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The Reformed Pension Systems in Latin America

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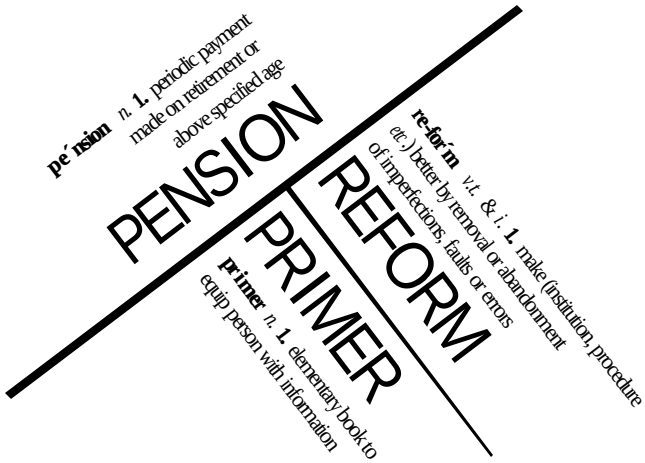

The Reformed Pension Systems in Latin America

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ABSTRACT

The transformation of the public pension system in Chile, which has served as a model for later reforms carried out in other Latin American countries, has attracted the attention of many researchers. The aim of this paper is to make a (provisional) technical assessment of the functioning of these systems. The operating structure is described and the main characteristics are analyzed. Main indicators are discussed including rates of return, level of pensions provided, actual coverage, administration costs, size and composition of fund portfolios, level of implicit pension debt, transition costs, and the problems arising due to the existence of alternative methods of pensions provision.

Table of Contents

ABSTRACT....3

I.- INTRODUCTION....6

II.- ANALYSIS OF THE REFORMED SYSTEMS....9

A) RATES OF RETURN AND BENEFIT LEVELS....9
B) COVERAGE IN THE REFORMED SYSTEMS....12
C) ADMINISTRATION COSTS....16
D) PENSION FUND INVESTMENT AND REGULATION....23
E) IMPLICIT PENSION DEBT, TRANSITION COSTS AND STRATEGIES....27
F) PAYOUT PERIOD AND ANNUITIZATION ISSUES....31

III.- CONCLUSIONS AND CHALLENGES AHEAD....35

IV.- BIBLIOGRAPHY....38

V.- APPENDIX: BASIC STRUCTURE OF THE REFORMED PENSIONS SYSTEMS IN LATIN AMERICA....46

List of Tables

Table I: Return of the Chilean Pensions System. Type 1 Funds 10
Table II: Gross Annual Return of Contributions, and Pension Fund Assets as % GDP (31/12/2000) 11
Table III: % Annual growth of GNP per capita.....12
Table IV: Affiliates, Contributors and Account Transfers in Chile.....14
Table V: Number of Sales Staff 17
Table VI: Commissions Structure.....17
Table VII: Transfers and Commissions (31/12/2000).....20
Table VIII: Commissions/Fees(31/12/2000) 21
Table IX: Economic, Development and Population Data.....46
Table X: Main Features of the New Pension Systems 47
Table XI: Main Legal Characteristics of the Reformed Benefit Systems.....48
Table XII: Workers' Options (1).....49
Table XIII: Workers' Options (2) 50
Table XIV: Financial Structure of the Reformed Pension Systems.....51
Table XV: Retirement Benefits 52
Table XVI: Form of Retirement Benefits 53
Table XVII: Contributions Structure 54
Table XVIII: Amount of Retirement Benefits 55
Table XIX: Minimum Return of Pension Funds 56
Table XX: Pension Fund Return and Guarantees.....57
Table XXI: Functions of Retirement and Pension Fund Administrators (1).....58
Table XXII: Functions of Retirement and Pension Fund Administrators (2) 59
Table XXIII: % Portfolio Composition over Total Funds Assets (31/12/2000).....60
Table XXIV: Maximum Portfolio Limits (%) 61
Table XXV: Implicit Pension Debt as % GDP.....62
Table XXVI: Annuity schemes in selected countries. Key rules.....63

I.- INTRODUCTION

Pension reforms around the world have different starting points. Specific details of the reforms carried out country by country can be found in global reviews by Schwarz and Demirguc-Kunt (1999) and the SSA (2000) as well as in specific country case studies found in the World Bank's Pension reform primer series.[2] As far as statistics are concerned, the most detailed and up-to-date material is provided by Palacios and Pallarés (2000). Conceptual issues surrounding recent reforms can be found in papers by Barr (2000), Holzmann (2000a), and Orszag and Stiglitz (1999).

As described by Disney (1999a), public pension programmes in OECD countries have generated excessive liabilities for a number of reasons, the ageing of the population being just one of them. The process of reform began in the early eighties and has continued steadily up to the present. The United Kingdom, Australia, and Sweden have increased the funding of their systems by introducing a system of individual accounts. The current level of their pension fund assets as a percentage of GDP is 70%, 62% and 33% respectively. Denmark (25%), Switzerland (120%), and the Netherlands (90%) form a group with a large element of funding in mandated or quasi-mandated systems. According to data supplied by Palacios and Pallarés (2000), there are other countries which attain high levels of accumulated funds as a percentage of GDP without having mandatory capitalization systems, although they do have complementary systems with a tax framework which offers incentives. These countries include the USA (60%), Ireland (45%), Canada (43%), Japan (42%)[3], and Finland (41%). Most other countries have focused on reducing liabilities. The most common way of doing this has been to change indexation formulas, away from wage and towards price indexation. Other OECD countries have also tightened the links between benefits, lifetime earnings and contributions, mainly by increasing the number of years used in calculating benefits and by raising the full-benefit pension age.

Since the early 1990s, as shown by Lindeman, Rutkowsky and Sluchynsky (2000), the transition economy countries of Eastern Europe and Central Asia have had to adapt their pension systems in both minor and often very major ways. Some of the changes relate to shrinking contribution bases and the inability to finance prior commitments. Other changes, however, reflect the need to make the pension systems more sustainable in the light of future demographic changes. The reforms entail a move away from single pillar, pay-as-you-go, defined benefit systems towards multi-pillar systems that include a funded, defined contribution component, along with changes that make the remaining pay-as-you-go pillars more self-sustaining and transparent.

Asia, with over half the world's population and with many countries facing rapidly declining fertility rates and increasing life expectancy, has a wide range of pension systems at present. In Singapore, the public pensions system is a capitalization system with centralized fund management by a public body (the Provident Fund). According to Iglesias and Palacios (2000), this model can also be found in India and Nepal, amongst other countries. One common criticism of these pension systems relates to their asset management regimes. Many of the problems associated with pension systems in the twenty-first century may be found in this rapidly aging region.

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[2] http://www.worldbank.org/pensions

[3] This includes book reserves.

The middle and low-income countries of North Africa, South Africa and the Middle East have not embarked upon major reforms because their partially funded defined benefit pay-as-you-go systems still have enough reserves to get by on over the time horizon of the average politician. Börsch-Supan, Palacios and Tumbarello (1999) show that many of these countries have chosen to partially fund their pension schemes under the scaled-premium mechanism. In such systems, reserves accumulated in the hope of smoothing long-run contribution rates over the medium term, say 10 or 15 years, can be substantial relative to the economy. With less demographic pressure and some funds, some of these schemes could be transformed into funded systems. To date however, there has been little interest in paradigmatic reforms.

Pension systems in most low-income countries are rather small (in terms of labor force coverage) and reform is not a major topic on the political agenda since most of these countries, especially in Africa, are directing all their energy towards fighting the battle against hunger and disease. However, the issue is starting to become more important, especially as unfunded pension promises to civil servants become a burden and threaten to crowd out other needed programs.

The pensions systems in many countries of Latin America - most of which were pay-as-you-go, although previously they had been collective capitalization - collapsed for various reasons, according to Schulthess (1999): serious economic problems, evident design flaws, a general lack of trust in politicians, the inability of the State to administer the public systems, the low level of coverage, unfair differences amongst beneficiaries, regressivity in the distribution of income, high administration costs, and poor fund management.

Reforms in these Latin American countries have partially or completely transformed their pensions systems into funded systems in which individual responsibility and freedom of choice are given greater importance. These systems have sought to consolidate investment markets, reduce the charge on the State, bring about greater participation by private management and the individual in providing for personal risk, increase fairness, diversify the risks associated with pure pay-as-you-go systems and, above all, increase the clarity and transparency of the system by making it more independent of political factors. Nevertheless, the reforms have not escaped criticism. Diamond (1998), for instance, argues that defined benefit systems are the best design for social security systems in light of their ability to transfer risk intergenerationally. He argues that the defined contribution system is only a response to a poorly designed defined benefit schemes, and that the limitations of the former should be recognized.

Chile pioneered reforms in 1981 and is possibly the country which has put them into practice in the most drastic way due to its own particular political situation. Peru and Colombia reformed their systems in 1993, taking elements from the Chilean model but maintaining a parallel public pay-as-you-go system. In 1994, Argentina created an integrated system in which the pension comes from different sources. Uruguay introduced a system similar to the Argentinian one in 1995, but has cut off entry into the old system. Mexico set up a system with many features in common with the Chilean system in 1995, but with public and private fund management. El Salvador (1998), Bolivia (1997) and Costa Rica (2000) have also recently carried out reforms.

Changes to pensions systems are spreading to other countries in Latin America. A reform has been introduced in Nicaragua, (Law 340 of March 2000), although this has not yet been put into operation. Likewise, according to FIAP (2000), Law Nº 2993 regulating the pensions subsystem was passed in Venezuela in November 1998, although its implementation has been postponed. The Dominican Republic Congress has recently passed legislation that would introduce a 'second pillar', but this too remains unimplemented.

The influence of all these reforms in other geographical areas has been significant. In the last two years, see AFP-ag (2000f), capitalization systems have come into operation in Hungary, Poland and Kazakhstan, and are expected to follow in Croatis and Estonia and most of the former socialist countries are considering moving in this direction. Hong Kong introduced a new funded system in 2000.

The structure of this paper is as follows: after this brief introduction, the next section analyzes what are considered to be the most important features of the systems. The statistical base allows for an initial assessment and/or comparison to be made, whether with regard to the pre-reform systems, between the reformed systems themselves, or with other countries. The topics discussed include: return and amount of benefit provided; actual coverage; administration costs; size and composition of fund portfolios and development of financial markets; implicit pension debt, transition costs and strategies; and various problems relating to types of pension.

A review of the pension system of each country, which shows significant differences between their respective levels of population and economic development, is included in the Appendix. Also supplied here are comparative tables (Tables IX to XXII) in which we have tried to include most of the basic characteristics of the reformed systems: financing structure, provisions covered, range of choice, transition methods, functions carried out by pension fund administrators, minimum return, etc., along with a whole series of details to complete the information.

The paper ends some conclusions plus a full bibliography. Some of the most important sources are publications by international organizations (OECD, World Bank, International Social Security Association, Inter American Development Bank, ECLAC) and specific supervisory bodies or research centres (Institute for Pension Reform, The Pensions-Institute, Institute for Fiscal Studies, Cato Institute, Center for Retirement Research, Center for Pensions and Social Insurance, National Bureau of Economics Research, etc.), which can be obtained through Internet. They show the importance this topic has today, and the number of eminent researchers whose field is the study of pension systems reform.

II.- ANALYSIS OF THE REFORMED[4] SYSTEMS

The main aims of any structural reform of a pensions system can be summarized as follows:

to reduce the system's actuarial deficit or pension debt
to increase the incentives to participate
to increase the amount of the benefits paid, which in a capitalization system with fixed-rate contributions will basically depend on the actual amount of the contributions, the return on the accumulated funds, administration costs during the accumulation period, and intermediation costs during the retirement period.
to increase the transparency of the system by making it more independent of political interference
to achieve greater intra- and intergenerational fairness.

It will only be possible to judge the Chilean pensions system and the other reformed systems after they have reached full maturity, in other words between 40 and 60 years after their inception. Until that time, only partial and provisional assessments can be made. Bearing this in mind, we believe it would be worthwhile to analyze those aspects which are considered to be the most important and which, in addition, are backed up by a sufficiently large bank of statistics to enable us to carry out some type of assessment.

The authors are aware that each of the following six subsections are important enough in themselves to merit a much deeper study, but this would go beyond the aim of this paper. Nevertheless, an attempt is made to inform the reader as to the important arguments surrounding the new systems and to provide a range of sources on specific issues for further study.

a) Rates of return and benefit levels
b) Coverage in the reformed systems
c) Administration costs
d) Pension fund investment and regulation
e) Implicit pension debt, transition costs and strategies
f) Payout period and annuitization issues

A) RATES OF RETURN AND BENEFIT LEVELS

In the case of Chile it can be pointed out, (see Miranda and Rodríguez (1997)), that current pensions and forecasted future pensions exhibit high replacement rates due to the high real rates of return obtained by the system in the first twenty years of functioning (see Table I). It is remarkable that pensions are approximately 50% higher under the new system than they were under the old, although, as mentioned by Queisser (1999), it is also true that pensioners under the new system have benefited from the generous recognition bonds issued. Ignoring the great inequalities existing between different groups, the replacement rate under the old system stood at around 50%, whereas currently it is

[4] Some of the aspects described do not arise as a consequence of the reforms but are part of the structural or institutional arrangements that would also exist under different pension regimes.

almost 80% while maintaining long term sustainability. If disability pensions under the old and the new systems are compared, the result is even more favourable, the new pensions being about 60% higher.

The high number of individuals who have opted for early retirement is one feature that can be seen as a sign of the new system's success, according to Rodríguez (1999a). This is basically for two reasons: it is a clear indication that workers have accumulated enough funds in their accounts to be able to take this option, and also it allows them to make an individual choice between leisure and work. Nevertheless, many of those who opt for early retirement retire from the system only, since they are allowed by law to keep working without having to pay more contributions.

The return during the first few years was very high due to the fact that most of the funds were invested in public debt - which paid a very high rate of interest in real terms - and because the Chilean State subsidized the financial system to save it from crisis during the period 1983-84. As Edwards (1996) mentions, it is useful to note that almost 40% of the return made by fund managers in the early 1990s was from shares held in two electricity companies: Enersis and Endesa. Returns have fallen in real terms over the last few years, as can be seen in Table I, and there have even been two years, 1995 and 1998, when the real rate of return was negative.

Table I: Return of the Chilean Pensions System. Type 1 Funds

YEAR	Gross Annual Real Rate of Return[5] %
1981	12.6
1982	28.8
1983	21.3
1984	3.5
1985	13.4
1986	12.3
1987	5.4
1988	6.4
1989	6.9
1990	15.5
1991	29.7
1992	3.1
1993	16.2
1994	18.2
1995	-2.5
1996	3.5
1997	4.7
1998	-1.1
1999	16.3
2000	4.9
Annual average	10.9

[5] Some researchers do not completely agree with this measurement. They argue that it would be necessary to take the initial costs into account, and then the real return of the system would fall by over three points in real terms. See the paper by Williamson (1999).

Source: SAFP (2000)
(Chilean pension fund regulator)

There are three countries with a higher historic real rate of return than Chile (Table II): El Salvador (12.88%), Argentina (11.11%) and Bolivia (11.10%), although over shorter periods. The country with the lowest historic real rate of return is Peru (5.30%).

It is important to mention that, according to AIOS (1999b), the gross return for affiliates is measured according to net contributions, or in other words the amount which effectively arrives in the fund after deducting commission and insurance. There are notable methodological differences in the way the various countries present the return, and this limits meaningful comparisons. For example, there is no uniformity even in the way chosen to annualize the daily or monthly returns, as Bolivia and Mexico do it by simple capitalization and the other countries by compound capitalization. The real return is obtained by reducing the nominal return by the consumer price index or by specific "index-linked units" in Uruguay or "unidades de fomento (UF)" in Chile, the latter being accounting units adjusted with inflation. Other sources of conceptual discrepancies in the measurement of returns include the methods used to assess the value of investments and the degree of liquidity of the markets (many Latin American countries have highly illiquid capital markets, so even 'market prices' may lack transparency and not reflect real market conditions).

In order for the results of the different countries to be compared, it would be useful to have the return for the affiliate published, calculated on the difference between the total contributed and the insurance premium for disability and survivor's benefits. Only Chile, Colombia, Uruguay and Costa Rica have formulas for calculating this currently in operation.

Table II: Gross Annual Return of Contributions, and Pension Fund Assets as % GDP (31/12/2000)

Country	Nominal historic	Real historic	Real for the last 12 months	Pension Fund Assets/GDP
ARGENTINA	11.41	11.11	3.92	7.1
BOLIVIA	16.62	11.10	10.91	10.8
CHILE	26.60	10.90	4.40	59.8
COLOMBIA	23.59	7.84	n.a.	4.0
EL SALVADOR	14.45	12.88	7.92	3.6
MEXICO	30.03	9.47	7.21	3.0
PERU	13.85	5.30	-6.74	5.4
URUGUAY	20.12	9.13	7.09	3.9

Source: AIOS (2001), ASOFONDOS (2001), FIAP (2001)

In the table above, the historical retum is for the period since the inception of the various capitalization systems, except in the cases of Peru and Colombia, which is for the last 84 and 36 months respectively. These apparently high returns should be compared to relevant benchmarks. Srinivas, Whitehouse and Yermo (2000) compare returns and volatility in Chile, Argentina and Peru against a domestic model portfolio comprising two indexes, one for equities and one for fixed income, weighted at 60% and 40%

respectively. For the period 1994-1997, Argentina shows a return slightly above the reference rate, while Chile, for the period 1981-1997, reaches only 75%, and Peru, for the period 1993-1997, reaches only half. In all three cases the standard deviation rate which the authors adopt as a simple measure of volatility or risk is much lower than that of the reference model, around 60% in Chile and an outstanding 70% in the case of Peru.[6]

The historic gross annual return reached by the various systems up to now stands out even more if an indicator is used showing what the return for a financially balanced pay-as-you-go system would have been[7]. Table III shows the annual growth of gross national product per capita for various periods, could be considered a proxy for the potential return in the pay-as-you-go system. Although in some cases Tables II and III refer to very different periods, it does appear clear that pension fund returns have generally outperformed income growth, which can be interpreted as the potential return in the pay-as-you-go system.

Table III: % Annual growth of GNP per capita

Country	1979-89	1989-99	1998	1999
ARGENTINA	-2.4	4.1	2.4	-4.1
BOLIVIA	-2.3	1.8	4.1	-2.2
CHILE	1.0	6.0	7.0	-2.1
COLOMBIA	0.8	1.6	-0.9	-7.1
EL SALVADOR	-2.3	2.9	1.4	-0.8
MEXICO	-0.9	1.1	3.1	2.5
PERU	-2.3	3.3	-2.4	-0.8
URUGUAY	-1.3	3.4	3.2	2.2

Source: World Bank (Countries at a glance)

B) COVERAGE IN THE REFORMED SYSTEMS

Rodríguez and Durán (2000a) state that the potential level of coverage of a pension system is strongly influenced and structurally defined by a series of exogenous factors from the point of view of the authority administering the system: the productive structure, the occupational structure, contributive capacity, relative dispersion of the population, etc. Nevertheless, the incentives generated by the institutional affiliation organization determine whether the pensions system is closer to or further away from the maximum limits that it would be possible to cover. For James (1999) too, the problem of coverage is linked more to economic development than to the type of pensions system

[6] In a similar study carried out for the United Kingdom for the period 1986-1994, Blake (2000a) notes that pension funds reached an average 96% of the benchmark, although 43% had a return lower than the reference. The rates were widely dispersed and a certain size effect was visible: the bigger the fund, the lower the return.

[7] In a financially balanced pay-as-you-go system, the implicit internal rate promised by the system, as shown by Devesa, Lejárraga and Vidal (2000), is approximately equal to the rate of growth of the contributing population plus the real growth rate of salaries which, under certain conditions, could be assimilated into the real growth of the gross national product.

itself. Coverage varies between less than 10% in sub-Saharan Africa and Southern Asia, under 30% in Eastern Asia, up to 50-60% in developing countries in Latin America, 70-80% in countries with transition economies in Eastern Europe, and 90-100% in a small group of OECD countries.

In fact one of the indicators with most room for improvement is the low ratio between contributing workers and affiliates - around 51% in the case of Chile, see Table IV - although not all researchers agree on the use of this indicator as a measure of the system's coverage. Further research is needed to see whether or not the reformed systems have higher coverage than pay-as-you-go schemes, other things constant. What seems apparent however, is that there is little evidence suggesting that pension reforms alone have increased formalization of the labor force, contrary to some expectations. A number of interpretations exist regarding this irregularity or anomaly:

1) There is a basic design problem, according to Arenas de Mesa and Bertranou (1997), as the system clearly offers limited incentives to workers on low incomes. After contributing for twenty years, these workers are assured a minimum pension, which is 70% of the minimum salary, a very large amount for these workers.

2) According to Arenas de Mesa (1997), there are obvious measurement problems having to do with double counting of affiliates - pensioners who are considered as affiliates, affiliates with low contribution density - and other statistical problems. Hence for example, according to AFP-ag (2000e), people who have already left the workforce are included within the number of affiliates, in which case it would be more realistic to measure coverage by using the ratio between contributing workers and the total number of workers in jobs. Since the new system was introduced, this index has risen 25% in Chile.

3) The costs of transition from a hidden economy to a formal economy are too high. According to Rodríguez and Durán (2000a), there are not enough incentives for pension fund administrators to attract the affiliation of rural or informal (hidden economy) workers. Given that the administrators' return depends more on the volume of funds achieved than on the number of contributions received, maximization requires that the marginal income received by the administrator from a new affiliate be greater than the marginal cost this affiliation represents. It is more than likely that the affiliation of workers with incomes under a certain level is not considered an attractive proposition by the administrator.

4) Holzmann, Packard and Cuesta (2000) point out that a number of self-employed workers, who in Chile can participate if they want, consider the pensions system to be a drain on funds from their businesses, or, according to Lora and Pagés (2000), a tax mechanism. Others who would prefer more adventurous portfolios because of their greater tendency towards risk are finding ways of providing for their retirement other than individual accounts.

5) There are also definitional problems. One Chilean researcher, Claudio Chamorro explains most of the discrepancy between contributors and affiliates

as a result of the growing population of 'affiliates' who are actually pensioners and the fact that certain important groups such as the self employed are not required to contribute. Among those legally required to participate, compliance was estimated at 95 percent.

According to details provided by AIOS (2000), the proportion of contributing affiliates in the countries of Latin America at June 2000 averaged 53%, the extreme values corresponding to El Salvador (61.2%) and Argentina (41.3%)[8]. During the period 1999-2000, the level of coverage fell in all Latin American countries except Peru, but, as Bertin (2000) points out, care should be taken when interpreting the ratio between contributors and affiliates since this tends to diminish merely with the passing of time, as more and more people who were at one time contributors stop contributing and are included in the affiliates category. According to the SIAFJP (2001), the ratio between contributors and affiliates shows how many of the system's affiliates make their contributions at a particular time. While it may be useful to measure this aspect, it does not serve as a good indicator of evasion or late payments. Other indicators would have to be used for these aspects and they are difficult to obtain regularly.

Table IV: Affiliates, Contributors and Account Transfers in Chile

YEAR	Affiliates (A)	Contributors (C)	(C/A)%	Account Transfers (T)	(T/C)%
1982	1,440,000	1,060,000	73.61	-------	
1983	1,620,000	1,229,877	75.92	14,380	1.17
1984	1,930,353	1,360,000	70.45	134,720	9.91
1985	2,283,830	1,558,194	68.23	189,163	12.14
1986	2,591,484	1,774,057	68.46	174,237	9.82
1987	2,890,680	2,023,739	70.01	181,048	8.95
1988	3,183,002	2,167,568	68.10	306,819	14.15
1989	3,470,845	2,267,622	65.33	316,763	13.97
1990	3,739,542	2,289,254	61.22	387,955	16.95
1991	4,109,184	2,486,813	60.52	500,176	20.11
1992	4,434,795	2,695,580	60.78	621,919	23.07
1993	4,708,840	2,792,118	59.30	875,874	31.37
1994	5,014,444	2,879,637	57.43	972,482	33.77
1995	5,320,913	2,961,928	55.67	1,328,411	44.85
1996	5,571,482	3,121,139	56.02	1,569,185	50.28
1997	5,780,400	3,296,361	57.03	1,577,709	47.86
1998	5,966,143	2,619,616	43.91	696,789	26.60
1999	6,105,731	2,690,601	44.07	412,736	15.34
2000	6,154,023	3,145,433	51.11	345,104	10.97

Source: FIAP (2000) and SAFP (2000)

Design problems regarding the links between the old system and the reformed

[8] According to Demarco (1997), this indicator clearly penalizes Argentina since it is a country where affiliation is compulsory for the self-employed. It is very important to bear this in mind so as to enable the indicator to be interpreted correctly.

system could also explain this low rate in Mexico, according to Rodríguez (1999b). All workers who have ten years' contributions under the old system are already entitled to the minimum pension, whereas under the reformed system at least 25 years are necessary. However, workers who were in the old system are given the right to choose the best option, and this gives them the incentive not to contribute.

On the same subject, Bertín (1999) states that the low rate of coverage is the most worrying problem in Argentina. At around 41%, it is at a lower level than in the other countries analyzed and on a downward trend, which could force a rethinking of the non-contributory pensions system for some sectors – especially rural workers and those in domestic service. According to SAFJP (1999), this low rate of coverage can be explained by the level of unemployment, exemptions[9] and, above all, evasion. As far as the latter is concerned, there is a very high level amongst rural workers (around 75%), the self-employed (65%) and low income workers. Firm size is also an important factor: the smaller the company the higher the evasion.

Rofman (2000) points out that self-employed workers have a great incentive to avoid paying contributions, given that the contribution rate increased by 65% in real terms over the period 1994-1997. This has brought about too noticeable a difference between contributions and benefits for the affiliate, generating a comparative grievance with employed workers. Another factor which does not help to increase coverage is the way contributions are paid, and for this reason a thorough review of the payment system is considered necessary.

Deficiencies in coverage, according to Lora and Pagés (2000), do not affect all sociodemographic groups in the same way. Those under 25 participate less than those between 25 and 55. Women tend to participate less than men, workers who have been to university participate more than those with less education, and agricultural workers less than urban workers. In the same way, coverage tends to be very high amongst workers in the public and industrial sectors, while workers in the primary sector and in small companies tend to be less protected. Similar conclusions are reached in a recent study of the Chilean case by Arenas de Mesa (2000b). Hernández (2001) states that education is one of the variables that best explains coverage in Mexico. More education means a better chance of a job in the formal economy. This in turn means more stability in work and therefore a longer period within the pension system. It also offers a better chance of being employed by a large company where there is a greater likelihood of coverage than in a small company.

The authorities are aware of these problems and are adopting measures to encourage participation, especially by low income workers. In Mexico, the government deposits between 1% and 5.5% of their monthly salary in the individual accounts of affiliated workers. In Colombia, an additional contribution was established - 1% for high income workers, i.e. those earning more than four times the minimum salary - earmarked

[9] According to the SAFJP (2001), the existence of affiliates who are under no obligation to make contributions to the system is a growing phenomenon. Included in this group are the unemployed, workers in categories which require no contributions, those who have stopped working, and those who take up work in sectors not covered by the SIJP. From March 2000, for example, around 400,000 affiliates who were registered in the "monotributo" stopped contributing to the capitalization scheme as their contributions are destined for the public system.

to subsidize workers on low incomes. Workers with the lowest incomes are also subsidized in Uruguay, where they are allowed to supply half their contribution to the capitalization section and the benefit from the first pillar is calculated on the basis of 75% of their individual salary instead of only 50%. In Costa Rica, collective insurance agreements have met with success with self-employed rural workers. Independent workers' associations themselves become affiliation agents and contribution collectors for their members.

C) ADMINISTRATION COSTS

This issue has attracted the interest of various researchers for a number of reasons:

a) Many countries are considering the possibility of setting up some sort of system of individual capitalization accounts.
b) Measuring the cost of financial services is much more difficult than measuring the cost of other goods and services.
c) The cost is not always transparent and affects contributors in different ways according to their level of income and the amount they have accumulated.
d) Administration fees that are too high discourage affiliates from participating and reduce the real return of the capitalization accounts.
e) According to Mitchell (1999), high administration costs for pensions can raise retiree claims on future government revenues. This is because some countries guarantee minimum retirement benefits to workers with inadequate pension accounts. Hence the higher the costs associated with individual accounts, the greater the number of people eligible for guaranteed benefits.

Under these new pensions systems, affiliates have to cover explicit costs (which under the old system were implicit) both throughout their working life and during their non-working or retirement period. In the case of the working population, this cost takes the form of fees paid to the system administrators, while for pensioners the cost depends on the type of pension they choose.

As far as Chile is concerned, the excessive number of transfers between administrators is one area where there is clearly room for improvement, since it implies an unnecessary increase in administration fees. Hence in 2000, marketing costs accounted for almost 40% of administration costs. In order to alleviate this problem to some extent, in October 1997 the Chilean authorities introduced additional procedures to be followed by anyone wanting to switch between administrators and put a limit on contracting new sales staff. This brought about a marked decrease in the number of transfers, as can be seen in Table IV. On the other hand, as can be seen in Table V, there has been a decrease in the number of sales staff, although the number has increased over the last year in Argentina, Colombia and Uruguay.

Table V: Number of Sales Staff						
Countries	**30.06.00**	**31.12.99**	**31.12.98**	**31.12.97**	**31.12.96**	**Var. % 00-99**
ARGENTINA	11,984	11,877	13,725	19,657	18,353	0.90%
COLOMBIA	5,512	5,368	5,296	4,732	n.a.	2.68%
CHILE	4,490	4,885	7,208	17,448	17,931	-8.09%
ECUADOR	169	273	235	192	185	-38.10%
EL SALVADOR	-	886	1,253	-	-	
MÉXICO	11,312	11,400	15,553	63,360	-	-0.77%
PERU	1,545	1,735	2,819	2,873	3,968	-10.95%
URUGUAY	805	757	777	983	1,736	6.34%
TOTAL	35,817	37,181	46,866	109,245	42,173	-3.67%
Source: FIAP (2000)						

As Mastrángelo (1999) points out, this problem arises for various reasons: demand for the service is mandatory; the affiliate has difficulty in differentiating between the products offered by the administrators; and there is a low price elasticity in demand, which means that the most profitable strategy for the administrators is not to reduce the price, but to use the strength of sales to maintain or increase market share. To this can be added the rigid fee structure which consists basically of a percentage of the contributor's income (see Table VI), which, considering that average production costs tend to be constant in relation to the contributor's income, means that the administrator's margin is proportional to the amount of salary on which contributions are payable. Hence, administrators focus on strong sales teams targeted on at least replacing those affiliates that other administrators take away from them. The current level of the system's administration charges may not result from a lack of competition between the administrators, but from the form of the competition.

Table VI: Commissions Structure				
Country	**Commission as a percentage of**		**Fixed commission**	**Discount**
	Balance	Flow		
ARGENTINA	NO	YES	YES	YES[10]
BOLIVIA	YES	YES	NO	

[10] Fulfilment and loyalty discounts.

CHILE	NO	YES	YES	
COLOMBIA	NO	YES	NO	
EL SALVADOR	NO	YES	NO	
MEXICO	YES	YES	YES	YES[11]
PERU	NO	YES	NO	
URUGUAY	NO	YES	NO	
Source: FIAP (2000), AIOS (2000) and authors				

According to FIAP (2000), the number of transfers in Uruguay (12.05%), Argentina (9.86%), and Colombia (8.43%) is similar to the number in Chile (10.97%), while the transfer level is very different in El Salvador (21.51%), Peru (0.89%) and Mexico (0.5%). The average figure for all the countries included in the statistics was 4.84% in 2000. In the case of Argentina, (see Bertin (2000)), the number of transfers between administrators was very high but, due to a change in regulations in 1997, this number fell sharply (which is also what happened in Chile). There has been a very significant drop in the number of transfers in low and medium income groups over the last few years, and this has brought about a concentration of transfers amongst high income contributors. However, it would not appear that the number of transfers is the only cause of high costs.

In fact, the costs in Chile are not excessively high if they are measured as a percentage of annual administered assets or if they are compared to what it cost to run the system before the reform, see Rodríguez (1999a). Edwards (1996) claims that administration fees are on average 42% lower than they were under the old system. Similar figures are involved in the study by AFP-ag (2000a), although there is no agreement amongst researchers on this point. Diamond (1994) suggests that the administration fees of the new system are higher than those of the old, while Rodríguez and Durán (2000a) argue that the fact that in some Latin American countries, pre-reform administration costs on an absolute level reached an amount similar to the benefits paid, leads one to conclude that the excessive costs in the public pay-as-you-go systems were due to the solvency crisis, which in many cases preceded the reform, almost as much as to demographic factors or the design of the benefits.

Demarco (1994) looks into the case of Argentina and compares the fees before and after the reform of the pension system. He concludes that the concepts are not equivalent in both systems, since the tasks and guarantees involved in the management of a private pension plan are different from those of the government-run PAYG system. However, if all the implicit costs of the public PAYG system were made explicit (especially survivorship and disability insurance), the costs of the old system would be higher than those of the reformed system.

Combined charges for administration and insurance coverage, have clearly fallen. According to data supplied by AFP-ag (2000a), in Chile they fell from 4.87% of salary in 1983 to 2.31% in 2000. This decrease can be explained by a combination of factors, amongst which can be included experience, greater efficiency, the introduction of new technology, and the rationalization of the transfer process. The data prompts

[11] Loyalty discount.

consideration of other measures that could bring about an even bigger decrease, such as allowing administrators to give loyalty discounts to those affiliates who do not switch accounts for a certain period, as have been introduced in Argentina, or allowing them to share infrastructures or subcontract sales staff.

Charges have a larger impact in Argentina and Peru and probably reflect the inherent cost of launching the systems as well as the lower net contribution rate. These costs should decrease substantially in the medium and long term as, the more the companies attract affiliates and funds, the more they can benefit from economies of scale which they would presumably pass on to the contributor.

It must be taken into account that, according to estimates made by Devesa, Rodríguez and Vidal (2001), if the current level of annual fees charged to workers were reduced by half, this would increase the accumulated value of pensions accounts in Latin America by around 10%. Similar conclusions are reached by Mastrángelo (1999), who quotes a 6% increase in pension with a one third reduction in current costs.

Until very recently Argentina had the highest administration fees of the new pensions systems studied, regardless of the fact that they have fallen since the system was introduced. The biggest savings have been made in sales and marketing costs, although the high level of profits made by the administrators would indicate that the market is not very competitive[12]. Another fact that would appear to support this hypothesis, according to Rofman (2000), is that if every affiliate were to choose the cheapest administrator for their particular income level, the average fees for the system including insurance costs would go down from 3.38% to 2.95%. According to Rofman (2001), various legislative measures have recently been approved aimed at reducing these high costs, namely: putting a ceiling on charges, reducing the number of transfers per year, and assigning undecided new affiliates to the cheapest administrators according to their expected level of income. These measures would probably bring about an increase in price competition.

[12] Oligopolistic market conditions are common in all Latin American countries and there are serious market imperfections.

Table VII: Transfers and Commissions (31/12/2000)		
Country	**Transfers (2000) %**	**Net fees as % of annual assets[13]**
ARGENTINA	9.86	1.11-1.52
BOLIVIA	0.0	0.45-0.53
CHILE	10.97	0.68-0.94
COLOMBIA	8.43	0.69-0.94
EL SALVADOR	21.51	0.89-1.22
MEXICO[14]	0.50	1.14-1.57
MEXICO[15]	0.50	0.69-0.95
PERU	0.89	1.21-1.66
URUGUAY	12.05	0,70
USA[16]		0.30-0.65
Source: Authors' calculations based on AIOS (2000) and Devesa, Rodríguez and Vidal (2001)		

A case which stands out from the rest is Bolivia, which has the lowest administration costs of all the reformed systems in Latin America. According to von Gersdoff (1997), due to the small size of the country and in order to avoid the high commercial expenses borne by other countries in the area, the authorities decided to authorize only two administrators chosen by international public tender (Demsetz type

[13] The assumptions for making the calculations are: commissions and net earnings for each specific country; contributions between ages 30 and 40; real return of 5%; and real growth of salaries at 3%. We do not consider the costs associated with annuitizing the pension benefit at retirement. These percentages would vary if different assumptions were adopted as to real return and investment duration. According to Demarco and Rofman (1999b), if the commissions for financing the supervisory bodies were to be deducted in the cases of Argentina and Peru, the differences between countries would be narrowed. James, Smalhout and Vittas (1999) and Mastrángelo (1999) present lower costs because their assumptions are more optimistic.

[14] With contribution to the housing account.

[15] Without contribution to the housing account.

[16] Calculated by Genetski (1999) in the case that the American pensions system were to be transformed into a Chilean-style system of individual accounts, for the fifth year of functioning.

competition) to provide a service with lower operating costs. Transfers between administrators were prohibited until 1 January 2000, and the system is expected to be opened up to new administrators in May 2002. Transfers are currently suspended until the merger between the two administrators already in the market has been completed and another one enters.

In addition to the income they receive from individual capitalization accounts, see De la Serna (2001), administrators are also paid for managing the collective capitalization fund associated with the Bolivida[17] subprogram. This implies that there is a cross-subsidy from the collective program towards the individual one, which would explain the low level of charges for contributors in comparison with other countries.

Table VIII: Commissions/Fees (31/12/2000)

Country	Total fees as % of wages	Cost of insurance as % of wages[18]	Net fees as % of wages	Net contribution as % of wages	Net fee as % of gross contribution	Net fee as % of net contribution %
	a	B	c=a-b	d	c/(d+c)	c/d
ARGENTINA	3.28	1.19	2.09	7.72	21.30	27.07
BOLIVIA[19]	2.50	2.00	0.5	10.00	4.76 (9.5)	5.00 (9.59)
CHILE	2.31	0.70	1.61	10.00	13.87	16.10
COLOMBIA	3.49	1.86	1.63	10.00	14.02	16.30
EL SALVADOR	3.15	1.32	1.83	8.53	17.66	21.45
MÉXICO[20]	4.48	2.50	1.98	7.07	21.88	28.01
MÉXICO[21]	4.48	2.50	1.98	12.07	14.09	16.40
PERU	3.73	1.34	2.39	8.00	23.00	29.88
URUGUAY	2.68	0.64	2.04	12.32	14.21	16.56

Source: Authors' calculations based on FIAP (2001) and AIOS (2000)

[17] In Bolivia there is a social welfare program coordinated through two accounts: "Bolivida" and the "Cuenta de Acciones Populares" (CAP), managed through a collective capitalization fund and the resources for which come from the privatization of public companies.

[18] For disability and death, which have different coverage in each country. Up-to-date information regarding the cost of these contingencies can be found in AFP-ag (2000c) and FIAP (2000). It must be pointed out that Mexico, where this contingency is managed by a public institution (IMSS), has the highest figure of all.

[19] In Bolivia a charge is also made for administering the portfolio, the ceiling for which is 0.2285%. The joint effect of this charge along with the original charge on contributions is shown in the table in brackets. According to De la Serna (2001) there is also a charge made for custody of shares. This amounts to 0.2 % annually on the nominal value of the fund and has not been included in the calculations.

[20] Includes the State contribution of 5.5% of the minimum wage, which is estimated at 2.2% of the average wage.

[21] Also includes the 5% contribution to the housing account included in the individual account, which is managed by the Instituto del Fondo Nacional para la Vivienda de los Trabajadores (INFONAVIT).

Although the Bolivian model may be useful in similar contexts, Valdés-Prieto (1999) points out that the bidding system can also create great weaknesses due to the fact that, after their tender has been accepted, the winning administrators take on the role of private monopolies bound by tariff regulations where the tariff is the tender originally offered. The main problems that could arise are:

a) The administrator has an incentive to reduce the quality of the administration service in order to reduce costs and increase profits. The regulating authority can only avoid this happening by applying a full watchdog system to check the quality of the service and by being able to impose sanctions without appeal to a legal process that would be slow and technically unable to assess the weaknesses.

b) The administrator has the incentive to renegotiate tariffs with the authorites. It is not difficult to see that one of the most tempting offers the administrator could make to the authority in order for it to accept an increase in tariffs would be to reallocate pension fund investments to those areas favoured by the authority, financed by low yield government bonds. The affiliate cannot escape by changing administrator because he has been deprived of the right to choose. The basic problem is that a concessionary administrator has the state as its only client and is, in practice, an extension of the state machinery.

Keeping administration expenses under control is not a problem exclusive to the countries of Latin America. The same problem arises in the United Kingdom, which has a decentralized system of individual capitalization accounts. Murthi, Orszag and Orszag (1999) calculate that between 40% and 45% of the value of the individual accounts is taken up by various costs (including the purchase of an annuity). These results are challenged by Whitehouse (2000), who finds that Murthi et. al. use methodology which inevitably leads to inflated costs estimates. Nevertheless, in his own cross-country analysis Whitehouse puts the level of administration costs in the United Kingdom above those of all the Latin American countries except Peru and Argentina. Concern is so great that the authorities have drawn up legislation for a new type of plan called "stakeholder pensions", which have much in common with the American "401(k) plans" and the Australian "superannuation system", in an attempt to offer a cheaper option for low income workers than individual accounts. This new option will come into effect in October 2001 and its main aim is to keep annual administration costs below 1% of the total funds administered.

According to Palmer (2000), Sweden, in order to minimize administration fees, introduced the idea of the public clearing house. This public clearing house (PPM) is a public broker which performs net transactions vis-à-vis registered funds. The fund managers have only one customer, the PPM, which keeps the accounts for all individual participants. This limits fund managers' costs to those associated with fund management and makes it easier to monitor the system. Funds compete by offering the best net rate of return. The clearing house manager requires all funds to report returns and costs according to the same principles and makes this information available to all participants.

To conclude this section it should be pointed out that an international comparison of the administration expenses of the different pensions systems, as shown in Tables VI and VII, is complex and its results are questionable in the following aspects at least:

a) Differences in the level of coverage, design and regulations, with regard to minimum return, collection functions and administration of additional resources.
b) For Valdés-Prieto (1999), the amounts of the start-up costs of the different systems vary a great deal and are to a large extent defined by what regulations govern the system from the start. Hence in Peru and Uruguay, for example, new workers who start working for an employer are free to choose between remaining in the old system or entering the new one. In Colombia, those workers who decide to enter the new system are free to return to the old one once they have been there the minimum three years. In Chile, however, new workers who start work for an employer have to enter the new system. This ensures that in these countries the costs of attracting clients from the old system are not recurring but part of the set-up costs. Finally, in Bolivia, Mexico and El Salvador the authority almost eliminated this source of set-up costs by making it compulsory to transfer to the new system.
c) In principle, it would appear that pension fund administrators could take advantage of economies of scale, and so the size of the market in each country should establish a limit to the number of administrators, to the average level of costs they can reach, and consequently to the level of charges[22]. In Uruguay for example, the number of affiliates for the whole of the welfare system is around 552,000 people, which is less than the number for a single administrator in some countries. In fact, the administration industry registered losses until 1999 in the smaller countries: Bolivia, El Salvador and Uruguay. In 2000, they had started making a proft in all three countries.
d) There can be noticeable differences in the quality and quantity of the service provided by companies in different countries. For Mitchell (1999) the four key functions of any pension plan, namely financing, record-keeping, money management, and benefits payout, have to be identified. While these functions are common to all pensions, the way in which each is carried out varies from one plan and country to the next, and sometimes even across time periods.
e) The charge structure does not have the same effect on all workers, the earnings level being very important.
f) In the case of measuring costs as a percentage of the annual assets of the funds, it has been assumed that no changes are made to the charge structure during the whole time horizon under consideration. Going by the experience of Latin America, this is a very restrictive assumption.

D) PENSION FUND INVESTMENT AND REGULATION

The spectacular volume achieved by pensions funds, around 60% of GDP in Chile in 2000 - see Table II for the other countries - calls for a regulatory apparatus that recognizes the high demand for up-to-date financial instruments and promotes efficiency in the financial management process. At present there are only five countries - Australia,

[22] On this point there is mixed evidence. Whitehouse (2000) finds no significant relationship between fees and the size of the administrator either in Latin America or the United Kingdom.

Holland, Switzerland, the United Kingdom and the USA - which exceed this percentage. According to information supplied by AIOS (2001), Chilean pension funds hold 71% of government debt. Also outstanding are the cases of Bolivia with 38%, followed by El Salvador with 17%. All the other countries analyzed are below 12%.

The high real return achieved is a reflection of the high real rates of interest supplied by public stocks. The average capital invested in public debt stocks (see Table XXIII) is around 53%, although the figure for Mexico is 93%, due, according to Rubalcava and Gutiérrez (2000), to an adverse attitude to risk, the fact that nominal interest rates are way above the expected rate of inflation, and because of tax policies which penalize investment in private stocks.

In most countries there is little difference in the composition of the administrators' portfolios[23]. Therefore the correlation between the returns of the different administrators is very high. This could be due to a number of factors, such as:

a) The strict regulations that exist and which are apparent in the legal limits governing the composition of portfolios, amongst other things. See Table XXIV.
b) The limited availability of financial instruments in capital markets in developing countries.
c) Rules regarding the minimum return that has to be achieved in most countries, with the exception of Mexico and Bolivia.
d) The type of competition, as mentioned by Srinivas, Whitehouse and Yermo (2000), which means that fund managers use their competitors' performance as a benchmark.

The minimum return mechanism (see details in Tables XIX and XX), normally related to the average for the system, is made effective basically through two funds: the reserve for fluctuations in the return, generated by resources from the fund itself, and the cash reserve, made up of resources from the actual administrators and applied as a subsidy to the previous one when the minimum return is not achieved[24]. Given that the administrators have to guarantee this minimum performance, there is a strong incentive for all of them to hold standard investment portfolios (herding effect), which limits differences between the funds. This allows smaller funds to use the larger ones as a reference, thereby saving costs on investment analysis and research. Similarly, there are countries such as Colombia (Banco de la Nación), Uruguay and Mexico where public administrators are allowed to exist and compete under the same conditions as the rest. In Argentina two public banks own AFJPs: Banco de la Nacion Argentina (100% of Nacion AFJP), and Banco de la Provincia de Buenos Aires (50% of Origenes).

In many countries, financial investment abroad has been prohibited or discouraged since the systems were set up. Even in Chile, which now has the highest level of foreign

[23] In Table X there are Internet addresses where detailed information can be found as to the composition of the portfolios of the various administrators. Also very useful is http://www.fiap.cl

[24] Up to the present any shortfall in the fund's return has been covered exclusively by provisions from the fluctuation reserve, without resorting to the cash reserve.

investment (10.9%), it remained under 4% until very recently. In Mexico it is prohibited, see Rodríguez (1999b); neither can investments be made in equities (not because it is prohibited, but due to the fact that rules governing this aspect have yet to be drawn up), and it is mandatory to earmark a minimum of 65% for government debt. As Holzmann (2000b) points out, there is resistance on the part of the governments of these countries to allow investment abroad, which only reflects the low level of the country's domestic savings. It is feared that the outflow of capital would not be compensated for by the inflow of other capital, and the amount of resources available for investment in the country itself would be reduced. In the same way, resources which remain in the home country, as shown by Srinivas, Whitehouse and Yermo (2000), are an important help in financing the fiscal costs associated with pensions reform. There may also be some consideration for foreign exchange risk, although if allowed, this could be largely hedged. The gains from international diversification seem to significantly outweigh the risks.

Srinivas and Yermo (2000) show that restricting international investments imposes costs on pension stakeholders in terms of lost returns and higher levels of risk per unit of realized return. They employ a standard mean-variance framework, with market data from 1976-1999 and risk-adjusted returns as the measure of benefits[25]. These indicate that pension funds in the three Latin American countries with the longest history of private pension funds - Argentina, Chile and Peru - would have benefited from diversifying into international markets. They conclude that, in these countries, pension funds could have achieved higher risk-adjusted returns by investing in international assets than they actually did. At present, see Table XXIII, the percentage of foreign investment for Argentina, Chile and Peru is 4.5%, 10.9% and 6.7% respectively.

It should also be taken into account, especially in those countries where the fund managers as a whole do not achieve profits[26], as is the case in El Salvador, Uruguay and Bolivia, that the administrators do not want to incur these higher transaction costs if they can obtain high returns from their own domestic markets, which could be termed 'emerging'. This behavior in countries with barely developed financial and capital markets could lead to investment being concentrated in just a few instruments or companies.

On the other hand, in the case of Chile it seems likely that the accumulation of investments has had very positive effects on the country's savings and growth rates, (see Schmidt-Hebbel (1998)), and on the development and modernization of the financial system, (see Holzmann (1997a and 1997b)). It should be pointed out, however, that these effects are not due exclusively to the reform of the pensions system since, as pointed out by to Mitchell (1998), a large part must be attributed to other structural reforms carried out over the last few years.

Another very positive aspect, mentioned by Holzmann (2000b), is that the change in the capital ownership structure of companies due to the power of the pension funds may have induced growth in the country's productivity through improvements in business management, in comparison to the traditional capital ownership structure of large

[25] To measure the benefits of diversification they use the return per unit of risk or the Sharpe ratio. This measure is constructed as the arithmetic average of monthly returns divided by the standard deviation of monthly returns over the time period concerned.

[26] The fund administration industry made a profit in all three countries in 2000.

companies based on banking groups and bank holdings. In this sense, Iglesias (2000) points out that, in the case of Chile, the administrators' participation has had several clearly positive effects on corporate governance: the development of regulations governing the capital market, an increase in the number of independent board members, improvements in the information supplied to the financial market, an increase in the importance of shareholders' meetings, the introduction of rules regulating conflicts of interests, and a reduction in the cost of information for small investors. The impact on corporate governance would have been even more positive if the administrators had not been prohibited from participating actively in the running of the companies themselves.

In any case it must be pointed out that the expected impact of pensions systems reform - in the direction of capitalization - on corporate governance will always be greater in those countries with developing capital markets than in those where the existence of a modern capital market means that institutional investors already play an important role.

The capital market is not the only area where development and modernization is occurring with the reform of completely or partially capitalized pensions systems. There is also an impact on insurance companies and the development of financial supervision mechanisms, as well as the information available to the interested public, mainly the contributors themselves. A highlight is the generally excellent information that can be accessed via new technology, which without doubt increases the credibility and transparency of the system for the contributors and emphasizes one of the strengths of these systems: their almost complete independence from political power.

Finally, and in spite of the time elapsed since the system was set up, it can be seen that there is a lack of preparation on the part of the participants for dealing with the multiple decisions they have to make regarding essential aspects of affiliation and provision. It should not be forgotten that this system was designed to function in a society of people with a wide welfare benefits education, with full and permanent information as to how it works, and who have a knowledge of the multiple financial and actuarial aspects upon which it is founded. The affiliates/pensioners find their main problems in making the following decisions:

a) Choice of administrator and subsequent changes.
b) Decisions regarding additional contributions.
c) Possibility of changing from one contribution system to another. This applies to Argentina, Colombia, Peru and Mexico.
d) Whether to receive the ordinary pension or opt for early retirement should all the conditions be met.
e) Choice of type of pension, generally annuity or programmed withdrawal. In the case of choosing an annuity, there are a number of possibilities. According to Palacios and Rofman (2001), in Peru there are over 121 authorized products.
f) Decisions of the family group which will receive benefit when the insured person dies. They have to decide what type of survivor's pension to receive, which implies a knowledge of the most favourable financial situation for them.
g) Choice of private life insurance company in the case of choosing the annuity option.

Aware of this problem, in 1997 the Chilean authorities started a benefits

awareness programme at student level by incorporating a new subject entitled "Benefits within the Social Security framework" into the syllabus. This programme will be extended gradually to cover the whole country. This initiative should be undertaken by all the countries with reformed pensions systems in Latin America, since their affiliates face similar problems when making decisions about benefits.

The need to improve awareness of benefits can also be seen in Argentina. Here, according to Bertín (2000), when affiliates have to make a choice as to administrator, they set greater store by a series of variables considered to be the administrator's "external image" (average number of sales staff and branches, marketing costs, initial investment and market share) than by those variables that have a direct effect on the amount of money in their individual capitalization account (average commission and return).

E) IMPLICIT PENSION DEBT, TRANSITION COSTS AND STRATEGIES

The amount of implicit pension debt[27], which is the actuarial value of the total pensions owed to pensioners plus the rights being acquired by those workers protected under the public Social Security system, is based on the following factors:

a) The number of pensioners and workers with acquired rights.
b) The age distribution of both the working population and the pensioners.
c) The amount of the pensions and their adjustment mechanisms.
d) The discount rate applied. This has a great influence on determining the debt since, the lower the rate applied, the larger the amount of debt and vice versa.

According to Holzmann, Palacios and Zviniene (2001), knowledge of the scope and development of implicit pension debt is important for macroeconomic analysis and policy. In addition, good estimates of IPD are important for pension reform, ex-ante for its initiation and preparation, and ex-post for its assessment. However, it is very difficult to measure this rate accurately in the countries of Latin America due to the scarcity of data and the absence of a uniform methodology, as stressed by Kane and Palacios (1996). In Table XXV there is a collection of estimates in which the disparity in values for some countries can be appreciated. This collection/comparison gives rise to a number of problems, such as:

a) Different reference years and projection periods.
b) Different methodologies for carrying out each of the projections.
c) Different assumptions, some of which do not appear to be very realistic.
d) Different components of implicit pension debt. In some countries certain groups and benefits have been excluded from the estimates.

The implicit pension debt only becomes (almost) completely explicit in pure or substitute models, but not in the others. Furthermore, it should be noted that there is not a perfect correlation between the initial implicit pension debt and transition costs, since the part of the debt that will become explicit depends on the type of reform.

[27] The appropriate definition for implicit pension debt depends on the economic policy question posed. The paper by Holzmann, Palacios and Zviniene (2001) discusses different measures.

The process of transition from a pay-as-you-go system to a partially or totally funded one implies that the implicit pension debt of the old system will have to become partially or totally explicit. Once a decision has been made to reform the pensions system, two other types of decision have to be made:

a) Design of a transition strategy to provide a structure for the financial flows necessary for liquidating the implicit pension debt. This transition strategy to a great extent determines the scope and speed of the reform. In the case of Latin America, as mentioned by Ayala (1996), there has been too much pessimism as to the financial viability of the reforms, caused partly by ignorance of the various ways there exist to achieve it. Nothing has been gained by postponing things. In fact the reverse is true: it has brought about a greater level of contribution evasion amongst the youngest contributors and an artificial re-fuelling of the implicit pension debt.

b) Choice of compensation mechanisms, which will have no influence on the total cost of transition but will affect its financial viability.

Generally speaking, transition strategies include[28]:

1) Reducing the size of the implicit pension debt of the pay-as-you-go system by changing its rules in such a way as not to affect current pensioners or workers approaching retirement age. Faced with the political difficulties this change entails, some countries such as Argentina, Uruguay and Peru modified the rules at the same time they introduced the new system in such a way that winners and losers are less easy to identify and there is less political resistance to the change.

2) Reducing the speed of the transition. This strategy can be achieved in different ways: by allowing only those in the labor market to enter; by choosing either partially or completely between capitalization and pay-as-you-go, as is the case of Colombia, Argentina and Peru; or by excluding certain sectors, as has occurred in all the groups analyzed with the exception of Bolivia, where it is mandatory for all workers to join the capitalization scheme. In the case of Mexico, the exclusion of some sectors was more for reasons of self interest than for financial motives, and civil servants, the armed forces and the police were excluded from the reforms along with workers in some public companies such as PEMEX, which even has its own health system.

3) Partial change. This can come in various forms: financing one pillar through pay-as-you-go and the rest by capitalization, as has happened in Uruguay, or leaving the workers free to choose[29] the financing system as mentioned above.

It is important to stress the role played by pension fund investments when financing the transition costs which arise partly in public debt when making the implicit

[28] See the papers by Holzmann (1998) and Queisser (1999).

[29] See Palacios and Whitehouse (1998) and Disney, Palacios and Whitehouse (1999) on this topic.

debt explicit. As was mentioned above, Chilean pension funds hold more than two thirds of outstanding public debt.

Once the transition strategy has been decided, there remains the compensation mechanism to be fixed: recognition bonds in Chile, Colombia, Peru and El Salvador, or a compensatory pension in Argentina, Bolivia and Mexico, in the latter case being by way of a right to the best option (lifetime switch option).

One aspect which makes the Chilean system stand out clearly from the other reformed systems is the way the transition financing associated with the reform were financed. Chile used recognition bonds, which made the amount of implicit pension debt explicit from the start and was financed to a great extent thanks to its favourable budget situation. According to Arenas de Mesa (2000a), the transition financing requirements have followed a downward trend, from 6.1% of GDP in the period 1981-1989 to 4.80% for the period 1990-1998. These estimates include the operational deficit, recognition bonds, social assistance benefits, minimum pensions and the deficit for the military pensions system. The average projected deficit for the period 1999-2037 is estimated at 4.3% of GDP. These estimates are much higher than the forecasts made during the eighties when the pension system was reformed, which indicates that the fiscal costs were greatly underestimated. This was due not only to errors but also to an increase in the amounts of the pensions under the old pay-as-you-go system.

In many countries, as shown in Table XV, the State guarantees a minimum pension to those contributors who have not managed to accumulate enough in their individual accounts to finance a pension. The amount in the account is supplemented to make up the difference. Like the recognition bonds, this cost is deferred. However, unlike recognition bonds and the deficit, this is an endless process because new workers who will not manage to accumulate the required amount in their individual accounts will always be entering the labor market. The cost of the minimum pension depends on the number of contributors whose funds are insufficient to cover the pension, and this in turn is the result of various factors such as salary levels, contribution density, the return on the fund after charges, the adjustment made to the original pension amount according to the consumer price index, etc.

In Chile it has been pointed out that this guarantee seems to give low income workers the incentive to reduce their contributions to the lowest possible amount to qualify for the scheme, thereby maximizing the tax subsidy. Acuña and Iglesias (2000) state that the greatest uncertainty in the State's financial commitments is with regard to the minimum pension program. There are in fact large differences between different estimates of the future cost of this program, which can mainly be explained by:

1.-The estimated amount of the minimum pension, since this is fixed according to the resources available and the various political and social aims to be reached, and

2.-The expected increase in the number of women entering the labor market

In the other countries transition costs are uncertain and difficult to estimate. In Colombia the cost projections are complicated by the fact that affiliates can switch from the new system to the old and vice versa. Clavijo (1998) estimates that the transition

financing requirements of the reform are very high, between 1.5% y 2.3% of GDP annually for the next three decades, which reflects the concessions made to certain privileged groups such as civil servants, the delay in the actual start-up of the new retirement rules, and the guarantee of a minimum pension.

In Argentina, too, future costs are somewhat unclear since by law, explains Queisser (1999), acquired rights can be eroded when there are budgetary difficulties. In evaluating the fiscal cost of the reform, useful information can be found in the papers by Bertranou, Grushka and Shulthess (2000) and Rofman, Stirparo and Lattes (1997), in which deficits are estimated in a number of different scenarios. The results in the former paper vary between a deficit of 2.23% of GDP in the year 2000 and a surplus from the year 2030 onwards, while the results of the latter show less deficits by taking into consideration a greater number of contributors. For Rofman (2000), the future evolution of the system is not easy to analyze, mostly because the scheme is not expected to be self financing in the future. The Argentine pension system has been allocated a growing flow of earmarked non-payroll taxes in recent years. The policy of reducing employer contributions has significantly affected the finances of the system, reducing contributions by approximately 40% by mid 1999. If further reductions were to be made, the system would be unable to avoid a chronic deficit.

In Mexico, where it is possible to take up the most favourable option, the costs will not emerge completely until those workers with acquired rights retire. According to data supplied by Mesa-Lago (2000b), the deficit will be around 1% of GDP for the next 20 years.

According to Márquez (1997), Uruguay also has some serious problems in managing its transition costs: very high estimated implicit pension debt, registers of contributions paid which have little credibility and are in most cases inexistent, reforms dependent on privileged groups (notaries, bank employees, university professionals), and uncertainty regarding the number of young people under 40 who, with incomes of less than 5,000 Uruguayan Pesos, will opt for the capitalization scheme. The estimated financing requirements vary between 5% of GDP in the year 2000 and 2% in 2020 for Márquez, while Noya and Laens (2000) increase this figure to 4%.

In El Salvador, there are not as many theoretical difficulties in estimating the implicit pension debt as there are in other countries since there is no possibility of returning to the old system. According to Mesa-Lago (2000b), the amount of implicit pension debt is 70%, very close to the figure obtained by Rodríguez and Durán (2000b), who arrive at 62% of GDP for 1998 and stress the importance of the State's guarantee of a minimum pension, which they claim would account for 34% of the total debt. The same authors estimate that, if the State guarantee of a minimum pension were excluded, the annual cost of financing the implicit pension debt would vary between 0.26% of GDP for 1998 and 1.07% in 2015, and then start to decrease. In Bolivia, where the old system was shut down, except for those already qualifying for pensions, transition financing costs are expected to peak in 1998 at 2.24% of GDP and it then gradually fall to reach 0.18%

in 2037.7

F) PAYOUT PERIOD AND ANNUITIZATION ISSUES

Due to the fact that the new pensions systems have only been in operation for a few years, the average age of the contributors is still very low, as is the number of pensioners, although in Chile this is increasing rapidly. There is also a very high rate of early retirement. According to AFP-ag (2000b), over the last few years around 60% of annuities are for early retirements.

The basic options, again according to AFP-ag (2000d), for receipt of retirement pension in Chile are annuity, programmed withdrawal or a combination of both.

Under programmed withdrawal, the affiliate receives his pension charged on the balance of his individual capitalization account, which, by remaining under the responsibility and management of the administrator, allows the retiree to benefit from the fund's return. The pension is fixed for periods of one year and is expressed in Unidades de Fomento (UFs), a reference unit adjusted daily in accordance with the consumer price index, and expressed in dollars. The amount is calculated by taking into account the balance of the individual account, the technical rate of interest defined by law, and the life expectancy of the worker and his family according to mortality tables from the National Institute of Statistics. The profile of a person likely to opt for this type of pension is characterized by low life expectancy, tolerance of the yearly fluctuation in the amount of pension (usually downward), preference for a higher eventual return from the fund (the retiree takes on the risk of reinvestment and systematic risk) and for leaving a bequest to family or third parties. The administrator only takes on non-systematic risk and covers a minimum return. In March 2001, 43% of all pensions paid were of this type.

The annuity[30] is a type of pension that the affiliate contracts with a life insurance company. An irrevocable contract is drawn up in which the affiliate transfers the funds from his individual account to the insurance company in exchange for the insurance company being obliged to pay the new pensioner a fixed monthly annuity for life expressed in UFs, and death benefits and survivor's pension to the beneficiaries, as the case may be. The profile of those buying an annuity is characterized by high life expectancy, an aversion to risk, preference for a stable pension (whereby they renounce potentially high returns in exchange for greater security), and with young beneficiaries of survivor's pension. The administrator takes on all the risks, which means a higher price is paid for their services. Of all pensions paid at March 2001, 56% were of this type. The main reason that there are so many annuities contracted in Chile is that it is mandatory for those who opt for early retirement[31] to take this option. These early retirees do,

[30] According to Palacios and Rofman (2001), the growth of the annuities market in Chile has been dramatic, contributing to a boom in the life insurance industry over the last decade. The same is beginning to happen in Argentina, Colombia and Peru, led by survivors' and disability products. Projections show rapid growth will continue over the next twenty years. However, the decision not to use recognition bonds in Argentina will slow development, and the low coverage and low incomes in Colombia and Peru mean that their markets will be smaller in relative and absolute terms.

[31] The balance of the CCI must allow for the provision of a pension of ≥ 50% of average earnings over the last 10 years or a pension of ≥ 110% of the minimum pension guaranteed by the State.

however, have the opportunity to continue in the labor market without having to make further contributions, as was mentioned in Section a).

Temporary pension with deferred annuity is a combination of both types of payment referred to above. In this case, the affiliate signs a contract with a life insurance company to receive a monthly pension from a particular date chosen for this purpose, but retains sufficient funds in the individual capitalization account to obtain from the administrator a temporary pension for the period that will elapse until the deferred annuity becomes payable. With this type of pension the affiliate retains ownership of the temporary retirement funds, and therefore takes on the financial risk during this period. What remains in the fund is transferred to the insurance company with which the deferred annuity was contracted, which in turn becomes the owner of the funds and is therefore obliged to take on the financial and survival risks of the affiliate. The profile of a person contracting this type of pension is similar to the one above, but with a preference for a larger pension at the start. Of all pensions paid at March 2001, 1% were of this type.

As far as the different types of pension themselves are concerned, the main problems with annuities for the insurance companies are the risk of death and adverse selection. The latter comes about when people who have a usually well-founded belief that they will live for a long time are interested in buying an annuity. Due to the problems of adverse selection, the insurance companies cannot be entirely sure that the general mortality tables accurately reflect life expectancy. For this reason the premiums are higher than they should be and are not actuarially fair or balanced since the companies incorporate a very high surcharge. In any case, nowhere near all researchers agree that this problem of adverse selection exists[32] since it seems clear that it only arises when mortality is studied from the classic perspective of age and sex. It would be minimized if mortality were considered according to other factors, such as levels of income or wealth, or the overall population covered by the system, which in developing countries could show very different mortality patterns in comparison to the population taken as a whole.

Should annuities be mandatory when retirement is reached, as is the case in Uruguay and Bolivia, in order to avoid the "problem" of adverse selection? It seems that there is no general consensus on this point in the most recent research into the case of Latin America:

1) James and Vittas (1999) argue that a fall in prices generated by market growth - a result of using mortality tables for the population as a whole instead of figures for all those pensioners who currently buy annuities - would to a great extent work in favour of those individuals with more money, who are the very people that would have bought them anyway, while the main losers would be those with less money due to their higher mortality rate.

2) Walliser (1999) favours a combination of flexibility and a reduction in adverse selection by making it mandatory to purchase an annuity up to a limit high enough to permit a certain minimum pension and family cover. The aim of this would be to reduce the risk to the state of having to subsidize pensioners for an excess of consumption during the first years of their retirement period.

[32] This problem is dealt with in depth in the paper by Palacios and Rofman (2001).

The rest of the funds should be used by the pensioners in the way most suited to their personal circumstances.

3) After analyzing the Chilean experience, Valdés-Prieto (1998) does not find strong enough arguments for the system of mandatory annuities to be applied either, but does state that the problem of selection could be reduced to a minimum by allowing group annuities or by signing up for deferred annuities at the age of, say, 50.

4) Palacios and Rofman (2001) are in favour of the conversion of accumulated funds into annuities being made mandatory to a certain degree, this being determined by the size of the first pillar, and the existing infrastructure for annuity provision.

In Chile almost all financial contracts are expressed in UFs. The annuities are all fixed and, as they are expressed in these units, they have effective protection against inflation. In a study by James and Vittas (1999), Chile has the best efficiency ratio amongst the countries studied probably due to the fact that its financial market has a sufficiently developed range of instruments. Another factor may competition in the insurance sector in Chile which is described as strong in Palacios and Rofman (2000). Annuity payments, see Table XXVI, are inflation-indexed in Peru and Colombia, while in Argentina there is no indexation at all. Contracts are set in nominal terms, although implicit indexation rules operate[33].

Also, annuity contracts can be negotiated in local currency or US dollars in Argentina and Peru.

Another of the problems that arise in the case of annuities is that they are purchased on payment of a single premium, which means that the amount of pension depends to a great extent on the level of savings reached just at the moment of retirement, in which case the strong volatility of the financial markets can cause a significant reduction (or increase) in the amount of the pension. Workers who follow identical investment strategies but who retire a few years apart can receive pensions that are very different.

In order to avoid large fluctuations in the value of the investments, there have been created in Chile what are known as "Type 2 Funds", whose resources will be invested totally in fixed income securities. Affiliates who are nearing retirement - women of 50 or over and men of 55 or over - and those who receive any type of pension can switch to a "Type 2 Fund".

Another valid alternative to alleviate the problem is the possibility of the affiliate acquiring parts of the annuity as he approaches the assigned age of retirement, which would also reduce the problem of adverse selection.

In other countries, the problem of the value of the investments fluctuating strongly at the moment the annuity is purchased with the single premium does not appear to be as serious, since only part of the retirement income comes from the capitalization

[33] The growth of the annuity payment depends on returns to the variable annuity which is normally greater than zero

system. Hence, for example, in Argentina the system is doubly mixed, firstly in the sense that it is made up of two independent systems (pay-as-you-go and capitalization), and secondly because the capitalization system also has a pay-as-you-go component (parallel mixed system). The choice of one system or the other in Argentina depends solely upon the wishes of the affiliate. In Uruguay, the system is mixed and parallel in the sense that part of the pension received by the affiliate comes from the pay-as-you-go system and the rest from the capitalization system, according to the wishes of the affiliate and his level of income.

In a number of Latin American countries annuities suffer from high marketing costs. In Chile, as seen in AFP-ag (2000d), it is known that annuity brokers charge a high rate of commission, around 7% of the savings accumulated by the affiliate. Current legislation gives an incentive for some affiliates to opt directly for an annuity in order to access funds, obtained through a high rate of commission for the insurance company salesperson which is often shared with the affiliate. In Argentina, as mentioned by Palacios and Rofman (2001), over 80% of retirees who acquire an annuity contract it from an insurance company with links to the administrator who previously managed the funds. In Colombia and Peru, markets are still in their infancy, and are less competitive with much more concentration.

In Chile, an act passed in September 2000 after seven years under discussion and expected to come into force in 2001 includes two relevant aspects: firstly, the gradual introduction of more stringent requirements for receipt of an early pension, the aim of which is to avoid this decision being taken at the cost of reducing the pension to a level that might compromise the objective of attaining an adequate standard of living during old age; and secondly, the bill establishes that anyone in a position to retire will have access to an electronic system showing what pensions are on offer for the categories programmed withdrawal and annuity. The legislation also allows free access to information regarding potential retirees to all those offering pensions, and proposes control and sanctioning mechanisms should money be diverted from the pension funds in the form of cash payments to affiliates. At present the decision to retire is known only to the administrator who manages the affiliate's funds. It also makes the requirements for early retirement and free disposal funds the same. According to some forecasts, the use of the electronic clearing house could increase the amount of the final pension by at least 6% by being a more efficient way of marketing annuities.

III.- CONCLUSIONS AND CHALLENGES AHEAD

The reform of the pensions system in Chile was a pioneering experience in Latin America and even the world. A provisional evaluation could qualify it as reasonably successful since it replaced an insolvent, inefficient and discriminatory system with another which is providing better and safer pensions, due mainly to the very high real return obtained during its first twenty years of functioning.

The other countries analyzed are also obtaining good real returns, which also imply better pensions than those obtained under the old systems. Even on the reasonable assumption that in the long term the net real return of the funds invested will decline,t he reformed systems will reinforce their solvency and efficiency and, in any case, continue to be less subject to the introduction of inequitable privileges than the old systems.

This reform has also had important cultural effects on Chilean society as it has incorporated the workers' commitment to the system, reduced class conflict, partially depoliticized the economy, reinforced political stability and triggered the introduction of other structural reforms to the economy which have turned Chile into the country with the highest economic growth in Latin America. According to Iglesias (2000), pension fund participation in the stock market has had positive effects on corporate governance: The number of independent boards has increased, monitoring costs have decreased as a result of better quality public information, companies where pension funds have invested are under close public scrutiny, shareholders meetings are becoming more relevant and bondholder protection has also improved. Capital market growth has also had positive consequences on corporate governance. Economies of scale have made possible a new research industry, which has helped to reduce information costs.

Contrary to widely-held views, the Chilean pensions system is not a totally private one, because the government carries out a very important administrative and financial role. This includes minimum and subsistence pensions, and the transition costs, which include the recognition bond and pension payments from the old system. It also includes supervision responsibilities. In the case of minimum pension guarantees and the social assistance benefit for the elderly, the presence of the state budget is permanent.

One of the difficulties of the Chilean reform is the need for transition financing - accentuated both by the speed of the transformation and the instrument chosen to carry it out - which have brought about a fiscal deficit. This deficit has made those countries that have subsequently reformed their systems try to reduce transition costs. These other countries took the problems into account and solved them in a way that is less costly to their budget in the short term by having the old and new systems coexist, although with much uncertainty. It can also be seen that initial forecasts generally underestimated the transition costs, while projections made at a later date have been able to incorporate more realistic data and have increased the costs initially forecast.

It could be said that the Chilean system has been used as a testing ground for other subsequent reforms since, taking the Chilean reform as a model, important modifications have been introduced in some cases as regards both functioning and structure. In general, the reforms have brought about an increase in transparency and made it more difficult for the system to be manipulated. In Colombia, a process of

reconstruction and computerization of contributors' labor histories was begun. In Uruguay, the payment of corporate contributions on an aggregate basis without identifying the individual workers in whose name the contributions were made was stopped, "witness evidence" was eliminated as a means of proving payment of the contributions necessary for receipt of pensions, and a computerized record of contributions was created. Prior to the reform, 28% of all pensions were granted on witness testimony alone, without any proof of contribution.

The main challenges facing these systems in the future are:

a) Reduction of administration costs. Although there is room for improvement - most countries have costs clearly above 1% of annual funds administered - they will always show a higher level than other capitalization account options. In this sense a change in regulations is considered necessary in order to make it easier for competition to exist amongst the administrators. This could come about through prices, a change in the commission structure, or by offering discounts to workers who negotiate individually or in a group to encourage commitments to be made to stay for a certain time, thereby reducing unnecessary transfers and the costs associated with them, as certain Argentine administrators have begun to apply.

b) Improvements to pension fund management, information and supervision. As far as management is concerned, some countries (Argentina, Mexico and Uruguay) have adopted a centralized collection model as a means of reducing fraud and collusion between workers and employers, but unfortunately this has not brought about the desired result. As regards the publication of the return for the affiliate, only a limited number of countries currently have operative formulas for calculating it. There are noticeable methodological differences in the presentation of the return in different countries which make reliable comparison impossible. It would be useful to have a standardized formula for presenting the return which could be used in other countries and become the fundamental instrument for measuring the system, instead of using the return on the pension fund where only net contributions are considered.

c) Perfecting the types of pension currently on offer. The most relevant proposals would be: increasing the offer of indexed annuities, as only Chile, Argentina[34] and Peru have a level that can be considered acceptable; reducing the marketing problems suffered by annuities by increasing the transparency of the process; authorizing new types of annuity, such as group or deferred; and eliminating the obligation to contract an annuity that exists in some of the countries studied, since this does not coincide with the preferences of all pensioners.

d) A gradual increase in the degree of coverage by correcting the various design flaws and creating policies to encourage the incorporation of the informal sector (hidden economy) into the pensions system. One group of workers to

[34] Price indexation is prohibited by law; contracts are set in nominal terms, although implicit indexation rules operate. See Table XXVI.

be dealt with as a matter of urgency are the self-employed, who in some countries are almost actively discouraged from joining the system in an effective way. In any case, it should not be forgotten that the level of coverage of any type of pension scheme is closely linked to the limitations and restrictions of the labor market and the level of development of the country.

e) Incorporation of excluded groups. In all the countries analyzed except Bolivia, the reform excluded certain groups (more for reasons of self-interest than for financial motives) which retain privileges that are a potential source of financial desequilibrium and reinforce a system with double standards which is unacceptable in developed democratic countries. In the majority of these countries there is already fierce debate as to the need for additional reforms.

f) Gradual elimination of the draconian regulations governing pension funds, especially those dealing with structure, performance and asset allocation. The result of these regulations is: 1) fund portfolios are very similar and their results practically the same; 2) there are few incentives to improve the management of investments; and 3) affiliates do not have any real freedom of choice of portfolio, and so they have little responsibility in determining their financial future. There should be a trend towards liberalizing the system to allow for greater diversification. The funds should be able to compete not only in price, but also by offering different strategies of risk and return to enable affiliates with differing degrees of aversion to risk to put themselves in the best position.

g) Introduction of mass campaigns directed towards improving knowledge of pensions. In systems where a large part of the responsibility is left with the individual, that individual must possess enough knowledge and independent advice to be able to cope with the various decisions that have to be made during both his working life and his retirement.

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V.- APPENDIX: BASIC STRUCTURE OF THE REFORMED PENSIONS SYSTEMS IN LATIN AMERICA

Table IX: Economic, Development and Population Data

	CHILE	PERU	COLOMBIA	ARGENTINA	COSTA RICA	URUGUAY	MEXICO	BOLIVIA	EL SALVADOR
Population (Millions) (1999)	15.0	25.2	41.5	36.6	3.6	3.3	97.4	8.1	6.2
H.D.I. (1995)[35]	0.893	0.729	0.850	0.888	0.889	0.885	0.855	0.509	0.604
Position amongst 174 countries	31	85	53	36	34	38	49	116	114
GNP (per capita) (1999)	4,640 $	2,350 $	2,170 $	7,600 $	3,670 $	6,160 $	4,410 $	1,000 $	1,900 $
Average annual growth GDP (1989-99) %	7.2	4.3	3.4	5.0	5.0	3.6	2.9	4.2	5.0
Labor force (1992-99) %	2.3	2.6	2.7	2.1	2.3	1.5	3.0	2.8	3.8
Population (1992-99) %	1.4	1.7	1.9	1.3	1.9	0.7	1.7	2.3	2.2
Life expectancy at birth (years)	76	70	72	74	77	75	73	64	71
Life expectancy at retirement M/F	60/21.8 / 65/14.5	65/14.5 / 65/13	57/21.7 / 62/16.2	60/21.3 / 65/13.5	– / ---	60/24.6 / 60/16.8	65/17.4 / 65/15.6	65/16.8 / 65/12.1	55/23.9 / 60/18.1
Contributors/ Pensioners (1995) %	4.12	3.23	9.09	1.56	7.14	1.43	8.00	2.50	11.63
Population (60+/20-59) %	17.5	14.3	16.1	27.0	14.5	34.5	12.9	16.2	14.3
Pensioners/total Population %	10.4	2.3	1.5	13.8	2.5	25.8	1.6	2.0	0.9

Source: Authors' calculations based on Mesa-Lago (2000a) and World Bank (Countries at a glance)

[35] Human Development Index, which combines the GNP per capita and health and education indicators.

Table X: Main Features of the New Pension Systems									
	CHILE (1981)	**PERU (1993)**	**COLOMBIA (1994)**	**ARGENTINA (1994)**	**COSTA RICA (1995)**	**URUGUAY (1996)**	**MEXICO (1997)**	**BOLIVIA (1997)**	**EL SALVADOR (1998)**
Public PAYGO system	Closed	Remains	Remains	Remains	Remains	Remains	Closed	Closed	Closed
Affiliation of new workers	Mandatory	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary (depends on income)	Mandatory	Mandatory	Mandatory
Contribution rate for savings	10% of salary	8%	10%	7.72%	-	12.32%	12.07%	10%	8.53%
Commissions + Insurance	2.31% of salary	3.73%	3.49%	3.28%	-	2.68%	4.48%	2.50%	3.15%
Contribution Collection[36]	Decentralized	Decentralized	Decentralized	Centralized	Both	Centralized	Centralized	Decentralized	Decentralized
Past Contributions	Recognition Bond	Recognition Bond	Recognition Bond	Compensatory Pension	-	Pensionable earnings	Previous Resources / lifetime switch	Compensatory Pension	Recognition Bond
Disability / Survivors Insurance	Private	Private	Private	Private	Both	Private	Public	Private	Private
Minimum rate of return	Relative	Relative	Relative	Relative		Absolute	Unregulated	Unregulated	Relative
Minimum pension	Yes	Yes[37]	Yes	Yes	Yes	Yes	Yes	No	Yes
Supervision[38]	Specialized	Specialized	Integrated	Specialized	Specialized	Integrated	Specialized	Integrated	Specialized
Nº of AFP's.	8	4	8	13	9	6	13	2	5
Share 2 AFP's >	58.8%	60.5%	63% (3)	38.8%	79% (3)	66.2%	38.8%	100%	65.8%
Account Transfers	1 x year	2 x year	2 x year	2 x year	-	2 x year	1 x year	1 x year	2 x year
INTERNET http:\\www.	Safp.cl Afp-ag.cl	Safp.gob.pe	Fasecolda.com Asofondos.org.co Superbancaria.gov.co	Safjp.gov.ar	bccr.fi.cr / supen /	bcu.gub.uy bps.gub.uy	Consar.gob.mx	spvs.org	Spensiones.gob.sv

Source: Own based on Mesa-Lago (2000a), FIAP (2000), Martínez (1999), Queisser (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997).

[36] The papers by Bertín and Perrotto (1999b) and Demarco and Rofman (1999a) should be consulted on this subject.

[37] According to Mesa-Lago (2000b), payment of this has yet to be made.

[38] An approximation of the concept of supervision applied to (capitalization) Pensions Systems and an international overview can be found in the paper by Demarco and Rofman (1999b).

Table XI: Main Legal Characteristics of the Reformed Benefit Systems

	CHILE	PERU	COLOMBIA	ARGENTINA	COSTA RICA	URUGUAY	MEXICO	BOLIVIA	EL SALVADOR
Background to the reform	Piñera (95) Ruiz Tagle (97) Miranda and Rodríguez (97)	Mesa Lago (00a)	FASECOLDA (99)	Mesa Lago (97)	Mesa Lago (00a)	Márquez (97) Noya and Laens (00)	Rodríguez (99b) Solís and Santín (00)	Gray-Molina, Pérez de Rada and Yañez (99) De la Serna (01)	Mesa Lago (00b)
Start of operations	1981	1993	1994	1994	1995	1996	1997	1997	1998
Jurisdiction	National	National	National	National	National	National	National	National	National
Coexistence of the old system with the new[39]	No	Yes	Yes	No	Yes	No	No	No	No
Mandatory for:	Employed	Employed	Employed	Self-employed and Employed	-	Self-employed and Employed	Employed	Employed	Employed

Source: Own based on Disney, Palacios and Whitehouse (1999), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)

[39] Except for Bolivia, where 'No' is entered in the boxes it should be understood that the systems coexist either in a residual form for certain workers who used to be in the old system, or in an exclusive form for certain groups who remain in the old system (armed forces, forces of law and order, and some civil servants).

Table XII: Workers' Options (1)									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
New employed workers who join the labor market	Mandatory entry into the capitalization system	Mandatory entry, free choice between pay-as-you-go and capitalization	Mandatory entry, free choice between pay-as-you-go and capitalization	Mandatory entry, free choice between pay-as-you-go and capitalization	Mandatory entry to pay-as-you-go, and voluntary to capitalization	Mandatory entry into the new system	Mandatory entry into the capitalization system	Mandatory entry into the capitalization system	Mandatory entry into the capitalization system
Self-employed workers	Voluntary entry into the capitalization system	Voluntary entry into the capitalization system	Voluntary entry into the capitalization system	Mandatory entry, free choice between capitalization and pay-as-you-go	Voluntary entry into the capitalization system	Mandatory entry for < 40 years and voluntary for ≥ 40 years	Voluntary entry	Voluntary entry	Voluntary entry
Employed workers who were in the old system	Voluntary entry, free choice between individual capitalization or pay-as-you-go	Voluntary entry, free choice between pay-as-you-go and capitalization	Voluntary entry, free choice between individual capitalization or pay-as-you-go	Voluntary entry, free choice between individual capitalization or pay-as-you-go	Mandatory entry to pay-as-you-go and voluntary to individual capitalization	Voluntary entry > 40 years, and obligatory ≤ 40 years	Voluntary entry	Mandatory entry	Mandatory entry for < 36 years Voluntary entry for 36m/w < age < 55m/50w
Source: Own based on Disney, Palacios and Whitehouse (1999), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)									

Table XIII: Workers' Options (2)									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Possibility of returning to the old system: change from capitalization to pay-as-you-go	Not provided	Until 01/06/96[40] for reasons of age (55 years for men or 50 for women), or for having no right to a Recognition Bond	Yes. The option can be taken once every three years	Until 15/07/96[41] (during the two years immediately following the reform)	-	Not provided	Yes. Provided for certain workers.	Not provided	Not provided
Date limit for entering the new system / Change from pay-as-you-go to capitalization	Not provided / Not provided	Not provided / Yes	Not provided / Yes, the option can be taken once every three years	Not provided / Yes	-	Until 20/12/96 / Yes > 40 years	No / Not provided	Not provided[42] / Not provided	Until 31-12-98/ Not provided

Source: Own based on Disney, Palacios and Whitehouse (1999), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)

[40] Not provided at present.
[41] Not provided at present.
[42] Up until two years after the reform for certain groups.

Table XIV: Financial Structure of the Reformed Pension Systems									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Financing Structure	Pure: Individual Capitalization	Parallel Mixed: Pay-as-you-go with Scaled Average Premium and Individual Capitalization	Parallel Mixed: Pay-as-you-go and Individual Capitalization with Solidarity	Complementary Mixed: Pay-as-you-go and Individual Capitalization	Voluntary Complementary Mixed: Pay-as-you-go with Scaled Average Premium and Individual Capitalization	Complementary Mixed: Pay-as-you-go and Individual Capitalization (according to income)	Pure: Individual Capitalization	Pure: Individual and Collective Capitalization	Pure: Individual Capitalization
First Pillar: Non-Contributory	Yes (Pay-as-you-go)	Yes (Pay-as-you-go)	Yes (Pay-as-you-go/FNSP (capitalization))	Yes (Pay-as-you-go)	Yes (Pay-as-you-go)	Yes (Pay-as-you-go)	Yes (Pay-as-you-go)	No[43]	Yes (Pay-as-you-go)
Second Pillar: Professional	Yes (Capitaliz.)	Yes (Capitaliz. or Paygo)	Yes (Capitaliz. or Paygo)	Yes (Paygo and Capitaliz.)	Yes (Paygo)	Yes (Paygo and Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)
Third Pillar: Voluntary	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)	Yes (Capitaliz.)
Recognition of contributions made before the reform	Recognition Bond. (4% real interest guaranteed)	Recognition Bond. (0% real interest guaranteed)	Recognition Bond. (3% real interest guaranteed)	Compensatory Benefit. 65 m/60 w +30 years in the old system.	-	Partly included when calculating Ordinary Retirement	Transfer of the balance in the CCI of the SAR[44] to the AFORE	Two types of Compensatory Pension.	Recognition Bond, named Transfer Certificate (annual adjustable interest)
Source: Own based on Devesa, Martinez and Vidal (2000a), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)									

[43] Although there does exist a welfare program coordinated through two accounts, "Bolivida" and "Cuenta de Acciones Populares" (CAP), which is managed through a Collective Capitalization Fund, and whose resources come from the privatization of public companies.

[44] Sistema de Ahorro para Retiro (Retirement Savings System). This is a type of notional account which has been used since the 1992 reform.

Table XV: Retirement Benefits									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Social Assistance Benefits	Yes	No	No	Yes	Yes	Yes	No	No	No
Minimum Pension	Yes (65m/60w +20 years conts)	Yes (65m/w +20 years conts)	Yes (62m/57w +23 years conts in AFPs, or 20 in ISS)	Yes (65m/60w + 30 years conts)	Yes (62m/60w + 39 years conts)	Yes(60m/w + 35 years conts)	Yes (65m/w + 25 years conts)	No, but there is Bolivida and CAP	Yes (60m/55w + 25 years continuous/ uncontinuous conts)
Ordinary	Yes (depends on the fund accumulated)	Yes (depends on the system chosen)	Yes (depends on the system chosen)	Yes (depends on the system chosen)	Yes	Yes (depends on the system chosen)	Yes (best option)	Yes (at age 65)	Yes (depends on the fund accumulated)
Early[45]	Yes (55m/w + 10 years conts)	Yes (55m/60w + 30 years conts m and 25 years w)	Yes, in capitalization	Yes, in capitalization	No	No	Yes	Yes	Yes
Deferred[46]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Disability and Death	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes, there is no partial disability	Yes
Funeral Expenses	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No[47]
Source: Own based on Rofman (2001), Devesa, Martinez and Vidal (2000a), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)									

[45] Generally speaking, in order to qualify for an early pension, the amount necessary to finance at least some kind of pension has to be accumulated in the individual account. The minimum amounts are shown in Devesa, Martínez and Vidal (2000a).

[46] This refers to the possibility of continuing to work after reaching the established age of ordinary retirement.

[47] The Instituto Salvadoreño del Seguro Social pays the funeral expenses.

Table XVI: Form of Retirement Benefits									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Programmed Withdrawal	Yes	Yes	Yes	Yes [48]	Yes	No	Yes [49]	No	Yes
Fragmentary Withdrawal	No	No	No	Yes	No	No	No	No	No
Annuity [50]	Yes	Yes, with different types	Yes	Yes	Yes	Yes	Yes	Yes, with different types	Yes
Prog. Withdrawal / Temporary Pension with Deferred Annuity	Yes	Yes	Yes	No	No	No	No	No	Yes
Lump sum [51]	Yes	Yes	Yes	Yes	Yes, early withdrawal.	No	Yes	No	Yes
Source: Own based on Rofman (2001), Devesa, Martinez and Vidal (2000a), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)									

[48] Scheduled withdrawals are limited to a maximum of five years after retirement, to protect beneficiaries against the risk of running out of funds. After that time, beneficiaries are required to buy an annuity, reducing also the risk of adverse selection in the market.

[49] In fact the affiliate does not choose the type of pension but the best option. According to Rubalcava and Gutiérrez (2000), if the option chosen is that based on the old system, the affiliate will receive an annuity (which should be more than the minimum pension), whereas if the affiliate opts for the new system, he will receive programmed withdrawal.

[50] In general the annuity is of a 'family' type: the affiliate signs a contract with a life insurance company to receive a monthly payment until his death and a survivor's pension for his beneficiaries.

[51] This can generally be used only if the balance in the individual account is enough to allow payment of a minimum benefit. The relevant data can be consulted in Devesa, Martínez and Vidal (2000a).

Table XVII: Contributions Structure

	CHILE	PERU	COLOMBIA	ARGENTINA	COSTA RICA	URUGUAY	MEXICO	BOLIVIA	EL SALVADOR
Financing the pension. Mandatory Second Pillar	Worker's contribution: 10%.	Worker's Contribution: 10% to the capitalization system and 11% to the pay-as-you-go.	Contribution: 13.5%, of which 3.375 points correspond to the worker.	Contribution: 27%, of which 11 points correspond to the worker.	Contribution: worker's 2.5%, employer's 4.75% and State 0.25%	Worker's contribution: 15%	Contribution: worker's 1.75%, employer's 11.9% and State 2.55% approximately	Worker's contribution: 12.5%, employer's 2%.	Worker's contribution 9%, employer's 6%.
Financing the pension. Voluntary Third Pillar	Voluntary contributions and free deposits.	Voluntary contributions to the individual capitalization account.	Voluntary contributions to the individual capitalization account.	Voluntary deposits and free deposits in the individual capitalization account.	Voluntary contributions by the worker and the employer.	Voluntary contributions for the 15,000+ peso earnings band to the individual capitalization account.	Worker's and employer's voluntary deposits in the Voluntary Contribution Account.	Worker's and employer's voluntary contributions.	Worker's and employer's voluntary contributions.

Source: Own based on Devesa, Martinez and Vidal (2000a), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)

Table XVIII: Amount of Retirement Benefits									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Minimum old-age pension	State guarantee of a minimum pension	State guarantee of a minimum pension	Equal to the current minimum monthly salary	Equal to the Basic Universal Pension (PBU) [52]	Equal to 60% of the average benchmark salary (Salario promedio de referencia (SPR))	Equal to ordinary retirement pension	Equal to the updated general minimum salary	There is no minimum guaranteed by the State	State guarantee of a minimum pension
Amount of pension	Amount of the CCI = Mandatory and voluntary contributions + returns + Recognition Bond (BR)	Pay-as-you-go: at least 50% of the benchmark payment Capitalization: Amount of the CCI = Mandatory and voluntary contributions + returns + Recognition Bond (BR)	Pay-as-you-go: at least 65% of the previous salary (Ingreso Base de Liquidación) Capitalization: Amount of the CCI = Mandatory and voluntary contributions + returns + Recognition Bond (BR)	Pay-as-you-go: PBU + Additional Pension for permanence+ Compensatory Payment (PC) Capitalization: PBU + PC + Ordinary Retirement = Amount of the CCI	Pay-as-you-go: 60% of the average benchmark salary Capitalization: Amount of the CCI	Pay-as-you-go: Ordinary Retirement: 50% of the Basic Retirement Income (SBJ) Capitalization: Ordinary Retirement (pay-as-you-go) + amount of the CCI	Amount of the CCI = Mandatory and voluntary contributions + returns	Capitalization: Bolivida + Compensatory Pension + amount of the CCI (= Mandatory + voluntary contributions + return)	Amount of the Individual Account = Mandatory + voluntary contributions + returns + Tranfer Certificates + Special Contribution (related to disability)

Source: Own based on Devesa, Martinez and Vidal (2000a), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)

[52] Depends on the accumulated monthly benefits in second pillar/compensatory. Individuals aged 70 or over who are not able to prove they have contributed for more that 10 years and have no other income (themselves or through the spouse) will receive a Universal Benefit of $100 a month. In both cases, health coverage will be included.

	Table XIX: Minimum Return of Pension Funds								
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Minimum return	Relative	Relative	Relative	Relative	Relative	2% Absolute Real	No	No	Relative
Lower limit	Min (RR[53] - 0.02, 0.5*RR)	Min (RRSt[54] - 0.03, 0.25*RRSt)	0.5*0.9*RPS[55] + 0.5*(0.5*0.9*RRV[56] +0.5*0.95* RRF[57])	Min (RPS - 0.02, 0.7*RPS[58])	Specific Formula	Min (RRs[59] - 0.02, 2%[60])	-	-	Min (RNSt[61] -0.03, 0.8*RNSt)
Upper limit	Max (RR + 0.02, 1.5*RR)	-	-	Eliminated[62]	-	RRs + 0.02	-	-	Max (RNSt + 0.03, 1.2*RNSt)
Source: Own based on Rofman (2001), Mesa-Lago (2000a/b), Martínez (1999), Bertín and Perrotto (1999a/b), Bertín and Perrotto (1997) and AIOS (1999b)									

[53] Adjusted average real return of all the pension funds over the last twelve months.
[54] Average real return of all the funds over the last 36 months calculated at month t.
[55] Average return of the system.
[56] Adjusted average return of variable income instruments.
[57] Adjusted average return of fixed income instruments.
[58] Adjusted average real return of the system.
[59] Average real return of the system.
[60] Real annual.
[61] Average nominal return of the system for the last twelve months calculated at month t.
[62] According to Rofman (2001), on December 29 2000 the Argentinian government passed a decree introducing several changes to the pension system. The maximum return was eliminated, together with the returns reserve it generated. This limit was perceived as a disincentive for managers to seek better returns and as such was cancelled, but there were no changes to the minimum.

Table XX: Pension Fund Return and Guarantees									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Reserve for fluctuations in return	YES	NO Eliminated recently	NO	YES	YES	YES	-	-	YES
Reserve	YES 1% of Fund	YES	YES 1% of Fund	YES 2% of Fund	NO	YES 2% of Fund	-	-	YES 3% of Fund
Other Guarantees	State	Bank	Guarantee Fund Solvency Margin	State	-	State	-	-	-
Return[63]	Average Quota Value Net/Gross Nominal/Real Monthly/ Annual	Average Quota Value Nominal/Real Monthly	Annualized daily return and accumulated return over the last 36 months	Average Quota Value Nominal Monthly/ Annual	Average Quota Value Net/Gross Nominal/Real Monthly/ Annual	Average Quota Value Net/Gross Nominal/Real Monthly/ Annual	Daily Return Variation in the price of the "share" Nominal/Real	Quota Value at start and end of the period Nominal/Real Annual	Average Quota Value Nominal Monthly/ Annual

Source: Own based on Mesa-Lago (2000a/b), Martínez (1999), Bertín and Perrotto (1999a/b), Bertín and Perrotto (1997) and AIOS (1999b)

[63] Detailed definitions and analyses of each of the concepts of return can be found in AIOS (1999a). In general, return is annualized by the financial law of compound capitalization, except in Mexico and Bolivia, where the law of simple capitalization is used.

Table XXI: Functions of Retirement and Pension Fund Administrators (1)									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
Single-purpose Companies	No. The AFP can manage the Cuentas de Ahorro Voluntario and de Ahorro de Indemnización.	Yes. Administradoras de Fondos de Pensiones (AFP).	No. AFP can manage the Solidarity Pension Fund.	Yes. Administradoras de Fondos de Jubilaciones y Pensiones (AFJP).	Yes. Operadoras de Planes de Pensiones Complementarias (OPC).	Yes. Administradoras de Fondos de Ahorro Previsional (AFAP).	Yes. Administradoras de Fondos de Retiro (AFORE).	Yes. Administradoras de Fondos de Pensiones (AFP).	Yes. Instituciones Administradoras de Fondos de Pensiones (AFP).
Collection of Contributions	Yes. Also agreements with Financial Institutions.	Yes. Through financial institutions.	Yes.	No. This is only done by the Administración Federal de Ingresos Públicos.	Yes.	No. Mandatory contributions are collected by the Banco de Previsión Social	No. Private company: "Procesar, S.A."	Yes. Through collection agencies.	Yes. Through the banking system.
Account Management:									
Welfare benefit / Non-welfare benefit savings	Yes / Yes	Yes / No	Yes / No	Yes / No	Yes / Yes	Yes / No	Yes / No	Yes / No	Yes / No
Compensation savings	Yes. Unemployment.	No	Yes. "Solidarity Pension Fund".	No	No	No	No	No	No
Funds administered	Type One Type Two	One	Various	One	Various	One	Various	Two: Capitalization Indiv. / Collect.	One
Information to the affiliate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Source: Own based on Bertín and Perrotto (1999b), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)									

Table XXII: Functions of Retirement and Pension Fund Administrators (2)									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**	**BOLIVIA**	**EL SALVADOR**
	Payments of Benefits:								
Programmed withdrawal	AFP	AFP and AFPC	AFP	AFJP	OPC	-	AFORE	-	AFP Institutions
Annuity	Insurance companies	Insurance companies / AFP	Insurance companies	Insurance companies	Insurance companies	Insurance companies	Insurance companies	Insurance companies / AFP	Insurance companies
Death and disability benefits	Insurance companies	Insurance companies	Insurance companies	Insurance companies	Pay-as-you-go: the State Capitalization: optional	Insurance companies	Instituto Mexicano de Seguro Social (IMSS)	Insurance companies	Insurance companies
Control body for the capitalization system	Super-intendencia de Administrad-oras de Fondos de Pensiones, created for this purpose	Super-intendencia de Adminis-tradoras de Fondos de Pensiones, created for this purpose	Super-intendencia Bancaria, unidad ad-hoc Instituto de Seguros Sociales	Super-intendencia de Administrado-ras de Fondos de Jubilación y Pensiones, created for this purpose	Super-intendencia de Administrado-ras de Fondos de Pensiones, created for this purpose	Banco Central del Uruguay	Comisión Nacional del Sistema de Ahorro para Retiro (CONSAR)	Super-intendencia de Administrado-ras de Fondos de Pensiones	Super-intendencia de Pensiones
Source: Own based on Bertín and Perrotto (1999b), Martínez (1999), Bertín and Perrotto (1997), Mitchell and Barreto (1997)									

Table XXIII: % Portfolio Composition over Total Funds Assets (31/12/2000)									
Country	**TOTAL (millions US$)**	**Public Debt**	**Financial Entities**	**Non-Financial Entities**	**Equities**	**Mutual Funds**	**Foreign Securities[64]**	**Others**	**Investments in foreign currency[65]**
ARGENTINA	20,381	56.0	15.6	2.8	12.3	8.2	4.5	0.6	55.4
BOLIVIA	841	69.5	23.2	3.7	0	0	0	3.7	98.7
CHILE	35,886	35.7	35.1	4.0	11.6	2.4	10.9	0.2	11.7
COLOMBIA	3,414	50.1	28.6	14.5	2.4	0	0	4.3	n.a.
EL SALVADOR	482	71.3	25.3	3.4	0	0	0	0	0
MEXICO	17,355	92.6	2.0	5.4	0	0	0	0	0.1
PERU	2,978	9.0	34.0	18.6	29.0	0.7	6.7	2.1	48.7
URUGUAY	811	61.4	34.9	1.9	0	0	0	1.8	73.6
TOTAL	82,148	53.20	22.78	4.94	9.27	3.11	6.12	0.55	22.38
Source: Own based on FIAP (2001) and AIOS (2001)									

[64] Foreign securities include all foreign assets denominated in foreign currency .

[65] Assets denominated in foreign currency but issued by domestic issuers are included in their respective categories.

	Table XXIV: Maximum Portfolio Limits (%)									
	CHILE	**PERU**	**COLOMBIA**	**ARGENTINA**	**COSTA RICA**	**URUGUAY**	**MEXICO**		**BOLIVIA**	**EL SALVADOR**
	Max	Max	Max	Max	Max	Max[66]	Min	Max	Max	Max
Public Debt	50	60	50	65	90		65	100	100	60
Non-Financial Entities	45	40	20						30/45	40
Financial Entities	50	55	30		60			10	60	60
Equities	37	35	30	49					20/40	20
Foreign Issuers	16	10	10	17					10/50	
Investments in foreign currency					100[67]			10		The same as in National Currency
Source: Based on data from pension fund regulators										

[66] Maximum investment in State-issued securities 75%. Also, as a maximum of the fund must be invested in a combination of the following items: securities issued by the Banco Hipotecario, term deposits, securities issued by public or private national companies, deposit certificates and placements in public or private institutions for providing loans to Social Security system affiliates and beneficiaries.

[67] Only if they are issued by the public sector.

Table XXV: Implicit Pension Debt as % GDP

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	86								305					
BOLIVIA	48							40	31					
CHILE	100	126		90	80-128				131					
COLOMBIA	40	84	90	87	62-87		86-118		35					
EL SALVADOR	35								9		70		62	
MEXICO	42			80		141			37			83		
PERU	37		30	27					45	37				
URUGUAY	214		200						289	214				222

Source: (1) Brooks and James (1999), (2) Holzmann (1998), (3) Queisser (1999), (4) Mitchell and Barreto (1997), (5) Schmidt-Hebbel (1995), (6) Rodríguez (1999b), (7) Clavijo (1998),
(8) Von Gersdorff (1997), (9) Bravo and Uthoff (1999), (10) Kane and Palacios (1996),
(11) Mesa-Lago (2000b), (12) Solís and Santin (2000), (13) Rodríguez and Durán (2000b).
(14) Holzmann, Palacios and Zviniene (2001)

Table XXVI: Annuity schemes in selected countries. Key rules				
	ARGENTINA	**CHILE**	**COLOMBIA**	**PERU**
Life mortality table used	GAM71	RV85	**ISS90**	RV85
Technical interest rate for reserves	Fixed at 4%, nominal	Linked to underlying assets returns	Fixed at 4% real	Fixed at 3% real
Technical interest rate for quotations	Fixed at 4%, nominal	Free, at around 5.5% real	Free, at around 4% real	Free, at around 5.7% real
Indexation	None explicit. Annuities can be in US dollars and defined as variable following reserves' returns	Annuities are defined in "UF", the basic inflation indexed unit in Chile	Indexed with CPI	Indexed with Lima's CPI. They can also be in US dollars
Survivors' benefits	Spouse w/o children gets 70% of benefit, reduced to 50% for spouse and 20% to each child under 18, up to 100%	Widow w/o children gets 60% of benefit, widow with children 50% plus 15% for each child under 18. No benefits for widower, unless disabled. Guaranteed periods apply	Spouse or children under 18, a total of 100% of benefit	Widow gets 35% of benefit. Widower or children under 18 get an additional 14%. Guaranteed periods apply
Source: Palacios and Rofman (2001)				