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THE STRUCTURAL PENSION REFORM IN CHILE: EFFECTS, COMPARISONS WITH OTHER LATIN AMERICAN REFORMS, AND LESSONS

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Chile pioneered a structural reform in Latin America that privatized its public pension system and influenced similar reforms in another nine countries. Twenty-five years later, this article evaluates the macroeconomic, microeconomic, and social effects of this reform in Chile and the other countries in the region, and extracts lessons from those experiences. Fiscal costs of the reform have been high and prolonged, exceeded capital accumulation, and had a negative impact on national savings, but Chile's reform has contributed to the development of capital markets; employer's contributions were eliminated or reduced in half of the countries and the worker's share in the total contribution averages 65 per cent; competition is afflicted by a small number of administrators and a high level of concentration; administrative costs are high and stagnant; capital returns are fair but declining; portfolio diversification has been achieved only in Chile and Peru; labour-force coverage has declined in all ten countries, and gender and income inequalities have expanded.

I. INTRODUCTION

Chile has been a pioneer in Latin America in two ways: introducing a public social security pension programme and implementing a structural reform (privatizing it); both initiatives have had significant influence in other countries in the region, and on the structural reform in other parts of the world, too.

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Twenty-five years after the reform was implemented, it is fitting to make a thorough evaluation of its effects inside Chile and in the region. Herein we summarize the process of reform in Chile, evaluate its effects, compare the main effects of the Chilean model with other similar reforms in Latin America, and extract lessons from the Chilean experience.

A public pension system is normally characterized by a non-defined contribution (because it tends to increase in the long run), a defined benefit (as it is guaranteed and specified by law), a pay-as-you-go financial regime (without reserves or with partial reserves), and public management. A structural reform transforms a public system, totally or partially, into a private system characterized by defined contribution (theoretically it should not increase in the long run), non-defined benefit (the pension is uncertain), fully funded financing (with individual account pension funds owned by the insurance and used to finance their pensions), and private management. In addition to Chile, nine countries in Latin America have implemented a structural pension reform following three models: (*a*) substitutive, where the public system is closed and replaced by a private system, as in Chile (1981), Bolivia and Mexico (1997), El Salvador (1998), and the Dominican Republic (2003–6); (*b*) parallel, where the public system is not closed but reformed, a private system is created, and the two compete against each other, as in Peru (1993) and Colombia (1994); and (*c*) mixed, where the public system continues as a first pillar that pays a basic pension, and a second private pillar is added that pays a supplementary pension, as in Argentina (1994), Uruguay (1996), and Costa Rica (2001). A substitutive reform approved in Nicaragua (2004) has been suspended indefinitely because of the high fiscal cost of the transition, while a mixed model passed in Ecuador (2004) has been halted by an unconstitutional appeal before the Supreme Court. The percentage of workers affiliated to the private systems (the rest are in the public system) in the reformed countries in 2004 varied from 50 per cent in Colombia, to 98 per cent in Chile, and 100 per cent in Bolivia and Mexico (Table 1). The remaining eight Latin American countries maintain their public systems and several have implemented or are discussing parametric (non-structural) reforms to strengthen them (Mesa-Lago, 2004, 2005, 2006).

The evaluation of the Chilean reform focuses on three types of effects: (*a)* macroeconomic (fiscal costs, national savings); (*b*) microeconomic (contributions, competition, administrative costs, capital returns, portfolio diversification, and development of the capital market), and (*c*) social (coverage, density of contributions and level of pensions, replacement rates, gender inequality, and redistribution). Twelve indicators of the effects of the Chilean case are compared in Table 1 with those of the other nine Latin American countries with structural reforms.

II. SUMMARY OF THE CHILEAN PENSION REFORM: 1980–1

At the end of the 1970s Chile's public pension system was fragmented into 35 funds or schemes with significant differences in coverage, entitlement conditions, contributions, and financial status, although most suffered financial imbalance. In 1979 the military government unified the existing public pension funds, and raised and standardized the retirement age and the level of contributions. In 1980, the public system was closed (except for the armed forces scheme, that remains public and unchanged) and replaced by a new private system (with the four characteristics described above) that started to function in May 1981. A short period was given for those insured to stay in the public system or move to the private one; all new workers must join the private system. The employer contribution was eliminated and workers must pay 10 per cent of their income (defined contribution) that is deposited in individual accounts managed by private for-profit corporations which exist for this sole purpose (Administradoras de Fondo de Pensiones—AFPs); in addition, workers must pay a commission to the AFP for the administration of the old-age programme, part of which is a premium transferred to private insurance companies to cover risks associated with disability and survivors (the insured person's dependants).

Pensions are financed by the fund accumulated in the insured's individual account and can be paid as an annuity, programmed withdrawal, or a combination of both. 'Non-defined' benefit means that the level of the pension is uncertain and will depend on five factors: (*a*) the amount of the contributions

Table 1
Comparison of Indicators in Chile and Other Pension Systems with Structural Reforms in Latin America, 2004

	Argentina	Bolivia	Chile	Colombia	Costa Rica	Dominican R.	El Salvador	Mexico	Peru	Uruguay	Average[i]
Coverage (% of EAP)[a]											
Before reform	50	12	64	32	53	30	26	37	31	73	38
2004	20.7	10.5	57.3	22.2	46.6	14.5	20.1	28.0	12.0	58.8	26.3
In private system (%)[b]	90	100	98	50	100	87	92	100	96	54	86
Administrative cost (% revenue)[c]	17.4	9.0	19.8	40.3	n.a.	7.0	33.5	18.7	21.9	11.9	20.0
Contribution (% of salary)[d]											
Total	7.00	12.21	12.27	13.50	4.50	7.00	13.00	11.00	11.19	15.00	11.90
Worker	100	100	100	25.0	55.6	28.8	46.2	23.5	100	100	65.2
Employer	0	0	0	75.0	38.9	71.2	53.8	56.4	0	0	24.5
Compliance (% of affiliates)[e]	35.4	44.9	50.4	39.0	68.1	49.8	41.9	38.8	39.9	52.5	40.7
No. of administrators (AFPs)	12	2	6	6	8	8	2	13	4	4	6.5
Concentrated in 3 biggest AFPs											
(% total affiliates)	52	100	80	74	66[j]	79	100	41	76	86	76
Investment (%)											
In public debt[f]	62.0	67.5	18.7	48.5	73.1	32.5	83.5	85.5	24.2	57.9	55.3
Real capital return[g]	9.9	10.4	10.3	6.9	6.7	–8.8	9.9	7.7	7.6	12.9	7.3
Total pensions fund											
US$m	18,306	1,716	60,799	11,067	476	488	2,148	42,524	7,820	1,678	14,702
% of GDP	12.0	20.5	59.1	10.3	2.7	1.9	13.7	5.8	11.0	16.1	15.3
Fiscal cost (% of GDP)[h]	–2.5	–3.5	–6.0	–1.6	0.0[k]	n.a.	–1.4	–0.5	–0.7	–4.0	–2.5

Notes: n.a.= not available. [a] Economically active population—based on active contributors combining private and public systems. [b] Percentage of total insured affiliated in the private system. [c] Includes only the commission for old age, excludes premium for disability and survivors. [d] Includes deposit in individual account, commission, and premium; the columns of workers and employers are a percentage distribution of the total contribution; the state contributes in Costa Rica and Mexico, hence totals do not sum to 100 per cent. [e] Percentage of affiliates who contributed in the last month. [f] Percentage of the portfolio invested in public debt. [g] Annual average (per cent) in real terms, from the inception of the system until December 2004. [h] Year 2001. [i] Weighted in coverage (by population), administrative costs (based on total income and total costs) and compliance (based on total affiliates and total contributors), rest non-weighted. [j] In the biggest two, no data available on the biggest three. [k] There are no fiscal costs because the public system pays all current pensions and the main pension, and all insured are in the two pillars (public and private).
Source: Mesa-Lago (2005, 2006); number of administrators and concentration from AIOS (2005); fiscal cost from Gill *et al*. (2005), except Chile from Table 2.

deposited in the individual account during the working life of the insured; (*b*) the capital returns on the investment of the fund in such an account; (*c*) the life expectancy of the old-age pensioner; (*d*) the gender of the pensioner; and (*e*) the number, age, and life expectancy of the insured's dependants. Contributions paid to the old public system by those insured who moved to the private system are estimated in a 'recognition bond', that is annually adjusted to inflation and accrues an interest rate. The bond can only be cashed into the pension fund at the time of retirement, disability, or death.

All variables in the system (deposits, investment, benefits) are measured in 'Unidades de Fomento' (UF), an accounting unit automatically adjusted to inflation—hence pensions are adjusted to the cost of living. Men can retire at age 65 and women at age 60. Nevertheless, the insured who accumulate a certain amount in their individual accounts (to guarantee at least a minimum pension) can retire before the statutory age. Although the system is private, it is mandatory and operates under strict control and regulation by the state through the Superintendence of AFP. The next three sections evaluate the macroeconomic, microeconomic, and social effects of the Chilean private system, and compare them with those of the other nine Latin American countries with structural reforms.

III. MACROECONOMIC EFFECTS OF THE CHILEAN REFORM

During the transition, Chile's structural reform has provoked high and prolonged fiscal costs, greater than the capital accumulation in the pension fund, thus resulting in a negative impact on national savings.

(i) Fiscal Costs

The structural reform, rather than eliminating the role of the state in the pension system, expanded it in terms of regulation, supervision, guarantees, and financing. Among the last the state took the following responsibilities that resulted in substantial fiscal costs: (*a*) the operational deficit in the old public system until all its beneficiaries are dead, which results because it was left with all ongoing and future public pensions, but with a minor fraction of the contributors; (*b*) recognition bonds; (*c*) guaranteed minimum pensions in the private system for the insured with at least 20 years of contributions and whose individual accounts are insufficient to finance such pensions; (*d*) social assistance (non-contributory) pensions to people over 65 years old or disabled, who are poor ('indigent') and lack any contributory pension coverage; and (*e*) the deficit of the public pensions of the armed forces and the police. The operational deficit and the recognition bonds are transitory fiscal costs that will last until the years 2050 and 2038, respectively, while the minimum, social-assistance, and military pensions are permanent fiscal costs (Mesa-Lago, 2004).

The top section of Table 2 shows fiscal costs as a percentage of GDP in 1981–2004, in each of the five obligations undertaken by the state, separating those of a civilian and a military nature. The total deficit averaged 5.7 per cent annually in 1981–2004, the civilian component constituted 75 per cent of the total deficit, and the military component the remaining 25 per cent. The total deficit oscillated during the 23 years of the reform, but in 2004 it was still 5.5 per cent of GDP, slightly below the period average, and took 33 per cent of Chile's total fiscal burden. Although the operational deficit decreased from 6.9 to 2.5 per cent of GDP in 1984–2004, the recognition bond rose from 0.2 to 1.3 per cent; social assistance pensions averaged 0.4 per cent and have been basically stagnant; the trend in military pensions is difficult to assess owing to the lack of disaggregated data for 1981–90, but took 1.3 per cent of GDP in 2004; while minimum pensions increased from zero to 0.1 per cent of GDP in the period. The current low contribution density (i.e. the percentage of the contribution period in the working life of the insured) is expected to result in an increasing number of insured who will receive a minimum pension and, if they do not accumulate 20 years of contributions, would depend on a social assistance pension (see section V(ii)). Fiscal costs of minimum and assistance pensions have been underestimated in the projections because they assumed a higher contribution density (Arenas de Mesa, 2005).

(ii) National Savings and Projections

The World Bank and various countries advocated the pension reform upon the premise that it would increase national savings. There are three obstacles to measuring the net effect of the reform on national

Table 2
Deficit of the Pension System in Chile: 1981–2004 and Projections 2005–10
(in percentages of GDP)

Year	Operational deficit[a]	Recognition bond	Social assistance pensions	Minimum pensions	Civilian deficit (1+2+3+4)	Military deficit	Total deficit (5 + 6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1981	3.6	0.0	0.2	0.0	3.8	n.a.	3.8
1982	6.0	0.1	0.3	0.0	6.4	n.a.	6.4
1983	6.5	0.2	0.4	0.0	7.1	n.a.	7.1
1984	6.9	0.2	0.5	0.0	7.6	n.a.	7.6
1985	6.0	0.2	0.5	0.0	6.7	n.a.	6.7
1986	5.9	0.3	0.5	0.0	6.7	n.a.	6.7
1987	5.2	0.4	0.5	0.0	6.1	n.a.	6.1
1988	4.6	0.4	0.4	0.0	5.4	n.a.	5.4
1989	4.7	0.4	0.3	0.0	5.4	n.a.	5.4
1990	3.3	0.5	0.3	0.0	4.1	1.2	5.4
1991	3.3	0.5	0.3	0.0	4.1	1.2	5.3
1992	3.2	0.5	0.3	0.0	4.0	1.1	5.1
1993	3.2	0.6	0.3	0.0	4.1	1.2	5.3
1994	3.1	0.7	0.3	0.0	4.1	1.1	5.2
1995	2.8	0.7	0.3	0.0	3.8	1.1	4.9
1996	3.1	0.7	0.3	0.0	4.1	1.1	5.2
1997	3.0	0.8	0.3	0.0	4.1	1.1	5.2
1998	3.2	0.9	0.3	0.0	4.4	1.1	5.5
1999	3.2	1.1	0.4	0.0	4.7	1.2	5.9
2000	3.1	1.1	0.4	0.0	4.7	1.3	6.0
2001	3.1	1.1	0.4	0.1	4.7	1.3	6.0
2002	3.0	1.1	0.4	0.1	4.6	1.3	5.9
2003	2.9	1.2	0.4	0.1	4.5	1.3	5.8
2004	2.5	1.3	0.3	0.1	4.2	1.3	5.5
1981–2004[b]	3.3	0.6	0.4	0.02	4.3	1.4	5.7
2005	2.2	1.3	0.4	0.08	3.9	1.3	5.2
2006	2.1	1.3	0.4	0.08	3.8	1.3	5.1
2007	2.0	1.3	0.4	0.08	3.7	1.3	5.0
2008	1.9	1.2	0.4	0.08	3.6	1.3	4.9
2009	1.8	1.2	0.4	0.09	3.5	1.3	4.8
2010	1.8	1.2	0.4	0.09	3.4	1.3	4.7
2005–10[b]	2.0	1.2	0.4	0.08	3.7	1.3	5.0

Notes: n.a.= not available. [a] In 1981–9 includes the military deficit. [b] Annual average.
Source: Arenas de Mesa (2005).

savings in Chile: (*a*) the lack of data previous to the reform in 1981 because there were 35 pension funds, most of them did not publish statistics, and there was not a consolidated evaluation of their impact on national savings; (*b*) the absence of a historical assessment of the evolution of national saving and the effect of changes in private savings of the various components such as pensions, other financial assets, etc.; and (*c*) the need to contrast the impact on national savings of the system with and without the reform. Chile's pension reform was part of a wider structural reform that included fiscal adjustment, labour market, financial liberalization, and capital market reforms. 'The complementarity of these reforms makes it extremely difficult to properly isolate the impact of a specific reform.' A Chilean expert has found some evidence that part of the increase in national savings can be traced to the pension reform. Most of the increase in savings, however, results from a rise in public savings (that were not fully offset by private dissaving) and by other structural changes, such as tax reform, that triggered a sharp increase in corporate saving rates (Gill *et al*., 2005, pp. 54, 119).

Nevertheless it can be asserted that the pension reform in Chile did not bring major cost savings to the public purse in 25 years. For the period 1981–2004, when the fiscal costs of the reform are subtracted from the capital accumulation generated by the pension funds, both as annual percentages of GDP, we get the following results: average fiscal costs (5.5 per cent) doubled average capital accumulation (2.5 per cent), leading to a net deficit (–3 per cent of GDP). As the pension system matures the net deficit will eventually turn into a net surplus, but the length of the transition (more than 40 years) poses a significant difficulty in estimating the long-term effects of the fiscal deficit on public finance—hence the importance of previously determining the means of coping with such a heavy burden. In Chile the deficit in the pension system was accompanied by an adjustment in the fiscal balance of the central government (excluding pensions) that generated an annual average surplus of 8.5 per cent of GDP in 1981–2004, which allowed the state to finance the pension deficit (Arenas de Mesa, 2005). If Chile had not had fiscal discipline and a surplus, the reform would have been very difficult to finance and created significant fiscal imbalances and instability or forced substantial increases in taxes to finance the deficit.

As the private pension system has matured, not only the size of the deficit but also its composition have changed. The transitory components of the deficit will gradually disappear (first the operational deficit and later the recognition bond), while one permanent component (the minimum pension) will increase; the military deficit and the social assistance pension will evolve based on policy decisions taken by the government. Projections for 2005–10 (30 years after the reform), show that the annual average total deficit will remain high at 5 per cent (only 0.5 points lower than the 1981–2004 average), proving that the projections made in the 1980s were rather optimistic as they significantly underestimated the fiscal costs of the reform. The operational deficit average will decrease from 3.3 per cent to 2 per cent of GDP in the period, while the average cost of the recognition bond will double from 0.6 per cent to 1.2 per cent, and the other costs will remain basically unchanged (Table 2, bottom section).

Chilean fiscal costs are the highest among the eight Latin American countries that have available data and 2.4 times their average (Table 1), because of the relative generosity of Chile's benefits during the transition. Other countries have cut fiscal costs by denying or restricting the recognition bond and the minimum pension and not granting a social assistance pension (Bolivia and Peru, in particular) at the cost of insured welfare (Mesa-Lago, 2004). Projections of the World Bank for 2050 show that in five countries (Argentina, Chile, El Salvador, Mexico, and Peru), the fiscal cost of maintaining an unreformed public system would have been smaller than the cost of a structural reform for a transition period between 33 and 55 years, and in some countries at the cost of sacrificing insured benefits. Chile's ability to finance the high and prolonged cost of the reform based on fiscal discipline and a non-pension surplus, has not been replicated in other countries in the region, a point acknowledged by the World Bank (Gill *et al*., 2005).

IV. MICROECONOMIC EFFECTS OF THE CHILEAN REFORM

Chile's structural reform has had the following effects: the elimination of the employer's contribution; high and sustained administrative costs paid solely by the insured; flaws in competition; di-

versification of the portfolio after an early concentration in public debt; significant capital accumulation (but not an increase in national savings, as explained already); a contribution to the development of financial and capital markets; and capital returns that discriminate against low-income insured, and are higher for those who joined the system early rather than later.

(i) Contributions and Administrative Costs

Commissions charged by the AFPs are deducted from wages, paid by the insured, set freely by the AFPs, and are of two types: a fixed sum and a variable percentage (a commission on the account balance applied in the early years was eliminated in 1988). The fixed commission has regressive effects because it is proportionally higher for the low-income insured (as it reduces their net deposits in individual accounts, capital returns, and pension levels) than for the high-income insured (see section IV(iii)). In the 1980s the fixed commission was strongly criticized by domestic and foreign experts, resulting in its reduction (in constant 2003 pesos) from a peak of US$833 in 1988 to US$158 in 1995, but it increased again to reach US$537 in 2004. The variable commission climbed from 2.44 per cent of taxable income in 1981 to 3.66 per cent in 1985, declined to 2.93 per cent in 1990–2, rose to 3 per cent in 1995 (largely owing to growing competition, publicity, and fees paid to salesmen who moved insured people between different AFPs). Since 1999 there has been a new decline of the variable commission to 2.26 per cent in 2003, but only an 0.18 percentage-point reduction in 22 years (Table 3). Such a decrease has been the result of regulations introduced in 1999 that prompted a dramatic cut in movement between AFPs and payments of fees to salesmen (see next section). The average total cost (combining all commissions) in constant 2003 pesos was 7,560 in 1982 and 7,683 in 2003, an increase of 4.8 per cent after 22 years of reform.

The percentage of taxable income deducted for deposit in the individual accounts is a uniform 10 per cent for all insured; combined with the commission, the total was 12.26 per cent in 2004, a percentage considerable lower that the 18.6–20.7 per cent charged to the insured who remain in the public system. The lower rates of contribution in the private system and the corresponding increase in wages, at least in the short run, were possible because of savings from the unification of the multiple pension funds in 1979 and the increase in the age of retirement, but such savings were not passed to the insured in the public system, in order to stimulate the shift to the private system (Mesa Lago, 2004).

The average total contribution of the ten private systems was 11.9 per cent in 2004, ranging from 7 per cent in Argentina (the original contribution was cut in half because of the crisis) to 15 per cent in Uruguay. Three countries, including Chile, eliminated the employer contribution, two reduced it, and five retained it; the average share of the worker in the total contribution in the ten countries was 65.2 per cent, hence violating the International Labor Office (ILO) minimum standard that requires that the worker share does not exceed 50 per cent (Table 1). It is impossible here to assess if the elimination of the employer's contribution may have increased real wages over the medium to long run, as that exercise would require data on real wages or the share of wages on income.

Data on the operational costs of the AFPs are fragmented and contradictory. In 1981 the public system had 3,500 employees and was one of the largest public bureaucracies in Chile; in 1990 the number of AFP employees was around 8,000 and about 30 per cent of them were salesmen. Combined expenditures on fees for salesmen and publicity took 39.7 per cent of total operational expenditures in 1997, a proportion that decreased to 25.7 per cent in 2004 (owing to the restrictions in movements that cut salesmen's fees and advertising); conversely, the AFP profit margin as a percentage of income from commissions rose from 19.2 to 38 per cent in 1998–2004 (AIOS, 2000, 2005). Because the public system does not have these two types of expenditures (nor a profit) it is difficult to compare its administrative costs and efficiency with those in the private system. Total administrative costs in the entire pension system (combining the private and public schemes) have been estimated as twice the costs of the public systems before the reform, partly owing to the coexistence of both schemes during the transition (Arenas de Mesa and Gumucio, 2000).

Table 3
Fixed and Variable Commission, and Average Cost: 1981–2003
(in constant 2003 pesos and percentage on taxable income)

Year	Fixed commission (pesos)	Variable commission (%)	Commission on account balance (%)	Average cost (pesos)
1981	n.a.	2.44	0.76	n.a.
1982	27	2.66	0.72	7,506
1983	172	3.62	0.88	8,845
1984	137	3.58	0.86	7,891
1985	130	3.57	0.63	7,028
1986	123	3.40	0.51	6,956
1987	126	3.38	0.33	6,461
1988	833	3.54	0.00[a]	7,162
1989	574	3.24	0.00	6,857
1990	433	2.93	0.00	6,340
1991	360	2.93	0.00	6,525
1992	306	2.93	0.00	6,847
1993	207	2.98	0.00	7,424
1994	169	2.99	0.00	7,809
1995	158	3.00	0.00	8,290
1996	192	2.91	0.00	8,463
1997	174	2.90	0.00	8,869
1998	383	2.61	0.00	8,140
1999	449	2.40	0.00	7,705
2000	562	2.31	0.00	7,513
2001	557	2.26	0.00	7,664
2002	544	2.26	0.00	7,518
2003	537	2.26	0.00	7,683

Note: [a] The commission on account balance was terminated in 1988.
Sources: Arenas de Mesa and Gumucio (2000); SAFP (2005).

Based on standardized calculations of administrative costs as a percentage of revenue in 14 pension systems in the region, the average in the ten private systems (based on the commission for the old-age programme, excluding the premium) was 20 per cent in 2004, contrasted with an average of only 3.5 per cent in four public systems (Mesa-Lago, 2006). The Chilean figure of 18.9 per cent was slightly lower than the private system average; the lowest was 9 per cent in Bolivia (because there is neither competition, nor salesmen, nor advertising) and the highest was 40.5 per cent in Colombia (Table 1)

(ii) Competition

Founders of the private system in Chile assumed that market mechanisms (freedom to choose and change AFPs and competition among them) would achieve several important objectives: more AFPs, greater efficiency, lower administrative costs, better compliance (punctual payment of contributions), and maximization of capital returns (Piñera, 1991).

The number of AFPs at the start of the system was 12 and peaked at 21 in 1994, largely owing to the

Table 4
Number of Administrators (AFPs) and Contributors: 1982–2004
(in thousand contributors at December in each year and percentages)

Year	Number of AFPs	Number of contributors	% of contributors in 3 biggest AFPs
1982	12	1,060	63.6
1983	12	1,230	60.2
1984	12	1,360	62.0
1985	11	1,558	62.8
1986	12	1,774	64.0
1987	12	2,024	66.2
1988	13	2,168	66.4
1989	13	2,268	67.7
1990	14	2,643	71.9
1991	13	2,487	68.7
1992	19	2,696	68.9
1993	20	2,792	68.3
1994	21	2,880	67.5
1995	16	2,962	67.1
1996	13	3,121	66.4
1997	13	3,296	67.2
1998	9	3,150	72.1
1999	8	3,262	77.4
2000	8	3,197	76.5
2001	7	3,450	78.0
2002	7	3,424	78.2
2003	7	3,619	79.2
2004	6	3,572	77.5

Sources: Arenas de Mesa and Gumucio (2000); SAFP (2005).

authorization granted to trade unions to organize AFPs; since 1995 there have been AFP closures and fusions that reduced their number to only six in 2004—half the initial number. The biggest AFPs are largely controlled by foreign corporations and the industry endures a high and growing degree of concentration: the percentage of insured in the biggest three AFPs rose from 63.6 to 77.5 per cent in 1982–2004 (Table 4). In the remaining nine countries with private systems, the number of administrators in 2004 oscillated between two in Bolivia and El Salvador and 13 in Mexico (an average of 6.5), while the degree of concentration in the three biggest administrators ranged from 41 per cent in Mexico (which imposes a ceiling on affiliates per administrator) to 100 per cent in Bolivia and El Salvador, with an average of 76 per cent (Table 1). According to the Superintendencia (SAFP), administrative costs per insured in constant 2003 pesos rose 38 per cent in 1989–93, caused by the competition for affiliates, the entry of new AFPs into the market, the augmented activity of the salesmen, and the increase in shifts among AFPs that peaked at 40 per cent of total contributors in 1994. Because the number of salesmen jumped from 2,615 to more than 14,000 in 1989–94, the Superintendencia imposed restrictions on the shifts, and the number of salesmen shrank to 6,000 in one year, and shifts had decreased to 6 per cent of contributors by 2004 (SAFP, 2002, 2005).

AFPs have to comply with the following rules to secure their adequate operation: (*a*) an initial capital that increases with the number of insured; (*b*)

payment of a minimum real capital return equal to the monthly average in the last 12 months that cannot be lower than the average of the system; (*c*) building a fluctuation reserve with above-average capital returns to cover any gap in the required minimum, and a second reserve if the first is insufficient (if the two reserves are not enough, then the state guarantees the difference); (*d*) mandatory ceilings on each investment instrument set by the Central Bank and ranking of stocks according to their risk by *ad hoc* commissions; and (*e*) sending their affiliates a quarterly report of their individual accounts. Although these rules provide guarantees to the insured, some of them (a high capital and the minimum capital return), have created difficulties for competition and efficiency; the initial capital was reduced and the largest AFPs authorized to subcontract services with the smaller ones, but that has not impeded a rising concentration in the industry. In addition, most insured lack the data and skills to make an informed selection of the best AFP and are influenced in their decision by advertising and salesmen. The flaws in competition analysed in this section, combined with the fixing of administrative costs as a percentage of wages, have been an obstacle in the reduction of such costs.

(iii) Portfolio Diversification and Capital Returns

The portfolio was diversified little in the early years of the system. In 1983, after the economic crisis and the state intervention of several banks and enterprises to avoid a generalized bankruptcy, there was a high concentration of investment in a few instruments: 44 per cent in public debt and 51 per cent in mortgage bonds, but only 3 per cent in bank deposits and bonds, 2 per cent in bonds of public and private enterprises, and nothing in stocks. The high risk involved in such concentration induced a gradual expansion in the type of instruments available for investment: stocks and bonds of financial private institutions; foreign instruments; new public debt securities authorized by the Central Bank; instruments that protect against fluctuations in exchange parity; quotas in investment funds of securitized credits; debt and bonds convertible into stocks for financing investment projects; and recognition bonds. The Central Bank is authorized to add new instruments in the future without previous legislative approval (Arenas de Mesa, 2005). In 2004, the portfolio of the pension fund was more balanced and diversified: 18.7 per cent in public debt instruments (a drastic cut from 1983), 28.5 per cent in financial institutions, 15.7 per cent in stocks, 26.8 per cent in foreign instruments, and the remaining 10.3 per cent in non-financial institutions and mutual funds (SAFP, 2005).

But Chile, together with Peru, is a rare case of portfolio diversification among countries with private systems in the region: from 49 to 86 per cent of investment was concentrated in public debt in 2004 in seven countries (Table 1). The heavy concentration on public debt is clearly connected with the high fiscal costs of the transition that are mainly met with state borrowing from the pension fund. Only four countries (in addition to Chile) had significant investment in stocks that averaged 8.4 per cent of their portfolio, and only three had investment in foreign instruments that averaged 5.6 per cent (AIOS, 2005). The excessive reliance on public debt and state fixed interests was catastrophic in Argentina, because the crisis led to a devaluation of the peso, a reduction in state interest, and a sharp drop in the value of the pension fund. While the Superintendencia in Chile played a positive crucial role in promoting portfolio diversification, the opposite occurred in Argentina, where it collaborated with the state by raising the ceiling for public debt instruments (Mesa-Lago, 2004).

Capital returns on the investment of individual accounts have discriminated against low-income insured, have been lower than the corresponding rate of the total pension fund, and higher for those who joined the system at its start than for more recent insured. Because the fixed commission bears more heavily on smaller accounts, in 1981–2004, the real rate of return on investment of the insured with a low income (US$315 in the individual account) averaged 6.2 per cent annually, contrasted with 8.2 per cent of insured with a higher income (US$950), while the average for all pension funds was 10.3 per cent. The last was actually the average return paid to those insured at the start of the system (1981) but it decreased to 8.7 per cent for those who joined in 1991 (Table 5). These are gross rates, but it is necessary to deduct the commission for old age in order to estimate the net rate that is smaller. The

Table 5
Average Real Capital Return of Individual Accounts and Pension Funds: 1981–2004 (%)

Year	Individual accounts		Pension fund
	US$315	US$950	
1981	–5.2	3.2	12.8
1982	15.8	23.6	28.5
1983	14.7	18.5	21.3
1984	–0.1	1.9	3.6
1985	10.1	11.3	13.4
1986	9.9	10.7	12.3
1987	4.0	4.4	5.4
1988	5.6	6.0	6.5
1989	6.3	6.6	6.9
1990	15.4	15.6	15.6
1991	23.5	23.9	29,7
1992	0.9	1.1	3.0
1993	14.4	14.6	16.2
1994	11.2	11.5	18.2
1995	–4.4	–4.1	–2.5
1996	1.0	1.7	3.5
1997	1.7	2.6	4.7
1998	–3.5	–3.0	–1.1
1999	5.3	15.0	16.3
2000	3.5	5.3	4.4
2001	5.8	7.9	6.7
2002	2.2	3.8	3.0
2003	9.7	9.8	10.5
2004	2.1	4.0	8.9
1981–91[a]	9.1	11.4	14.2
1991–2004[a]	5.2	6.7	8.7
1981–2004[a]	6.2	8.2	10.3

Note: [a] Annual average.
Sources: Arenas de Mesa and Gumucio (2000); SAFP (2005).

average annual rate of gross return from the inception of the reform in the ten countries with private systems to the end of 2004 varied significantly: from –8.8 per cent in the Dominican Republic to 12.9 per cent in Uruguay, for an average of 7.3 per cent in the ten countries (Table 1). In 1981–2000, Chile's gross rate of return averaged 11.9 percentage points less than the Selective Share Price Index of the Santiago Stock Exchange; and in 1993–2000, Peru's gross rate was lower than the rate of bank deposits or Brady Bonds (Mesa-Lago, 2004; Gill *et al*., 2005).

(iv) Capital Accumulation and Development of the Capital Market

The accumulation of the pension fund in Chile reached US$60,799m at the end of 2004, equivalent to 59 per cent of GDP. In the other nine countries the amount of the fund varied significantly: the highest accumulations were in the countries with the largest economies, highest number of insured, and oldest reforms: US$42,524m in Mexico and US$18,306m in Argentina; conversely, the smallest accumulations

were in the smaller economies, with a lower number of insured and more recent reforms: US$476m in Costa Rica and US$488m in the Dominican Republic (Table 1). Furthermore, the highest capital accumulation is that of Brazil (US$80,000m), the second largest economy in the region and which has a public pension system, though voluntary supplementary pension schemes. It should be recalled that, when the capital accumulation in Chile is balanced with the fiscal cost of the reform, the result has been negative savings in the first 23 years of the reform.

Pension funds in Chile have helped to develop confidence (domestic and foreign) in the stock market, stimulated the growth of insurance companies, and played a key role in the swap of foreign debt into domestic investment that helped to reduce such debt and promoted external investment. AFPs are the principal institutional investors in the financial market and finance five out of nine dwellings in the mortgage market. Based on these positive outcomes some experts assert that the existence of a matured domestic capital market is not an indispensable prerequisite for the privatization of the pension system (Iglesias and Acuña, 1991). And yet Chile had a capital market many decades prior to the reform, albeit less developed than now; in addition, the significant concentration of the portfolio on public debt and zero or little investment in stocks in seven private systems of the region constitute strong evidence against such an assertion. Even in Chile, after 24 years of reform, serious flaws in the capital market exist that demand regulation: AFPs can invest, jointly or separately, in the same enterprise and influence the value of its stock; insurance companies that are shareholders in AFPs can also invest in their stock; and the huge capital inflow compared with the relatively limited instruments available in the market generates overvaluation of some instruments.

V. SOCIAL EFFECTS OF THE CHILEAN REFORM

There was a controversy in the second half of the 1990s as to whether the main objectives of the pension reform should be economic/financial or social; a more balanced view is that both goals are important and that social goals should not be subordinated to financial targets (Mesa-Lago, 2004). This section evaluates social effects on coverage, level of pensions (based on contribution density and replacement rates), gender inequality, and redistribution.

(i) Coverage

Reformers in Chile and the World Bank assumed that the private system would increase coverage. The pension system coverage can be measured as a percentage of the economically active population (EAP) or the employed who contribute to the system, and of the elderly population who receive a pension. EAP coverage, combining active contributors in the private and public systems, increased from 29 per cent in 1982 to 57 per cent in 1997 and stagnated at 57.3 per cent in 2004; but coverage by the public system in 1973 was 79 per cent (before the military coup) and fell to 64 per cent in 1980 (before the reform), both higher than in 2004 (SAFP, 2002; Mesa-Lago, 2005). A standardized comparison of EAP coverage prior to the reform and in 2004, in the ten countries with private systems, indicates that it declined in all of them: the weighted average decreased from 38 to 26.3 per cent (Table 1). In 1992–2003, Chilean coverage of the employed labour force (combining public and private systems) slightly increased from 61 to 63 per cent, down from a peak of 86 per cent in 1975 and 71 per cent in 1980 (SAFP, 2002). Furthermore, the gap in coverage between the poorest and the richest quintiles expanded from 14.7 to 23.4 percentage points in 1992–2003, and the total who did not contribute was basically stagnant at about 37 per cent (Table 6).

Data above are mostly related to the salaried labour force because among the self-employed coverage is considerably lower and declining. In 1986–2004, coverage of salaried workers rose from 63.3 to 75 per cent of the employed labour force, but that of the self-employed decreased from 12.2 to 5.4 per cent. In absolute terms the number of self-employed not covered by the pension system jumped 80 per cent, from 880,000 to 1,580,000 in the same period (SAFP, 2005). The survey on social protection taken in 2002 (EPS, 2004) indicates that household income is an important factor in the probability of contributing to the pension system, but more significant is to have a labour contract because it increases such probability by 50 percentage points; conversely, being self-employed reduced the probability by 4–11

Table 6
Coverage by Income Quintiles of the Employed Labour Force in 1992–2003 and by the Elderly Population in 2000 (in percentages)

Type of pension	Year	I	II	III	IV	V	Total
Employed labour force							
Public (INP)	1992	4.4	5.0	5.3	5.1	4.7	5.0
	1994	3.8	4.8	4.4	4.6	3.9	4.4
	1996	2.8	3.9	4.3	4.7	4.6	4.2
	1998	2.7	2.8	3.4	3.4	3.4	3.2
	2000	2.2	2.5	2.9	3.8	3.1	3.1
	2003	1.5	1.8	2.0	2.4	2.8	2.2
Private (AFP)	1992	46.7	52.1	53.7	56.4	60.5	54.5
	1994	46.8	54.4	58.2	63.0	66.4	58.9
	1996	47.7	54.8	59.3	60.1	63.8	58.0
	1998	44.0	56.7	58.9	60.8	65.5	58.5
	2000	40.5	53.6	58.9	61.2	66.1	57.4
	2003	45.5	56.3	59.0	62.1	65.8	59.0
Total	1992	51.8	58.7	60.7	63.3	66.5	60.9
	1994	51.1	60.5	64.2	69.8	72.7	64.9
	1996	51.0	61.0	65.8	67.6	70.3	64.3
	1998	47.1	60.7	64.1	66.9	70.9	63.4
	2000	43.4	57.3	64.2	67.8	71.9	62.6
	2003	47.5	59.1	62.8	67.2	70.9	63.0
Do not contribute	1992	46.1	38.9	37.3	34.3	30.5	36.6
	1994	48.9	39.6	35.8	30.2	27.2	35.0
	1996	48.6	38.6	33.9	32.0	29.3	35.4
	1998	52.7	39.1	36.7	32.9	28.9	36.4
	2000	56.5	42.5	35.6	32.1	28.0	37.3
	2003	52.5	40.9	37.2	32.8	29.1	37.0
Total population 2000[a]							
Old age		17.0	40.4	50.3	54.7	54.8	45.3
Survivors		6.2	11.1	12.1	13.5	10.7	11.0
Assistance		40.3	15.7	6.8	3.2	1.1	11.6
Total		63.5	67.2	69.2	71.4	66.7	67.9

Notes: [a] Percentage of the total population age 60 and older who receive a pension.
Sources: Arenas de Mesa *et al*. (2005), drawing on National Survey on Socioeconomic Characteristics (CASEN) (1992, 1994, 1996, 1998, 2000, 2003) (Santiago: MIDEPLAN).

percentage points in relation to the average (Arenas de Mesa *et al*., 2004).

In 2000, 68 per cent of the population aged 60 and above was covered by combining three types of pensions: two contributory (old age and survivors), and one non-contributory (social assistance). Total coverage was augmented little with income, from 63.5 per cent in the poorest quintile to 66.7 per cent in the richest quintile, but coverage by the two contributory pensions combined rose from 23.2 to 65.5 per cent, while coverage by assistance pensions decreased from 40.3 to 1.1 per cent (Table 6). Coverage increased with the age of the pensioners,

Table 7
Percentiles of Affiliates by Level of Contribution Density and by Sex: 1980–2002

Percentiles	Men	Women	Total
5	0.0	0.0	0.0
10	4.9	0.0	1.1
15	13.3	2.2	6.0
20	23.3	5.7	12.9
25	31.5	11.3	19.8
30	40.3	16.7	27.1
35	47.2	22.2	34.4
40	54.2	28.5	41.3
45	60.3	34.7	47.6
50	65.7	40.2	54.2
55	70.8	46.3	60.3
60	76.0	52.0	66.4
65	81.4	58.2	72.4
70	87.0	64.9	78.5
75	92.7	72.3	85.2
80	98.1	80.0	92.6
85	100.0	90.7	99.3
90	100.0	100.0	100.0
95	100.0	100.0	100.0
Average	59.8	43.8	52.4

Sources: EPS (2004); Arenas de Mesa *et al*. (2004).

both total and in all income quintiles: among those aged over 75 it was 50 percentage points higher than among those in the 60–64 bracket. In 1992–2000 coverage of the population aged 65 and over by contributory pensions fell from 67.1 to 64.4 per cent, while that covered by assistance pensions rose from 8.3 to 14.7 per cent. As coverage of the active labour force has declined, so has that of the older population by contributory pensions, a trend that will grow in the future (Arenas de Mesa *et al*., 2005).

(ii) Contribution Density and Level of Pensions

The pension level in a fully funded system is largely determined by the amount and time length of contributions to the system, as well as the contribution density that is crucial not only in the level of the pension but also in the effective coverage in Chile's private system. The survey of 2002 (EPS, 2004) estimated an average contribution density of 52.4 per cent for all the affiliates to the pension system, that increased with income and age until the 55–64 age bracket. Thereafter it decreased owing to women retiring at the statutory age of 60 and men taking early retirement. The levels of contribution density by percentiles of affiliates and sex in Table 7 show that 20 per cent of men had densities of 98–100 per cent, while only 10 per cent of women had such density; men's average density of 59.8 per cent decreased to 43.8 per cent among women. Men had higher density than women in all age brackets. The type of occupation of the worker also influenced contribution density: 65.8 per cent among salaried insured versus 44.8 per cent among self-employed insured (Bravo, 2004).

(iii) Replacement Rates

Until recently, estimates of the Chilean private system's replacement rates (average pension as a proportion of average working-life salary) were based on uniform contribution densities that oscillated from 70 to 90 per cent (depending on pessimistic or optimistic assumptions) and averaged 80 per cent. Simulations of replacement rates using actual contribution densities based on 2002 survey data are

more accurate than previous assumed rates because the new rates are observed at the micro level and differentiated by income, gender, and age. Based on densities differentiated by age, the observed replacement rates for all groups decrease between 16 and 27 percentage points, compared with a previous uniform average density of 80 per cent. Densities differentiated by gender and age show that women retiring at 60 suffer a decline of 19 percentage points, and of 27 points when retiring at age 65. Among men who retire at age 65 the rates decreased by 16 points, when they had dependants, and by 20 points without dependants (EPS, 2004).

(iv) Gender Inequality

Women usually have lower pensions than men (in all pension systems). This is partly caused by labour-market discrimination that results in smaller contribution density owing to: a lower labour-force participation rate, higher unemployment, lower pay for the same task, time out for raising children, and a larger share of unskilled jobs with lower pay and not covered by pensions. In addition, women tend to live about 5 years more than men, which means that their retirement is longer. Finally, ten countries in Latin America (five each in private and public systems) set a retirement age for women 5 years earlier than men. Public pension systems tend to ameliorate such inequalities with solidarity measures, such as unisex mortality rates that do not discriminate for the longer female life expectancy, and transfers from men to women (in Chile, prior to the reform, the blue-collar scheme credited 1 year of contribution for each child alive). Conversely, private systems accentuate gender inequality, because the fully funded individual accounts estimate pensions based on the contributions paid, the contribution density, the different risks of the insured, and mortality tables differentiated by sex. As women have a lower contribution density, earlier statutory ages of retirement, and longer life expectancy than men, their accumulated pension funds in their individual accounts are not only lower than those of men but they must be stretched for a 5–10-year longer retirement period, leading to a lower annuity pension (Bertranou and Arenas de Mesa, 2003; Mesa-Lago, 2004).

According to the 2002 survey, coverage of employed women in Chile was higher than men: 74.6 per cent as opposed to 71.4 per cent. Nevertheless, when controlled by several variables (income, education, and occupation), significant differences appeared in coverage by gender (Table 8): (*a*) women in low-income quintiles have lower coverage than men, but higher coverage in the wealthier two quintiles; (*b*) women without education or with only elementary or incomplete-intermediate education have lower coverage than men, but the opposite is true at higher educational levels; (*c*) women in all occupations have lower coverage than men (particularly in domestic service), except in employer and salaried jobs; and (*d)* women and men who are heads of household have about the same coverage, and in most age categories women have higher coverage than men, except in the age range 35–44, where coverage is lower, and at the age of 65 and over, where their coverage is the same as that of men.

We have seen that replacement rates depend on the insured's income level, gender, retirement age, and contribution density. A woman who retires at age 65 with the maximum taxable income (60 UF = US$1,900 monthly) has a replacement rate of 34 per cent; the rate of a woman under the same conditions but with the minimum salary (7 UF = US$220 monthly) only declines to 33 per cent. However, at retirement age 60 the respective rates for women decrease to 24 and 22 per cent (Table 9, top segment). A higher age of retirement and 5 additional years of contributions increase the women's replacement rate by 10–11 percentage points and the pension level by 50 per cent. Because women have an average contribution density 16 percentage points lower than that of men (EPS, 2004), they have a smaller accumulation in their individual accounts at the time of retirement, a lower replacement rate, and a smaller pension level. The unisex mortality tables used in the private system estimate a rate of 35 per cent for women retiring at age 65, contrasted with a rate of 46 per cent for men under the same conditions (except a higher contribution density); hence the women's rate is 76 per cent of the men's rate. For all the reasons given above, it has been estimated that 35 per cent of women who are now in the 40–45 age bracket will get pensions inferior to the assistance pension level; an additional 10 per cent will get a pension higher than the assistance one but lower than the minimum pension, and, therefore, 45 per cent will receive a pension lower than the minimum pension (Arenas de Mesa *et al*., 2005).

Table 8
Coverage of the Employed Labour Force by Sex and Selected Variables, 2002 (%)

Variables	Women	Men
Total	74.6	71.4
Income quintile		
1 (poorest)	49.8	53.8
2	65.5	65.5
3	72.9	74.8
4	79.6	75.2
5 (richest)	84.4	77.1
Educational level		
None	23.6	49.8
Elementary incomplete	59.3	57.0
Elementary complete	58.9	67.6
Intermediate incomplete	64.6	69.8
Intermediate complete	78.2	77.9
Higher technical	82.9	80.6
University incomplete	77.5	70.0
University complete	90.3	84.4
Occupational category		
Employer	55.7	48.1
Self-employed	21.2	23.3
Salaried	87.8	86.1
Domestic service	59.7	82.3
Unpaid family worker	11.8	24.8
Head of home	71.0	71.5
Range of age		
15–18	100.0	62.5
19–24	79.8	74.1
25–34	78.0	76.3
35–44	73.5	74.2
45–54	77.5	72.3
55–64	70.1	64.6
65+	36.5	36.4

Sources: EPS (2004); Arenas de Mesa *et al*. (2005).

In summary, although on average women in the private system have about 3 percentage points higher coverage than men, women in the lower income quintiles, with no or a low level of education, in occupations such as domestic service, unpaid family worker, and self-employed, and in the 35–44 age bracket have lower coverage than men. In addition, women have lower replacement rates and pensions than men, and 45 per cent of the female insured will get a pension lower than the minimum pension.

(v) Redistribution Effects

Despite its importance and 25 years of operation, the distribution effect of Chile's private pension system is one of its least studied issues. The 2002 survey indicates which groups will benefit most and

Table 9
Replacement Rates for Taxable Incomes of 7 and 60 UF, With Uniform Contribution Density and Contribution Density Differentiated by Sex (%)

Type of insured	Replacement rates		Ratio between pensions for income of 60 UF over 7 UF
	7 UF (US$220)	60 UF ($1,900)	
Uniform contribution density[a]			
Men 65, without dependants	49	52	9.2
Men 65, with dependent spouse (female) aged 60	41	43	9.2
Women 60, without dependants[b]	22	24	9.3
Women 65, without dependants[b]	33	34	9.3
Contribution density differentiated by sex[c]			
Men 65, without dependants	36	53	13.0
Men 65, with dependent spouse (female) aged 60	29	44	13.0
Women 60, without dependants[b]	21	31	13.0
Women 65, without dependants[b]	31	46	13.0

Notes: [a] Based on a uniform contribution density not differentiated by sex. [b] It is assumed that they do not have dependants because the pension is only granted to a dependent invalid spouse (male). [c] Adds the effect on replacement rates and pension levels of a contribution density differentiated by sex.
Sources: ESP (2004); Arenas de Mesa *et al*. (2005).

which will receive insufficient pensions and require state protection in their old age (EPS, 2004). The private pension system expands existing differences in the labour market between affiliates of divergent income levels, thus among active workers there is an 8.6 times ratio between the maximum taxable monthly income and the minimum salary (60 UF divided by 7 UF), but among pensioners in the two income groups the said ratio increases to 9.3 times. Such inequality is further expanded when introducing the new estimated uniform contribution density (not differentiated by sex) by income level because of the positive relationship between income and density. Based on the density of contribution by quintiles of income per capita in households, the replacement rates of the insured earning the maximum taxable income are 14 percentage points higher than the corresponding rates of the insured earning the minimum salary; based on quintiles of remuneration, the difference is 11 percentage points higher (Arenas de Mesa *et al*., 2005). The ratio between the pensions earned by the insured with the maximum and minimum income (60 UF versus 7 UF) rises from 9.3 to 13 times (Table 9).

VI. LESSONS OF THE EFFECTS OF CHILE'S AND OTHER REFORMS

(i) Macroeconomic Effects

Although it was not possible to test the assumption that the pension reform would result in an increase in national savings, we showed that during the first half of the transition period in Chile (1981–2004, the longest reform in operation in the region) fiscal costs averaged 5.5 per cent of GDP annually, doubling the 2.5 per cent average annual capital accumulation in the pension fund and resulting in a net deficit averaging 3 per cent of GDP yearly. The heavy fiscal burden was financed with a tight fiscal discipline that generated an annual average surplus of 8.5 per cent of GDP in the period, a condition that has not been met by several similar reforms in the region. Original projections of fiscal costs in Chile underestimated them, as has happened in other countries. More realistic projections in this article for 2005–10 indicate that fiscal costs will still average 5 per cent of GDP.

(ii) Microeconomic Effects

Structural reforms in Chile and two other countries eliminated the employer's contribution and reduced it in two other countries, increasing the workers' share or the fiscal costs, or both; the average share of workers in the total contribution in ten private systems was 65 per cent in 2004, violating the ILO minimum standard that such a share should not exceed 50 per cent of the contribution. The insured in Chile also pay administrative costs that have increased by almost 5 per cent in real terms during the reform; in the ten private systems such costs averaged 20 per cent of income from commissions for the old-age scheme alone in 2004. Competition among AFPs in Chile and in other private systems suffers from flaws, such as a small number of administrators and high and increasing concentration among the largest three. The portfolio of the pension fund in Chile has been diversified in the last 20 years, but not so in the other seven private systems, where 49–86 per cent is invested in public debt, with little or nothing on stocks and foreign instruments—a high risk illustrated by the problems endured during the crisis in Argentina. Capital returns on investment in Chile have discriminated against the low-income insured, exhibit a declining trend, and have been lower than returns from the Santiago stock exchange. Chile has the highest capital accumulation of the pension fund among private systems (59 per cent of GDP in 2004), but the biggest accumulation in the region is in Brazil's voluntary supplementary pension funds to a public pension system; in small countries capital accumulation in only 2–3 per cent of GDP. Chile's pension reform has contributed to the development of a previously existing capital market, but the assertion that a matured capital market is not needed as a precondition of pension reform is negated by both the experience of Chile and several other private systems, particularly in small countries.

(iii) Social Effects

Coverage of the EAP in Chile declined from 64 per cent before the reform to 57 per cent in 2004. The same has happened in the other nine private systems, showing an average fall from 38 to 26 per cent; coverage of the elderly population by contributory pensions in Chile has declined, but that by assistance pensions has increased. Recent projections of replacement rates in Chile based on survey data are 16–27 percentage points lower than previous projections based on optimistic assumptions on contribution density. Private systems accentuate gender inequality resulting from labour-market discrimination against women and their lower ages of retirement and higher life expectancy *vis-à-vis* men, because they use sex-differentiated instead of unisex mortality tables as in public systems, and the pension is based on the sum accumulated in the individual account, which is smaller for women owing to their lower contribution densities and replacement rates (in Chile 16 and 18 percentage points less, respectively) and a longer period of retirement. For these reasons women's pensions in Chile are 50 per cent lower than those of men on average, and 45 per cent of women are projected to receive either an assistance pension or a minimum pension. Chile's structural reform has expanded existing differences in the labour market, where the ratio between the maximum taxable income and the minimum salary is 8.6 times, but this ratio will increase to 9.3 times among pensioners in the two income groups, and to 13 times when incorporating contribution densities differentiated by sex.

The problems summarized above require reforms in order to correct them and improve the private pension systems and the welfare of the active and passive populations. In 2005 there were several reform proposals. Among them are: the expansion of social assistance pensions to cover all the poor effectively; legal measures and fiscal incentives to incorporate self-employed workers; improvement of the guaranteed minimum pension for those unable to meet its requirements; unisex tables to estimate pensions; elimination of the fixed commission; strengthening of the detection of delays and collection of payment from employers; and more agile tribunals to handle employer's debt (Programa de Gobierno Michelle Bachelet, 2005; Seminario 'Nuevas Modalidades de Trabajo y su Implicancia en la Seguridad Social', 2005).

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