional style and spirit throughout the key functions (e.g., common risk-management evaluation criteria between different macro-processes).
- e) **Accountability:** to facilitate and promote transparency and order with regard to the line of responsibilities and products involved.
- f) **Conflicts of interest:** to avoid situations in which those involved are judge and party in a situation at one and the same time.
- g) **Control points:** to ensure a reasonable number of reports to the heads of each area, depending on the degree of complexity and scope of the responsibilities.
- h) **Control:** to minimise the possibility of operating risks due to excessive fragmentation of responsibilities.
- i) **Horizontality:** to avoid the areas having to turn to the top level in order to be able to interact in the complete fulfilment of their tasks.

Before starting to generate groupings of functions, it was agreed to establish a clear separation between the key functions and support functions (with the exception of the Legal Department, which is considered to be in the same rank as the central key functions).



According to the criteria mentioned, two alternatives were identified for structuring the central functions:

- **Grouping by technical speciality.** This consists of grouping all the central functions of the SP applied to the same technical speciality. Specifically singled out were the specialities of: accounts and records management, investment management and benefit management.
- **Grouping by function.** This consists of grouping all the technical specialities with the same function: supervision and regulation.

Both these alternatives have advantages and disadvantages. In general terms, organisation by speciality encourages synergies of knowledge and accountability, but at the same time sacrifices the conflict of interest criterion and also endangers the need for consistency, which is essential for purposes of having a comprehensive view of the different supervised institutions. On the other hand, organisation by central functions sacrifices answerability (i.e., because the tasks of regulation and supervision are intimately related), in exchange for fewer conflicts of interest and consistency in supervision.

The organizational principle of strategic alignment is fundamental for organizational design. In this sense it is worth remembering that the SP's short and medium-term challenges aim to implement, successfully, the Pension Reform and the adoption of the SBR approach.

With regard to the first, the activities derived from the Pension Reform involve a heavier load for the supervision and regulation functions and, to a lesser extent, the provision of services for the industry (e.g., organising bidding processes, technical secretary of the CTI, etc.). However, the impact of this heavier load is relatively less in aspects that favour grouping by technical speciality. The exception to this is the authorisation for pension funds to acquire derivative assets as an investment and the increase in investment in foreign markets.

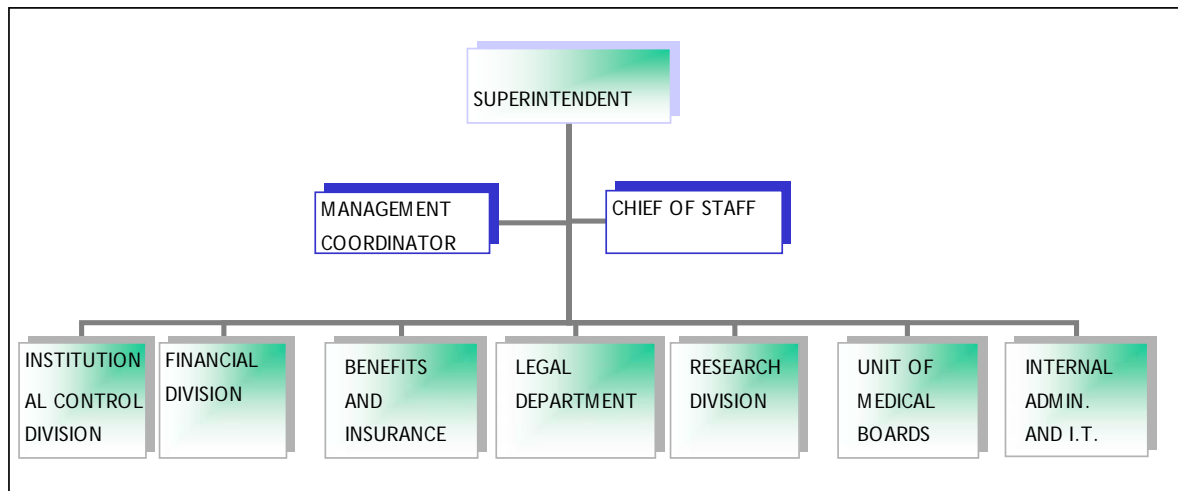
On the other hand, the adoption of the SBR approach generates an important demand for consistent supervisory methods and practices, since the need to combine the ratings and evaluations of management obtained in the various processes, each associated with a different speciality, constitutes a crucial, basic factor of the new approach.

The result of this analysis is therefore the recommendation to adopt an organizational structure arranged around the functions of the SP.

7.4.2.- Organizational structure of the SAFP

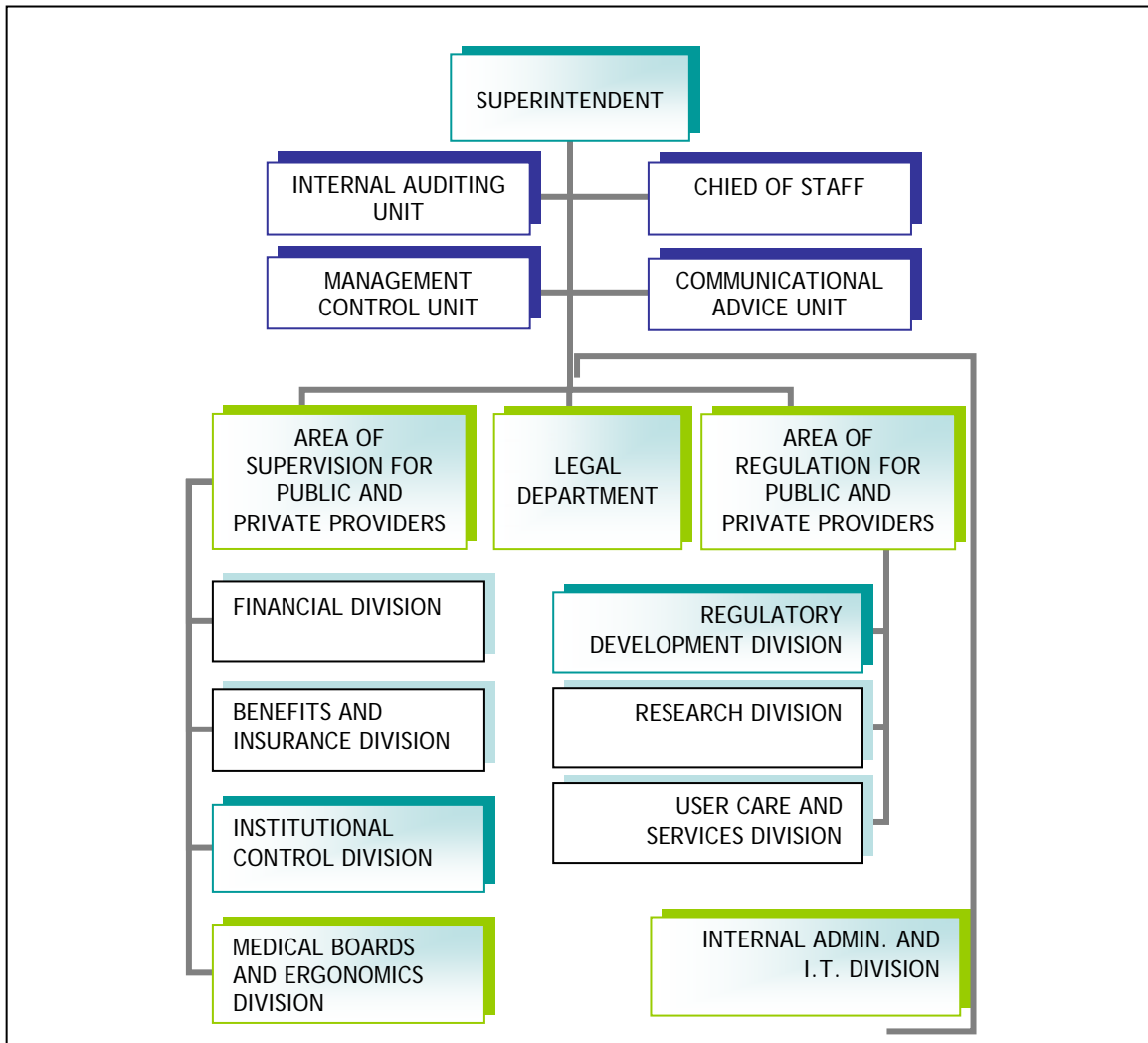
Taking the analysis that was carried out as the point of departure, it is possible to make a critical analysis of the SAFP's organizational structure.

In that analysis, one of the first observations that can be made concerns the costs that the SAFP's structure imposed on the coordination of tasks. This was due to its high degree of horizontality. At the same time, the structure in question tended to facilitate the appearance of potential conflicts of interest between the two key functions of a supervisory body: supervision and regulation. This occurs because of the fact that both are centralised in the specialist divisions of the corresponding processes (with occasional interaction of the Research Division). As a result, the structure made it easier for potential conflicts of interest to arise, i.e. for regulation to be dedicated to facilitating supervision, without giving consideration to its degree of efficiency, and situations in which one function tends to be given priority over the other.



Finally, it is possible to see that the structure is out-of-true with the adoption of the new SBR approach. This is because of the need to use common criteria in the tasks of supervision, an aim made more complicated by having three divisions carrying out supervisory work at the same time.

7.4.3.- Organizational structure of the Superintendence of Pensions



The chart shows the organizational structure of the SP. This structure displays a series of benefits. In the first place, it sets up a clear separation between the first order functions, by separating them into specialised deputy chairs. The functions of supervision and regulation are grouped in two deputy chairs (“Intendences”) while the vital legal support function is contained in the Legal Department.

Secondly, the proposed macro-separation is in line with the SP’s two main institutional projects in the sense that, on the one hand, it facilitates the allocation of resources to the task of making supervisory methods more consistent and simplifying the massive body of regulations in existence (SBR approach) and, on the other, facilitates the work of coordination needed for issuing and later systematising and simplifying the complementary regulations that have to be issued as a result of the Pension Reform.

Thirdly, the functional separation produces the additional benefit of eliminating potential conflicts of interests between those who make the rules and those who subsequently supervise them.

Fourthly, the new structure considerably reduces the costs of strategic coordination inside the SP, an effect resulting from the reduction in the size of the group at the top of the institution's hierarchy (from eight to four), which will constitute the institution's management team.

Fifthly, two Head-of-Area positions are created, which will make it possible to a certain extent to supply the top-level advisory services required in running an institution with responsibilities of the magnitude of those assigned to the SP.

Sixthly, the SP structure is a response to the greater demand forecasted in terms of handling queries. In fact, according to the gap analysis carried out, it is estimated that there will be a growth of almost 200% in requirements involved with attending users and providing services to individuals in the short term.

Seventhly, this structure takes on the greater demand for supervision for the medical boards. This is carried out by making that unit directly dependent on the Supervision Area, which will have the effect of permeating the unit with the common supervision methods of the SP.

Finally, a considerable degree of flexibility is included for adapting to future modifications. Specifically, it allows the supervision of critical processes (collection, registration and transfers, investment management and benefit payment) within the Supervision Area to be grouped on the basis of different criteria (by units specialising in each critical process, by units specialising in existing specialities (operations and finance) or by units specialising in supervisory tasks (extra-situ, in-situ, plus units with experts in the various risks).

The adoption of this new structure includes various stages, initially taking care of the imminent needs produced by the Pension Reform. This calls for a reinforcement of certain areas in particular, such as those related with user care and the medical boards, for example. The full implementation of this new structure goes hand-in-hand with the development of the skills for the change of supervisory approach to a SBR scheme.

CHAPTER 8

CONCLUSIONS AND CHALLENGES FOR THE FUTURE

8.1.- A Comprehensive Reform

After 25 years from the establishment of the pension system based on mandatory saving in individual funding accounts, an exhaustive diagnostic study, including the experience and analyses carried out in those years, led to the conviction that a comprehensive reform of the system was required. The fully-funded pillar, in addition to needing considerable improvements in matters of investment, competition and benefits, was by itself apparently not meeting the needs of the population as a whole.

The fact of formulating modifications in the different areas simultaneously made it possible to exploit the synergy between them, enhancing the aggregate effect. So, when the Solidarity Pillar was introduced, special care was taken to keep the incentives to pay contributions. Indeed, these incentives were reinforced by modifications such as the subsidy on young people's contribution. In the same way, the reinforcement of the voluntary pillar also contributes towards the aim of achieving better future pensions, thus enhancing the overall impact of the reform.

This book presents the diagnosis that was available on the various aspects that were modified in the Pension Reform, with the richness signified by an analysis from all points of view, making the most of the interactions between the different aspects. As regards the inadequacy of the individually funded system in terms of meeting the need to provide financing in old age for the population as a whole, a thorough diagnosis on the subject of coverage is given in Chapter 2. This diagnosis shows that the fully-funded system works properly for those who are able to contribute continuously during their working life. However, in the Chilean labour market one can see that a considerable percentage of the population is far from being in that position.

The Social Protection Survey carried out in 2002 provided overwhelming evidence in that respect, which was ratified by the administrative contribution histories of those same people who were interviewed. Specifically, vulnerable groups were identified, such as women, young people and those working as self-employed or informal workers during a considerable proportion of their lives.⁹⁸

On the basis of this diagnosis, the Advisory Council for Pension Reform, chaired by Mario Marcel, proposed that the executive should introduce a Solidarity Pillar, to be responsible for providing with a Basic Solidarity Pension those who are not able to pay contributions. But at the same time, the design of this pillar included a top-up, called the Solidarity Pension Payment, for the pensions of those who have paid contributions, but not in sufficient quantity. This design makes it possible to ensure that the pensions of those who have paid contributions are always higher than those of people who have not, thus protecting the incentive to contribute, a crucial attribute if the solidarity system is to be sustainable in a context of a gradually ageing population.

It is worth pointing out that, as mentioned in the diagnosis of the chapter on coverage, the position of women is particularly worrying. It is for this reason that they will in fact

⁹⁸ See Berstein, Larraín and Pino (2006) and Berstein, Reyes and Pino (2006).

be the main beneficiaries of the solidarity pension system. However, picking out one of the Council's proposals, the reform goes even further in the case of women by establishing the right to a "grant" for each live birth, thereby recognising women's work as mothers.

The aforementioned elements increase protection for elderly people and protect contribution incentives. The reform also contains a series of additional mechanisms to encourage or promote contribution, especially in those groups identified as vulnerable: women, young people and the self-employed. In the case of women, an over-contribution is produced when the disability insurance is tendered by gender and the coverage of this insurance is extended to those women who continue contributing between the ages of 60 and 65. As regards young people, a subsidy on hiring and contribution is introduced, which stimulates the creation of formal jobs in this segment and increases the contribution rate through state funding. This takes place at the stage when contributions will produce yield for more years. Finally, concerning the self-employed, a considerable segment of these workers will be obliged to contribute, giving them the same rights and obligations as wage-earners. In addition to the measures specific to these vulnerable groups, there is the introduction of automatic "declaration without payment" which makes it possible to inquire more easily into employers' compliance with regard to the payment of contributions.

As far as the voluntary pillar is concerned, modifications that enhance it significantly are also introduced, mainly directed towards the inclusion of middle-income workers. With this objective in mind, the possibility of signing contracts for collective plans at company level is introduced. These plans include contributions from the employer, subject to a period in which the benefit actually accrues, a vesting period, so constituting an attractive tool to foster employee loyalty, encouraging employers to invest in formation and training. This measure is enhanced by modifications to the tax regime and the subsidy on voluntary saving (introduced as an indication in the Chamber of Deputies), which make these programs more attractive for those workers with levels of income that are subject to relatively low taxation rates or none at all.

Not only is there an increase in the coverage of the pension system in terms of the number of people who qualify for benefits and the amounts of these, but also the introduction of a series of modifications to improve the system in terms of the quality of this coverage. There is, for example, the improvement to the programmed withdrawal option, whose main disadvantage prior to the reform was its exposure to longevity risk. This situation has been improved by the introduction of an adjustment factor. In the same way, a series of unfair aspects related with the disability and survivorship pensions have been resolved. Among these are the elimination of the transitory stage in the case of total disability, the change in the calculation of the base income and the survivorship pension coverage for the non-disabled widower.

The coverage and benefits measures are undoubtedly a fundamental pillar of the reform: these give greater protection and at the same time reinforce the contributory pillar. This contributory pillar continues to be managed by the AFPs, meaning that it is also essential to increase competition, transparency and efficiency in the industry. That is why the Pension Reform contains an important package of measures that aim to achieve

this objective. These measures are the result of years of analysis on the subject by academics and researchers from a variety of sectors.⁹⁹

On the basis of the analysis presented in Chapter 3, it is possible to conclude that the measures featured in the new Law with regard to competition and efficiency are moving in the direction of improving the key aspects: in other words, increasing the challenge ability of the market, increasing the responsiveness of the demand to prices and making the organisation of the industry more flexible, so as to make better use of the different cost structures that characterise the various productive processes involved.

The entry of new actors, the auctioning for the new members, the outsourcing of functions and the separation of the Disability and Survivorship Insurance increase the challenge ability of the market and reduce barriers to entry. The last three measures reduce the horizontal size that a firm needs in order to compete in the AFP market and therefore lighten the financial load that has to be borne, because the firm can enter the market with a relatively light structure and without the need to attract customers by heavy commercial investment and expenditure on sales personnel.

The auctioning process, meanwhile, increases the demand's responsiveness to prices, because a considerable number of members are assigned to the AFP that charges the lowest fee. At the same time, the bidding event, by highlighting knowledge of the price variable, contributes towards increasing price responsiveness for those who choose their AFP in another way. An additional element in increasing price responsiveness corresponds to the simplification of the industry's commissions' structure, which facilitates the comparison of costs between AFPs.

Finally, the increased possibilities of outsourcing, together with the separation of the SIS, allow the AFPs to be organized in a more flexible and efficient way. This means that they can direct their efforts towards the focal point of their business, which are the management of individual accounts and the investment of the pension funds. In order to achieve the desired effect of these measures it was necessary to make a significant effort to educate the general population about pensions. As was mentioned in Chapter 6, the Social Protection Survey revealed the massive ignorance of the population, an element that contributes substantially to the lack of competition in the sector.

Information is important, not only in terms of having a more competitive and efficient industry, but also to promote coverage measures and general decision-making on the part of members. In order to achieve this objective, the Law stipulated the existence of a Pension Education Fund and a Users' Commission and introduced the figure of the pension adviser.

As far as greater competition in the pension industry is concerned, the result depends in part on the ability to provide information and on the response of the actors in the industry. The effects expected are a reduction in costs, particularly operating costs, and a reduction of the profits obtained by the AFPs. It is hoped that, by increasing the competition in this industry, not only will a lower pension cost be achieved, but also a better quality of service and an appropriate combination of risk and return. In order to meet this last objective, the Reform includes a series of specific measures to give

⁹⁹ Marinovic and Valdés (2004), Berstein and Micco (2005), Tarziján (2005), Valdés (2005a , 2005b), Valdés and Marinovic (2005).

greater flexibility to the AFPs' investment decisions. This greater flexibility goes hand-in-hand with increased responsibility and changes in the AFP's corporate governance to provide guarantees that the decisions taken will take members' interests into account.

This greater flexibility includes the gradual increase of the limit on investment abroad, up to a maximum limit of 80%. This would be one of the five limits stipulated directly in the Law. The remaining limits on instruments are transferred to the legal regulatory authority of the SP. The *structural limits* which remain in the Law are: the one concerning equities (to differentiate the multi-funds), the one concerning investments exposed to exchange rate risk, the one concerning government instruments and a limit for higher-risk instruments. It is worth underlining that there are instruments included in the latter which, prior to this Law, were not allowed for investment purposes, such as debt instruments with a risk rating lower than BBB.

The changes in investment regulation will be gradual over time. One of the main advantages of having these rules in a body of regulations, the Investment Regime, rather than in the Law, is the ease in adapting them over the course of time. In order to make these changes, the Law includes the creation of a Technical Investment Council to advise the Superintendence in producing the Investment Regime. Once the Regime has been drawn up by the regulatory authority, it will be subjected to comments from the Technical Council, which may suggest changes or even veto aspects of the proposed Regime that it considers inadvisable.

Achieving an appropriate return and risk for the pension funds' investments is a fundamental aspect of this reform. In approximate terms, one point of yield over the course of a member's working life may mean a pension 20% higher, showing the importance of achieving this objective. A fundamental aspect to achieve it is the greater flexibility given by the Law, accompanied by an important role played by the Superintendence of Pensions through the preparation of the Investment Regimen.

The powers of the Superintendence increase significantly, not only in the investment area but also in other aspects, such as the supervision of the services outsourced by the AFPs, the supervision of pension advisers, the inspection of the Solidarity Pillar and the old "cajas" and the carrying out of actuarial studies, among others. For these purposes the Law includes an important change from the Superintendence of AFPs to the Superintendence of Pensions, this newly-created institution being a comprehensive regulator. This is crucial, since different institutions manage the pension system, and a comprehensive supervisor therefore enables each of the actors to operate in a consistent manner to achieve the final objective, which is to provide the population with adequate pensions.

This change in turn includes the bases for advancing towards a Risk Based Supervision, a fundamental element in carrying out present and future tasks appropriately. This approach will permit a more effective and efficient supervision, in line with the best international practices. More effective supervision is achieved using SBR, because all relevant risk factors are included under a preventive approach. It is in turn more efficient because, by identifying the key risk factors of each supervised institution it is possible to dedicate greater human and material resources to the aspects related with those factors. Finally, it is worth emphasising that the OECD includes among its recommendations the incorporation of Risk Based Supervision criteria in supervision of

financial institutions, recognising the merits of this approach and considering it in the evaluation process for including new countries, a process in which Chile is involved.

8.2.- Expected impact on pensions

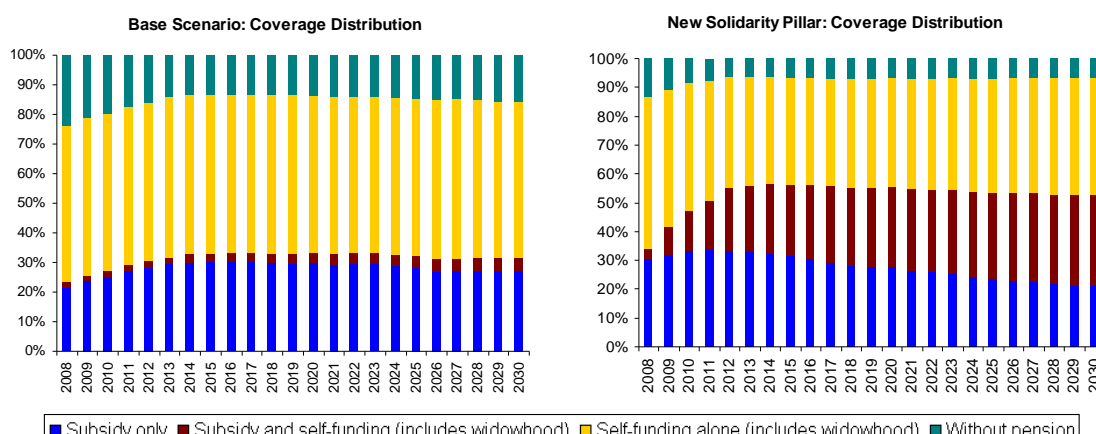
The Pension Reform, particularly the introduction of the new Solidarity Pillar, means a substantial change in the level of protection offered by the pension system as a whole. In fact, the introduction of the Basic Solidarity Pension and the Solidarity Pension Payment, the Grant per Child, the over-contribution for women, the possibility of dividing the balance, or the survivorship benefits for non-disabled widowers are some of the elements of the reform that will affect the levels and distribution of benefits for the whole Chilean population.

In order to evaluate the most important impact of the different types of benefit, the Superintendence of Pensions elaborated a projection model for the pension system as a whole, which makes it possible to analyse the development of benefits over time, their distribution and the effects of a variety of measures included in the Reform enacted in 2008. The model extends the projection work based on micro-data from Berstein, Larraín and Pino (2006), including the population enrolled in the old pay-as-you-go system and those not enrolled in any pension system, and modelling old-age, disability and survivorship benefits between 2008 and 2030 (see Inset 8.1 for a description of the model).

Figure 8.1 shows the development of the distribution of coverage between the years 2008 and 2030, making a comparison between a base scenario, projected using the programs existing prior to the reform, and a scenario with reform, which includes the new Solidarity Pillar, the Grant per Child, the separation of the Disability and Survivorship Insurance premium and the survivorship pensions for non-disabled widowers.¹⁰⁰ In the case of the base scenario, it is possible to see an increase in coverage which is explained by a small increase in the cases that receive subsidy and have self-funding and by a larger increase in the cases that receive only subsidy. On the other hand, in the case of the scenario under the reform, it is possible to see an increase in coverage which is considerably greater, explained fundamentally by an increase of the subsidy with self-funding (Solidarity Pension Payment beneficiaries). Finally, under the reform less than 8% of people over 65 years of age would remain without benefits. This group, by construction, corresponds to people from the higher two quintiles of the population.

¹⁰⁰ Please note that these simulations do not yet include the impact of making contribution mandatory for self-employed workers, or that of the subsidies for young workers, the measures designed to increase voluntary saving (individual and collective) and other measures intended to increase the coverage of the system.

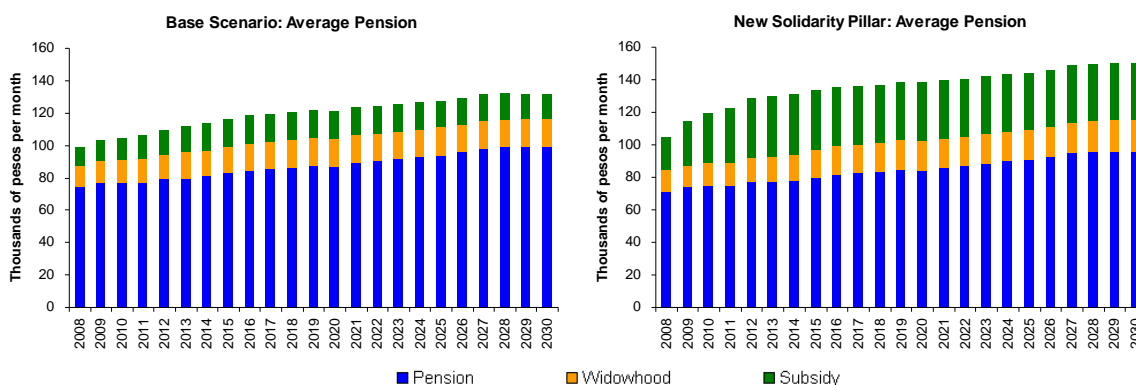
Figure 8.1
Development of Coverage Distribution



Source: Pensions Projection Model - Superintendence of Pensions.

Figure 8.2 shows the composition of the pension's funding, showing the average monthly pension for the same scenarios shown above, distinguishing between self-funded pension, survivorship (widowhood) pension and subsidies. In this way we see that in the case of the base scenario there is an increase in all forms of funding over time, with emphasis on the increase in the self-funded pension. In the case of the scenario after the reform it can be seen that the average monthly pension achieves a higher level than in the case of the base scenario, explained by a similar development in the self-funded and survivorship pensions but with a greater increase in subsidies.

Figure 8.2
Development of Average Monthly Pension
(in thousands of pesos)



Source: Pensions Projection Model - Superintendence of Pensions.

Inset 8.1
Description of Pension System Projection Model

The model uses longitudinal microeconomic information from different sources in order to be able to portray the population and thus to make projections. Administrative data from the AFPs and IPS was used, plus information from the EPS. Data from the CASEN Survey 2003 was also used and projections from CELADE, to complement the administrative information and obtain a greater richness in characterizing individuals.

On the other hand, the model works with a structure based on four modules, as described below:

1. Population module, which determines the present and future population. Also, using membership tables and mortality and disability tables produced by the National Statistics Institute (INE) a simulation is made of people's transition through different states: membership, disability, retirement and death.
2. Education, marital status and marriages module, which assigns each of these characteristics to the individuals in the module, basing itself on micro-data. In particular, the Perese methodology (2002) is used for assigning marriages.
3. Contribution projection module, in which Mincer equations are used for a first group of people to determine their income and a Probit model to obtain the probability they contribute in the system. Then, for individuals in the following years, a "Hot deck" methodology is used (see Toder and others (2002) and Berstein, Larraín and Pino (2006)) to assign them these same characteristics. By this means, the future contribution of an individual in his/her individual account is defined. In addition, using administrative data, the current balance of the savings accounts of active contributors is estimated.
4. Benefit calculation module, which uses the information obtained in the previous modules to determine pensions under two scenarios: a base scenario representing the functioning of the system prior to the reform, and a scenario with reform, which includes the new Solidarity Pillar, and the other features of the system.

Source: Castro, Fajnzylber and Pino (2007).

These exercises show the expected impact as a result of the measures included in the reform, specifically in the area of coverage and the level of pensions. This is a model in process of development that will make it possible to follow up this reform and evaluate the performance of the system over time.

8.3.- Future of the New System

The Reform itself constitutes an important step forward in terms of protection for the elderly, while safeguarding the incentives to make this greater protection sustainable in the future. Now, the fact of having higher pensions in the future is the responsibility of all the actors involved, who have an important task before them: the State, employers, workers, the pension fund AFPs and the insurance companies.

The *State* in the new pension system has the fundamental role of providing resources through the Solidarity Pillar managed by the IPS, and the supervision of the system, both public and private, on the part of the regulatory authority, the SP. The fulfilment of this role calls for an efficient IPS and one which, through its service networks, the Comprehensive Pension Advisory Centres (CAPRI), deals with general queries, receives pension applications and channels these to be resolved appropriately. At the same time, the Supervisory Authority has to confront the task of supervising the system as a whole in an appropriate way and, to do this; an important challenge will be the implementation of a SBR scheme.

The *workers*, meanwhile, have to be alert to ensure that employers pay the contributions and, as far as is possible, to make APV to achieve better pensions. The Reform

increases the incentives considerably with a 15% subsidy on the amount saved for those who have no tax benefit when doing APV. Workers' reception of these incentives will also depend on the ability to inform them about these benefits. In the same way, competition in this industry depends to a large extent on the active role taken by the members, who are free to switch, either because they consider that an AFP is very expensive, the risk-return ratio obtained is low or the service is unsatisfactory. The new Law includes bidding for new members, which will result in a boost for price competition. On the other hand, the fixed fee is eliminated, making it easier for members to compare.

Employers have to pay the contributions month by month on behalf of their workers. This is a crucial element for the sustainability of the system. The Reform includes specific incentives for the case of young workers, which are important to encourage real formal hiring of them. At the same time, employers are given the opportunity to become more actively involved in the pension future of their workers through Collective Voluntary Pension Savings. This tool allows employers to contribute voluntarily to the funding of their workers' pensions and is put forward as a possibility of achieving greater loyalty to the company.

The *AFPs* are obliged to collect from those employers who do not pay their contributions. In this sense the Reform also makes progress with the new figure of Automatic Declaration with No Payment. This means that if an employer fails to notify the AFP of the termination of a contractual relationship, the AFP, by a pre-established procedure, will have to assume that the payment corresponding to that worker has not taken place and will procure that payment in the same way it would under a Declaration without Payment. But the AFP's task does not end with collection; on the contrary, that is where it begins. For an efficient operation, the Law facilitates outsourcing of functions, which also represents an opportunity for these institutions. Furthermore, investing the resources collected is a crucial task, in order to achieve yield and security that are appropriate for the funds. In this sense the Reform gives greater flexibility to investments in order to achieve this goal, increasing the limit on investment abroad, among other aspects. This greater flexibility is accompanied by important improvements in the corporate governance of the AFPs. This fiduciary responsibility of the AFPs has to be reflected in policies for investment and conflicts of interest.

As regard the private institutions, it is not only the AFPs that face important challenges; it is also the case of the *Insurance Companies*. In the funded system prior to the reform, these institutions had, and continue to have, an important role in the retirement stage through annuities. However, in activities such as the disability and survivorship insurance, their role was lessened because most of the risks were covered by the AFP itself. With the reform, a process of auctioning for the insurance is open to these companies, which will cover the risks for the whole population. This is added to a series of improvements to the insurance that resolve problems of moral risk and unfair treatment. These include, for example, the change in the formula for calculating the base income, the elimination of the transitory status for total disability and the survivorship coverage for the non-disabled male spouse.

The role of each of these actors is reinforced by the Reform, a Reform in which the elements mentioned here are the most central. In the course of the book, each of the aspects included in the new Law is described in detail. All these measures and the

active role of the various actors will make it possible to have a better system and, in the end, better pensions for Chilean working men and women.

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GLOSARY

AFP:	Administradora de Fondos de Pensiones - Pensions Funds Administrators
APS:	Aporte Previsional Solidario - Solidarity Pension Payment
APV:	Ahorro Previsional Voluntario - Voluntary Pension Savings
APVC:	Ahorro Previsional Voluntario Colectivo - Collective Voluntary Pension Saving
BCCh:	Banco Central de Chile - Central Bank of Chile
CAPRI:	Centro Atención Previsional Integral- Comprehensive Pension Advice Centre.
CASEN:	Encuesta de Caracterización Socioeconómica Nacional - National Socioeconomic Characterization Survey
CCAF	Cajas de Compensación de Asignación Familiar - Family Allowance Compensation Fund
CDV:	Certificado de Depósito de Valores - Certificate of Deposit
CCR:	Comisión Clasificadora de Riesgo - Risk Rating Commission
CTI	Consejo Técnico de Inversión - Technical Investment Council
DNP:	Declaración y no Pago - Declaration with no Payment
EPS:	Encuesta de Protección Social - Social Protection Survey
FECU:	Ficha Estadística Codificada Uniforme - Standard Codified Statistical Records
FONASA:	Fondo Nacional de Salud - National Health Fund
HPA:	Historias Previsionales Administrativas - Administrative Pension Histories
ICSA:	Índice de Calidad de Servicio de las AFP - AFPs' Service Quality Index
INP:	Instituto de Normalización Previsional - Pension Normalization Institute
IPS:	Instituto de Previsión Social - Social Pension Institute
ISL:	Instituto de Seguridad Laboral - Institute of Safety in the Workplace
MIDEPLAN:	Ministerio de Planificación - Ministry of Planning
PAFE:	Pensión Autofinanciada de Referencia - Self-Funded reference Pension
PASIS:	Pensión asistencial – Welfare Pension
PBS:	Pensión Básica Solidaria – Basic Solidarity Pension
PMaS:	Pensión Máxima con Aporte Solidario - Maximum Pension with Solidarity payment
PMGE:	Pensión mínima garantizada por el Estado - Minimum pension guaranteed by the State
RI:	Régimen de Inversión - Investment Regime
SAFP:	Superintendencia de AFPs - Superintendence of AFPs
SBIF:	Superintendencia de Bancos e Instituciones Financieras- Superintendence of Banks and Financial Institutions
SBR:	Supervisión Basada en Riesgo - Risk-Based Supervision
SCOMP:	Sistema de Consultas y Montos de Pensión - System of Pension Consultations and Offers
SII:	Servicio de Impuestos Internos - Inland Revenue Service
SIS:	Seguro de Invalidez y Sobrevivencia – Disability and Survivorship Insurance
SP:	Superintendencia de Pensiones – Superintendence of Pensions
SUSESO:	Superintendencia de Seguridad Social - Superintendence of Social Security

SVS: Superintendencia de Valores y Seguros - Superintendence of Securities
and Insurance

UF: Unidad de Fomento – Price Indexed Unit