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Fiscal Effects of the 1993 Colombian Pension Reform

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Abstract

This study examines the fiscal impact of the pension reform adopted in Colombia in 1993, which established a fully funded, privately administered pension system alongside the existing pay-as-you-go state scheme. The reform increased the contribution rate and reduced the benefits of the state scheme. However, the fiscal cost of the reform was high, estimated at 1.5 to 2.3 percent of GDP annually over the next three decades. This reflects concessions made to special groups of public servants, the delay in making effective the new retirement conditions, and the minimum pension guarantee. A new generation of pension reforms needs to be adopted.

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Summary

In December 1993 the Colombian congress approved a major reform of the pension system. The reform introduced a fully funded, privately administered pension system and restructured the contribution rates and benefits of the existing pay-as-you-go social security pension scheme. Several pension schemes for other public sector workers were not reformed, however. The fiscal cost of the pension system during the transition remains high, at an estimated 1.5 to 2.3 percent of GDP annually over the next three decades. Thus, a new generation of pension reforms needs to be adopted to address the prospective fiscal burden as a result of: (1) concessions granted to special groups of public servants; (2) the delay in making effective the new retirement conditions; (3) the level and conditions under which public guarantees are provided; and (4) the high rate of payroll taxes (which hampers coverage).

I. Introduction

This paper examines the fiscal impact of the pension reform approved by the Colombian congress in December 1993 (Law 100 of 1993).[2] The reform aimed to broaden the coverage of the pension system, remove inequities, and provide adequate and sustainable retirement benefits. The central feature was the establishment of a defined contribution, fully funded, privately administered pension system, alongside the public pay-as-you-go (PAYG) pension system. Section II of the paper discusses the main aspects of the 1993 pension reform, highlighting departures from the original framework proposed to congress. Section III presents an estimate of the outstanding net liabilities of Colombia's pension system. Section IV models the fiscal impact of the reform in terms of operating balances of the pension schemes, the accumulation of reserves, and developments with respect to pension liabilities. The model indicates that the reform represents a reduction in fiscal expenditures of about 1 percent of GDP annually during the transitional period 1994–2030 compared with a scenario of no reform; however, primary public savings need to be maintained in the range of 3–4 percent of GDP in order to be able to service a stock of pension debt estimated to be between 86–120 percent of 1995 GDP. A new set of pension reforms is needed to address concessions granted to special groups of public servants, and the level and conditions under which public guarantees are provided, including the effect of switching frequently between the PAYG and the privately administered scheme as provided under the 1993 reform. Section V looks at recent developments with regard to private savings and the performance of the pension fund management companies. Concluding remarks are provided in Section VI.

II. Pension Reform in Colombia

A. The Old System and its Problems

At the time of the reform, Colombia's pension system comprised six broad categories of PAYG defined benefit pension plans: three government sector worker systems,[3] with about 811,000 affiliates; several decentralized government and public enterprise pension funds, with about 300,000 affiliates; a mandatory pension scheme for private sector workers administered by the social security institute (ISS), with 3.4 million affiliates; and a group of pension plans sponsored by insurance companies for voluntary old age saving by private and public sector workers and by private firms for their own employees, with 100,000 affiliates. Coverage of the system amounted only to about 30 percent of the labor force compared with an average of 38 percent for Latin America and the Caribbean as a whole.

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[2]Recent analysis of the fiscal impact of the reform also can be found in Ayala (1997) and Schmidt-Hebbel (1995).

[3]Comprising Cajanal, about 55 other national pension funds, and 991 regional pension funds.

Benefits provided by the old system varied widely between different regimes but were more favorable to public sector workers. Public sector schemes generally were noncontributory, whereas the contribution rate for workers in the ISS scheme was 6.5 percent of wages; and retirement ages generally were five years lower in the public sector schemes (55 for men and 50 for women) than for the ISS scheme. Pension payments were defined relative to average nominal wages two years before retirement and varied between 75 percent for public sector workers and 45–90 percent for private sector workers, subject to a minimum of between 10 and 20 years of pension contributions.[4]

By 1993, pension payments for public sector workers were equivalent to 1.4 percent of GDP, almost entirely financed by transfers from central administration and local government budgets; payments to private sector workers in the ISS scheme were equivalent to 0.8 percent of GDP, slightly below contributions of 1 percent of GDP. The financial position of the ISS scheme suffered because reserves were often invested in assets which yielded relatively low rates of return, pension contributions subsidized health and other social services provided by the ISS. The poor financial position of the pension system also reflected mismanagement and corruption. The consolidated pension system had reserves equivalent to about 1.6 percent of GDP in 1993 and implicit pension liabilities estimated at around 86 percent of GDP (see below); without reform, the gap between implicit PAYG debts and explicit reserves was projected to increase sharply.

B. The 1993 Reform

The 1993 reform introduced a fully funded privately administered pension system, closed all but six of the public pension schemes, and restructured pension contribution rates and benefits.[5] Contribution rates for the ISS and privately funded schemes were set at 8 percent of salary, rising to 13.5 percent by 1996; the minimum number of years of contribution to qualify for a pension was set at 19.2 years, and the pension was set at 65 percent of base salary (computed as the average of declared salaries during the last ten years); and, beginning in 2014, the retirement age for women and men was raised by two years.[6] The reforms applied

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[4]The highest pay-off for the contributor (or the highest fiscal cost for the government) occurred at the moment of completing 25 years of contributions; the implicit return on contributions declined rapidly thereafter. Workers who entered the pension system late or contribute only for a short period obtained real returns that exceed their contributions by 300 to 400 percent.

[5]The six excluded the pension schemes of the security services, teachers and the state oil company.

[6]The original proposal envisaged an increase in the retirement age by five years in the case of females (to age 60) and three years in the case of males (to age 63). However, an increase of

(continued...)

only to new entrants into the labor force and to existing affiliates at age below 35 years for women and below 40 for men; older existing affiliates continued with the contribution rates and benefits of the old system.[7] The main features of the reform are summarized in Table 1, while Table 2 shows the contribution rates under the new system.

To broaden coverage of the pension system for low income groups, all workers earning more than four times the minimum wage were required to contribute an additional 1 percent of their income to the Solidarity Pension Fund (SPF).[8] These contributions were to be matched by government transfers to the fund. The SPF would be managed by the government and its resources used to supplement the contributions of wage earners and independent workers to enable them to join the pension system; the workers supported by the subsidy would have the choice of joining either the ISS or the privately funded system. The guaranteed minimum pension remained unchanged at 100 percent of the legal minimum wage (currently around US$160 per month).

Affiliation to either the ISS or privately managed pension systems is mandatory for dependent public and private sector workers, who may switch back and forth between systems every three years. Independent workers may join either system voluntarily, provided their contributions reach a minimum level. Workers already contributing to the ISS system who choose to transfer to the privately managed system receive compensation in the form of a recognition bond calculated to reflect the net present value of pension entitlements accumulated under the old system.

The recognition bonds are endorsed to private pension fund administrators (AFPs) who compete for the management of the workers' individual retirement accounts. Each AFP pools its affiliates' funds and invests them in equities, bonds, and money market instruments. Upon retirement, workers can use the funds accumulated in their individual accounts to purchase an

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[6](...continued)
only two years was approved in each case. Given that life expectancy in Colombia has been increasing steadily in recent decades and now averages nearly 71 years, there appear to be valid demographic reasons to justify a further increase in the retirement age to 62/65 years (female/male). Such an increase would bring Colombia's retirement age closer to that in most other Latin American countries.

[7]The proposal taken to congress in 1992 called for a short period of transition to be new conditions, so that new retirement ages and replacement rates would apply only to workers retiring after 2003 (a ten year transitional period). However, congress decided to extend the transitional conditions for another ten years, delaying the effect of the adjustment until 2013.

[8]Although this earmarking represented an attempt to prevent the central government from assuming the full obligation for the low income groups, it has been associated with new problems of avoidance and under reporting at the firm level.

annuity from an insurance company, start a series of phased withdrawals, or a combination of the two. Early retirement is possible as soon as the balance in the individual account is sufficient to finance a pension of at least 110 percent of the minimum wage; any excess capital can be withdrawn and used for purposes other than retirement. The private pension system started with about 300,000 affiliates and the ensuing growth of affiliations—at about 100,000 a month—was broadly in line with expectations. The early success of the scheme benefited from the similarities in benefit eligibility conditions and contribution rates between the different systems, and the fact that workers were already familiar with the concept of private fund management companies due to the Colombian severance program.[9]

III. Estimating Net Pension Liabilities

The pension reform established a schedule to compile the information required to assess pension liabilities of the public sector, in order to identify the portions corresponding to central government and to territorial and decentralized enterprises. The ministry of finance has requested that the AFPs cooperate in reconstructing the labor histories of private and public workers, which is the basis for calculating pension liabilities and later issue "recognition bonds" (Ocampo, 1996). Preliminary information indicates that as of end-1995 only about 20 percent of public entities had provided the required information and its quality is rather poor. The ISS alone faces the challenging task of having to deal with more that 100 million "entries," and 7 million labor "histories," corresponding to the movement of 3.5 million affiliates in the last 25 years. Most of these files have to be taken from a decentralized non-electronic data base.

Two additional factors tend to complicate this task. First, the sectors excluded from the reform (public security forces, teachers, and oil workers) have not been keeping good records of their pension liabilities and changes in legislation have been frequent. Second, collective bargaining by public servants has created a particular set of benefits for different sectors, making difficult the assessment of outstanding liabilities to workers.

Subject to this caveat, our estimates of (net) pension liabilities in Colombia, including those of special public sector funds (not included in the reform),[10] are summarized in Table 3. A total

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[9]Employers are required to provide severance benefits of one month's salary for each year of employment; the severance program that has been administered by private firms since 1990 provided the basis for the establishment of the new private pension system.

[10]Pension liabilities are usually netted out of expected contributions during the projection period, which is the case here for calculations involving the ISS and the AFPs during the period 1995–2025. However, for special public sector schemes excluded from the reform it is not yet clear how contributions will be shared between the central government and the public

(continued...)

of about 5.3 million workers were affiliated with a pension scheme as of end 1995, representing a total coverage rate of 34 percent; the ISS scheme accounted for 60 percent of total affiliations, the AFPs accounted for 28 percent, and the remaining 11 percent (about 600,000) corresponded to the other public sector schemes. The number of pensioners was about 575,000, including military pensions under the special arrangement of "retirement wages." Under this particular arrangement, the replacement rate is not fixed and benefits change according to current wages of active personnel; these wages have increased at a rate of 15 percent annually in real terms in the last decade.

The last three columns in Table 3 show the stock of (net) outstanding pension debt to current affiliates and pensioners. ISS liabilities represented about 65 percent of GDP (nearly US$52 billion), of which two thirds accrued to workers of the private sector. The proportion of pension debt attributable to the AFPs is difficult to calculate, as it is closely linked to the value of the recognition bonds. A tentative estimate indicates that the net present value of the outstanding pension debt associated with the 1.5 million contributors to the AFPs amounted to 31 percent of GDP (US$24.5 billion) at the end of 1995. According to these estimates, the total pension debt (private and public) corresponding to nearly 6 million affiliates (including about 5 million contributors and 1 million current pensioners) amounts to 120 percent of GDP, where about 86 percent of GDP is backed by direct public guarantees. Per capita pension debt outstanding at the end of 1995 was equivalent to US$15,600, although this figure masks considerable differences among entities.

The level of public pension liabilities implicitly determines the path of public savings required to meet the cash-flow needs of servicing such debt, while maintaining the stock of debt relatively stable. However, this is only part of the required savings, as there is also a need to service the (regular) stock of internal and external public debt. It is useful then to combine the stocks of pension liabilities with the public debt to estimate the required savings needed to avoid increasing the current levels of (combined) total public debt. Table 4 shows the primary surplus that would be required to cover the combined net debt liabilities of the public sector for Colombia, Chile, Italy, and the United States (the latter two being chosen to illustrate the highest and lowest levels of net debt liabilities in industrial countries and the average for industrial countries; the combined net debt liabilities of Colombia (112 percent of GDP) were close to the level observed in major industrial countries, but its level of pension reserves was somewhat lower.

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[10](...continued)
servants. In these cases, the preliminary calculations presented in Table 3 are only partially net of contributions (for instance, military contributions are computed at a rate of 5 percent of payroll, instead of the 13.5 or 14.5 percent established under Law 100 for other sectors).

IV. Fiscal Effects of the Pension Reform

This section assesses the fiscal impact of the pension reform over the period to 2025 by simulating a simple actuarial model that computes annual pension revenues, expenditures, and outstanding net liabilities for the three components of Colombia's pension system.[11] The simulations take into account likely demographic developments, which will have an important bearing on the fiscal impact of the pension reform. Figure 1 illustrates the age structure of the ISS scheme that prevailed in the early 1990s, when the average age of contributors was 34.5 years. About 35 percent of male contributors, and 45 percent of female contributors were in the 20–24 through 25–29 age range; and about 15 percent of male and 10 percent of female contributors were older than 50 years. Figure 2 shows the age structure that is likely to prevail among contributors by the year 2030. The average age of contributors is likely to be around 44 years; and the number of retirees will have increased from the current 5 percent of affiliates to around 20 percent in the case of males and to 12 percent in the case of females (taking into account the increase in retirement ages that enter into effect in 2014). Thus, population aging and the "life-cycle" savings hypothesis would suggest that savings and pension reserves would rise through the year 2005, flatten over the following decade or so, and then decline after 2020.

A. The Model and Assumptions

Pension system revenue is calculated according to the formulae shown in [1]–[3].[12]

$$C_t = C_{1t} + C_{2t} \qquad [1]$$

$$C_{1t} = \sum_{s=f,m} \sum_{k=1}^{T+} N_t^{s,k} W_t^{s,k} \phi_t \qquad [2]$$

$$C_{2t} = \sum_{s=f,m} \sum_{k=1}^{T-} N_t^{s,k} W_t^{s,k} \phi_t \qquad [3]$$

where: C denotes contributions of insured workers, N is the number of contributors, W is the average wage, and ϕ is the effective contribution rate. To simplify the model no account is taken of the 1 percent solidarity contribution and a representative contributor [s=(f)emale, (m)ale] was constructed based on known characteristics regarding age, gender, and density of contributions. The C_1 component shown in [2] corresponds to regular contributions received

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[11]The basic model is similar to that used by the Comisión de Gasto (1996).

[12]We follow the notation used by Chand and Jaeger (1996).

Figure 1

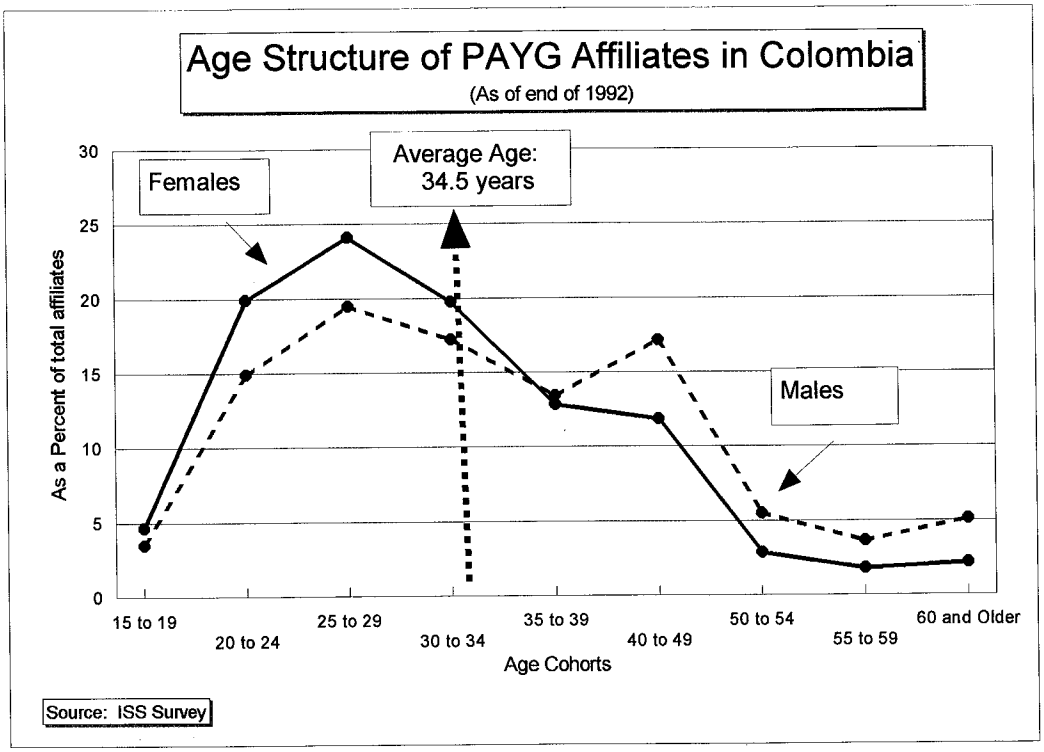
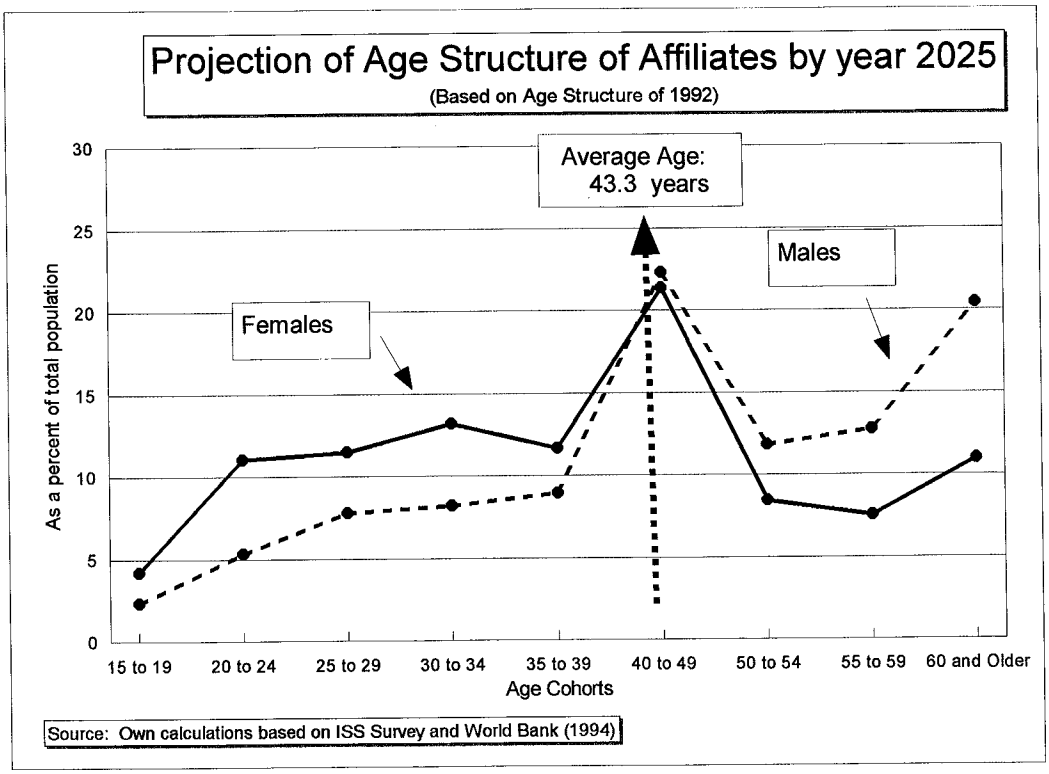


Figure 2



from people aged "k" during the period from 1992 (T+), while the C_2 component described in [3] reflects contributions derived from recognition bonds, which are equivalent to the net present value of potential contributions made before 1992 (T-) (the cut-off date established by the reform).

Pension system expenditure is projected according to equations [4]–[6].

$$P_t = P_{1t} + P_{2t} \qquad [4]$$

$$P_{1t} = \sum_{s=f,m} \sum_{k=1}^{T+} B_t^{s,k} R_t^{s,k} \qquad [5]$$

$$P_{2t} = \sum_{s=f,m} \sum_{k=1}^{T-} B_t^{s,k} R_t^{s,k} \qquad [6]$$

where: P represents total expenditure devoted to pensioners, B is the number of retirees receiving benefits, and R is the "replacement rate" (i.e., the ratio of the average of recent earnings to the pension payment). Pensioners are divided into new pensioners (P_1) that received benefits modified by the reform (affecting time T+) and pre-existing pensioners (P_2) that continue to receive the benefits prevailing before the reform (affecting time T-), the main difference being a lower R and a longer delay in the retirement date for P_1 pensioners.

The net asset position of the pension system (A) is computed taking into account the contemporaneous operating balance and the real interest rate (i) received while lending the existing reserves or by borrowing at such rate when reserves have been depleted, as described in equation [7].

$$A_t = (1 + i)\, A_{t-1} + C_t - P_t \qquad [7]$$

The simulation was based on the following assumptions: (i) affiliations to the PAYG system grow at 2 percent a year until 2010, and at 1.8 percent a year thereafter, about in line with projected population growth; the faster growth of affiliations in the earlier period reflects the once-off effect of liquidating insolvent public pension funds; (ii) W increases in line with productivity gains compatible with sustainable economic growth of 5 percent a year; (iii) ϕ is maintained at the current rate of 10 percent of earnings (the remaining 3.5 points are devoted to paying insurance and administrative costs); (iv) the real rate of return on the reserves of the PAYG scheme is 5 percent a year; and (v) the number of pensioners increases to 700,000 by 2010.

B. Simulation Results

Separate simulations were carried out for revenues, expenditures, and the outstanding net liabilities of the ISS, other public sector, and the privately administered pension schemes; the

results are reported in Table 5. The operating balance of the ISS scheme is projected to decline from a surplus of 0.3 percent of GDP 1996 to balance in 1998 and be in deficit around the turn of the century; this deficit is projected to increase to 0.4 percent of GDP by 2005 and to 0.7–1.0 percent during 2015–2025. As a result, outstanding reserves of the ISS scheme would be exhausted by 2006. Although the pension debt of the ISS scheme would have been reduced from approximately 36 percent of GDP in 1996 to only 10 percent of GDP by 2025 (mainly reflecting transfers of affiliates to the privately managed schemes), the net asset position of the scheme is projected to fall from about -3 percent of GDP to -10.2 percent of GDP over the same period.

The fiscal burden of the consolidated public sector schemes that were not reformed rises sharply, with the operational deficit increasing from 0.5 percent of GDP in 1996 to 1.1 percent of GDP by 2010 and 1.4 percent of GDP by 2025. Over the same period, net outstanding pension liabilities would decline from 23.1 percent of GDP to 7.9 percent of GDP, and net assets would fall from approximately zero to 18.2 percent of GDP. Hence, the total budget allocations required for the central government to finance simultaneously the unfunded obligations of the ISS and those of the public servants (including "recognition bonds") would increase from about 0.2 percent of GDP in 1996 to 0.8 percent by 2000, and to 2.3 percent of GDP by 2025.

A sensitivity analysis showed that a higher interest rate obtained on pension reserves could provide some relief to the net asset position of the ISS in the short run, but financing the gap later would be more costly. For instance, under an alternative scenario which assumes a 7 percent real interest rate (2 points higher than in the base case scenario), the emergence of an operational deficit could be postponed for about five years, to 2005, and the depletion of reserves would occur only by 2010. However, the compounding effect of deficits being financed at a higher interest rate would cause a further increase in the unfunded pension liabilities of the ISS system, bringing it to 14 percent of GDP by year 2025.

According to simulations made by the ISS, the real return required to obtain equilibrium in the foreseeable future is in the range 12–14 percent under current population and affiliation trends, which is practically three times the historical rate observed in Colombia (ISS, 1996). The ministry of finance has also developed its own simulations showing similar trends; Ayala and Helmsdorf (1996) show that, by including the effect of special benefits maintained during the transition period for public servants, the implicit real equilibrium rate on pension reserves would have to average 16 percent a year in the long run.

Thus, without further reforms the pension system will continue to be a major and probably unsustainable burden on the public finances for several decades. A number of options have been suggested to deal with this situation. One option is to accumulate pension reserves

exogenously, for instance, by allocating oil "windfall" gains to the ISS.[13] Apart from the constitutional/legal problems that such a proposal would entail (all mineral royalties are earmarked for territorial expenditures), the option of depending on "windfall oil gains" to close the expected pension gap in the next three decades does not seem to be a prudent and solid fiscal solution to the pension problem. Instead, the focus should be on reducing the high benefits during the transitional period and adjusting the "replacement rates" and state guarantees, as suggested by the Comisión de Gasto (1997).

V. Pension Reform and Private Savings

An important motivation for the introduction of a privately administered pension scheme was to raise private sector savings. However, private savings, which began to decline in relation to GDP in the early 1990s, have continued to decline in the period since the reform, and averaged about 10 percent a year in the period 1990–96 (Figure 3). The decline mainly reflected the consumption boom associated with short-term capital inflows and wage increases resulting from new wage settlements under the 1990 labor reform. Successive tax reforms might also have generated a "crowding out" effect on private savings, with tax revenue being devoted mainly to finance higher current expenditure.[14] Much may depend on the extent to which (i) the self-employed choose to participate in the pension system (at present, only about 0.5 percent of total contributors are self-employed compared to 2.4 percent in Chile); and (ii) coverage of the pension scheme is broadened. Thus, reducing evasion and avoidance becomes even more important. In addition, as mentioned by Mackenzie et al. (1997 p. 2), reforms which comprise increases in effective retirement ages and/or a reduction in the replacement ratio, as occurred in the Colombian reform, tend to increase aggregate savings because the increase in public sector savings is only partially offset by a decline in private sector savings.

The rest of this section looks at two issues with respect to the privately administered scheme that may have had a bearing on the performance of private savings: the performance of the AFPs; and real rates of return on pension fund savings.

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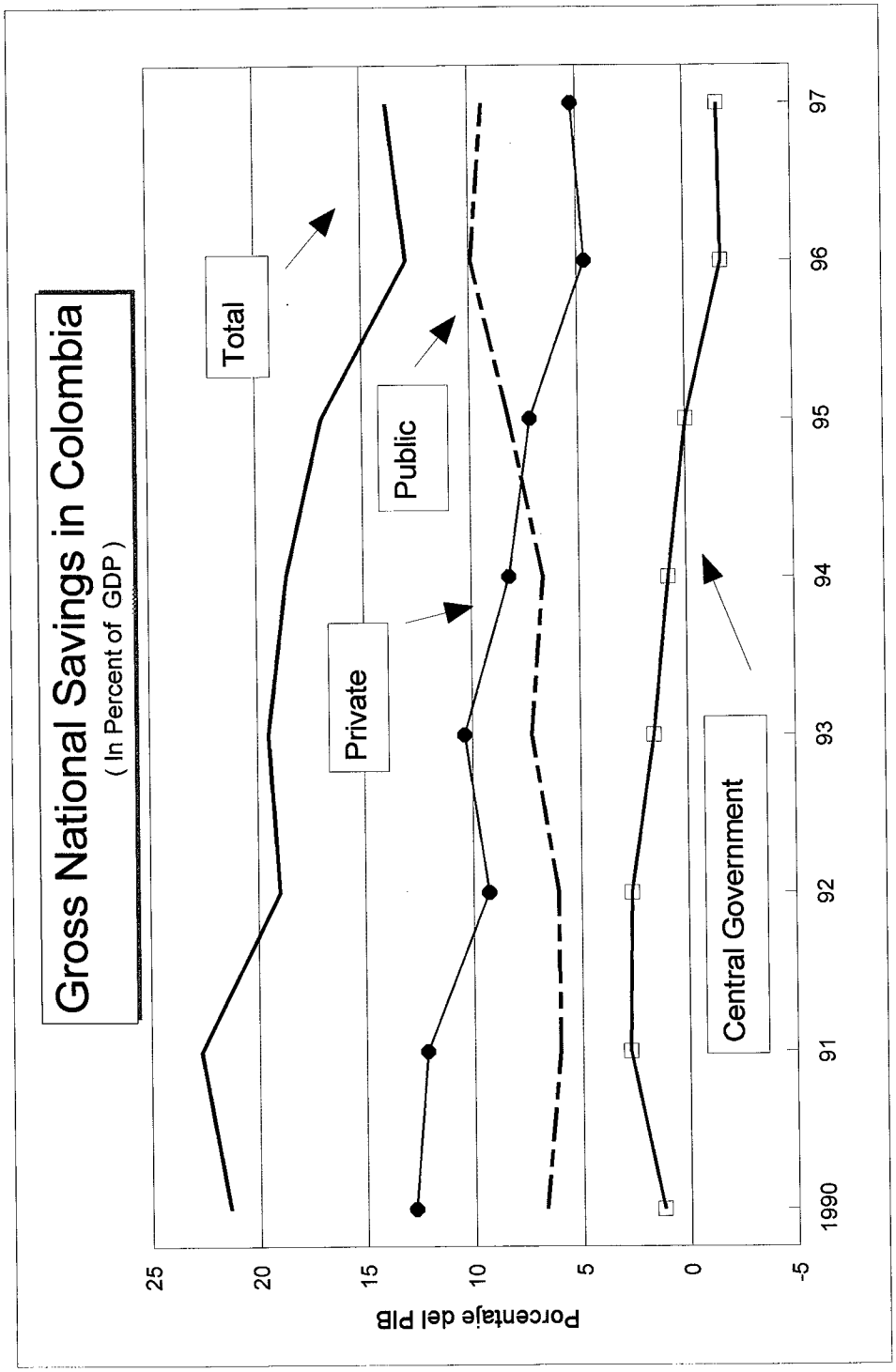
[13]It is worth noting that the expected amount of unfunded pension liabilities stemming from the ISS alone (10 percent of GDP) represents about half of the (net present value) of known oil exploitation and that the accelerated exhaustion of oil reserves actually pose a threat for maintaining net positive exports of oil by 2010.

[14]In the early 1990s, gross national savings declined from about 21 to only 18 percent of GDP, well below the 25 percentage of GDP ratio required to maintain growth at 5 percent per annum. See Clavijo (1995) for more details on the Colombian macroeconomic performance.

Figure 3


Gross National Savings in Colombia
(In Percent of GDP)
Total
Private
Public
Central Government
Porcentaje del PIB
25
20
15
10
5
0
-5
1990
91
92
93
94
95
96
97

A. Performance of AFPs

The 1993 pension reform authorized private funds to operate as "Administradoras de Fondos de Pensiones" (AFPs), which began operating in May 1994; by the end of 1996, the private scheme had about 2.1 million affiliates, and the AFPs had net pension fund assets equivalent to 0.7 percent of GDP (US$700 million) and total net assets (i.e., including severance pay funds) equivalent to 1.4 percent of GDP, and about 3 percent of the total liabilities of the financial system. On the basis of the simulations presented above, by about 2015, the AFPs' share of financial system assets could rise to 10–15 percent, contributing to greater financial deepening. By way of comparison, the reserves of the AFPs in Chile reached 40 percent of GDP after 15 years of operation.

The initial stage of the Colombian pension reform has been costly for the AFPs and for the affiliates (as in Chile). Only two AFPs are expected to be in operational equilibrium in 1998, and the other six are not expected to break even for several years. By the end of 1996, the return to capital for owners of the AFPs represented a loss of 13 percent, compared to the 14 percent average gain observed in Chile. As for the affiliates, they have been paying 3.5 percentage points of the payroll to the AFPs for administrative and insurance costs. However, Article 20 of Law 100 states that, as insurance and administrative costs decline, there should be an increase in the part of the contribution allocated to the individual account. Only recently have some AFPs been in a position to increase the portion going to the individual accounts by about ½ percentage point. After the installation stage, cost reduction in the AFPs usually comes as a result of low rotation among affiliates, so it is likely that the AFPs will pass along those benefits to affiliates showing a high degree of loyalty, as is currently happening in Chile (Ruiz-Tagle, 1996).

B. Real Rates of Return

Contributors to AFPs in Colombia have obtained an average real return of 14.6 percent per annum in the period 1994–96 (net of commissions and insurance payments). This is 6.6 percentage points above the 8 percent minimum return required by the Superintendency of Banks (which regulates the AFPs). However, given the slowing economy (2.5 percent growth in 1996–97 compared with an average of 4.5 percent in the first half of this decade) and the downward trend observed in interest rates (from 11 percent to 6 percent in real terms), it seems unlikely that real returns will remain at such high levels in the near future.

Hence, there seems to be a contradiction: the private pension system reports real returns for contributors that practically double the average return obtained through savings in the traditional financial system, but total private savings have declined. One factor discouraging voluntary savings using AFPs as an investment vehicle may be that a minimum amount has to be accumulated in the fund before savings can be used for other purposes. In practice, the low average wage of contributors (nearly 60 percent of affiliates earn below 1.5 minimum wages) means that voluntary savings of moderate amounts are likely to be tied up for about 20–25 years, which is the effective time of contribution for most workers.

Long-term yields for contributors depend on the structure of the AFPs' portfolios. In Colombia, portfolios are quite highly concentrated on banking system CDs and government securities, with negligible investments in equities (Table 6). The concentration may in part stem from the mechanism for valuing portfolios used by the regulatory agency, and the relatively high real interest rates on CDs and government bonds in recent years.

VI. Conclusions

The pension reform approved in 1993 in Colombia established a fully funded privately administered pension system and restructured the contribution rates and benefits of the ISS for all but a few public sector schemes. Simulation results from an actuarial model indicate that, even with the reform, the pension system will remain an unsustainable burden on the public finances over the next several decades, even though public sector pension liabilities are likely to decline.

To put the pension system on a sustainable basis, economic policy makers face a twofold task. First, public savings should be increased at the general government level in order to avoid significant future imbalances. Second, a new generation of pension reforms needs to be adopted. There are several areas in which additional reforms might be undertaken. First, public sector schemes left untouched by the 1993 reform (i.e., the security services, oil workers, and teachers) should be reformed also. Second, the reforms to the ISS scheme should be phased in much faster than the 20 year period established. Third, the minimum guaranteed pension should be lowered, and the ability to switch back from the privately administered scheme to the ISS scheme should be eliminated. Fourth, the retirement age should be increased further (say, by three years up to 60 for women and 65 for men) in line with the progress observed in life expectancy.

Table 1. Main Aspects of the Pension Reform in Colombia

	Before Reform	Results of Reform (Law 100 of 1993)
Characteristics of the public system		
Distributional arrangements	Unfunded PAYG	Partially funded PAYG
Institutional arrangements	Monopoly	In competition with fully funded system
Sectoral arrangements (pensions/health)	Both run by ISS	Both run by ISS under separate accounts
General conditions		
Pension contributions (as percent of earnings)	6.5	13.5-14.5
Of which		
Earmarked subsidy	Undefined budget allocations	1.0 cross-subsidy
Retirement age (female/male)	55/60 (F/M)	57/62 (F/M)
After contributing 10 years	45	0
20 years	75	65
25 years	90	76
27 years	90	85
Special conditions		
Minimum pension guarantee (years of contribution)	10	20
Amount (as a percentage of minimum wage)	100	100
Form of indexation	De-facto via minimum wage	Constitutional (Art. 48 y 53)
Period of transitional retirement conditions	...	1993-2003
Exempted public sectors	Most civil servants	Public security forces, oil workers and teachers

Source: Own calculations based on information from Ministry of Labor and ISS data.

Table 2. Composition of Payroll Taxes

(In percent of payroll earnings)

	Before Reform (1)	After Reform 1/ (2)	Variation (2) - (1)
Total	**36.3**	**46.3**	**10.0**
Pensions	6.5	14.5	8.0
Health care	10.0	12.0	2.0
Unemployment insurance	8.3	8.3	0.0
Professional accident insurance	2.5	2.5	0.0
Technical training	2.0	2.0	0.0
Family subsidies	4.0	4.0	0.0
Support of poor children	3.0	3.0	0.0
Paid by employers	**30.7**	**37.2**	**6.5**
Pensions	4.3	10.1	5.8
Health care	6.6	7.3	0.7
Unemployment insurance	8.3	8.3	0.0
Professional accident insurance	2.5	2.5	0.0
Technical training	2.0	2.0	0.0
Family subsidies	4.0	4.0	0.0
Support of poor children	3.0	3.0	0.0
Paid by employees	**5.6**	**9.1**	**3.5**
Pensions	2.2	4.4	2.2
Health care	3.4	4.7	1.3

Source: Own calculations based on Ministry of Labor data.

1/ In pensions, includes a 1 percent earmarked contribution (cross-subsidy) that must be paid by workers with wages in the range of 4-20 minimum wages and, in health, by all wages up to a ceiling of 20 minimum wages.

Table 3. Net Pension Liabilities

(Approximate value as of end-1995)

	Number of Workers			Net Present Value of Pension Liabilities		
	Active	Retired	Total	Millions of US$	As Percent of GDP	US$ per Worker
I. Direct public sector guarantees	3,829,270	565,500	4,394,700	67,600	86.4	15,382
A. Central government level	3,630,000	456,000	4,086,000	61,100	78.0	14,953
Public security forces	250,000	106,000	356,000	6,000	7.7	16,854
Military force	160,000	43,000	203,000	3,500	4.5	17,241
Policy and other security	90,000	63,000	153,000	2,500	3.2	16,340
Teachers	180,000	n.a.	180,000	3,100	4.0	17,222
PAYG Systems (ISS)	3,200,000	350,000	3,550,000	52,000	66.4	14,648
Private workers	2,112,000	231,000	2,343,000	34,320	43.8	14,648
Public workers	1,088,000	119,000	1,207,000	17,680	22.6	14,648
Of which						
ISS	24,000	14,000	38,000	1,500	1.9	39,474
Congress	2,800	300	3,100	n.a.	n.a.	n.a.
B. Local level	172,000	80,000	252,000	2,500	3.2	n.a.
Teachers 1/	70,000	n.a.	70,000	n.a.	n.a.	n.a.
Local entities	102,000	80,000	182,000	2,500	3.2	13,736
C. Public enterprises and banks	27,270	29,500	56,770	n.a.	n.a.	n.a.
Oil sector (Ecopetrol)	10,000	8,000	18,000	2,300	2.9	127,778
Telecommunications (Telecom)	8,770	13,000	21,770	1,700	2.2	78,089
Agricultural bank (Caja Agraria)	8,500	8,500	17,000	n.a.	n.a.	n.a.
II. Direct private and indirect public sector guarantee	1,500,000	10,000	1,510,000	24,500	31.3	16,225
D. Old private large enterprises	n.a.	n.a.	n.a	n.a.	n.a.	n.a.
E. Fully funded system (AFPs)	1,500,000	10,000	1,510,000	24,500	31.3	16,225
III. (=I+II) Total	5,329,270	575,500	5,904,770	92,100	117.6	15,598
Direct public guarantee	3,829,270	565,500	4,394,770	67,600	86.4	15,382
Direct private and indirect public	1,500,000	10,000	1,510,000	24,500	31.3	16,225

Sources: Own calculations based on Ministry of Finance and ISS data.

1/ Includes only liabilities agreed upon in Decree 2915 of 1991.

Table 4. Net Public Sector Pension Liabilities and Public Sector Balances in Selected Countries

(As a percent of GDP)

	Colombia 1/	Chile 1/	Italy 2/	United States 2/	Major Industrial Countries 2/
I. Gross public debt	29.0	15.2	112.9	70.3	65.5
II. Pension reserves	3.5	5.3	...	7.0	8.3
III. Net pension liabilities	86.4	126.0	75.1	25.7	59.8
IV. Combined net debt liabilities (=I-II+III)	111.9	135.9	188.0	89.0	117.0
V. Observed primary balance	2.0	5.0	3.3	0.4	0.7
VI. Required primary balance	4.0	5.0	4.6	1.9	2.9
VII. Adjustment needed (=V-VI)	2.0	0.0	1.3	1.5	2.2

xxxSource: Own calculations based on Schmidt-Hebbel (1995), Chand and Jaeger (1996), Holzman (1996), and Comision de Gasto (1997).

xxx1/ As of end-1995, public debt includes internal and external liabilities. Pension reserves include the cumulative value of "recognition bonds" issued and net pension liabilities correspond to the net present value of the projected difference between primary expenditures and revenue during the period 1995-2030.

xxx2/ As of end-1994, pension reserves correspond to initial net assets and net pension liabilities correspond to the net present value of the projected difference between primary expenditures and revenue during the period 1994-2050.

Table 5. Simulations of the Pension System

(In percent of GDP)

	1995	1996	1997	1998	1999	2000	2005	2010	2015	2025
Summary by regimes										
Operational deficit (-)	**0.2**	**0.4**	**0.1**	**-0.2**	**-0.3**	**-0.4**	**-0.8**	**-1.2**	**-1.8**	**-2.8**
ISS	0.2	0.3	0.2	0.0	-0.1	-0.1	-0.4	-0.7	-1.0	-0.7
AFPs	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.5	-0.8
Public servants	-0.4	-0.5	-0.6	-0.6	-0.7	-0.7	-0.9	-1.1	-1.2	-1.4
Cumulative deficit (-)	**0.2**	**0.6**	**0.7**	**0.5**	**0.2**	**-0.2**	**2.9**	**-7.1**	**-12.7**	**-27.0**
ISS	0.2	0.5	0.7	0.6	0.6	0.4	-0.9	-3.4	-7.0	-10.8
AFPs	0.4	0.9	1.5	1.9	2.2	2.5	4.1	5.7	7.0	2.2
Public servants	-0.4	-0.9	-1.4	-2.0	-2.6	-3.1	-6.2	-9.4	-12.7	-18.4
Net asset position	**4.0**	**4.3**	**4.3**	**4.0**	**3.5**	**3.0**	**-0.4**	**-5.1**	**-11.2**	**-26.1**
ISS	2.7	3.0	3.1	3.0	2.8	2.6	0.8	-2.1	-6.0	-10.2
AFPs	0.7	1.2	1.7	2.1	2.4	2.8	4.3	5.8	7.1	2.3
Public servants	0.6	0.1	-0.5	-1.1	-1.7	-2.3	-5.5	-8.9	-12.3	-18.2
Outstanding pension liabilities	**65.4**	**65.5**	**65.7**	**64.3**	**62.6**	**61.0**	**53.5**	**46.9**	**39.5**	**19.8**
ISS	36.1	36.1	36.1	35.2	34.2	33.2	28.7	24.9	20.7	10.4
AFPs	6.5	6.4	6.4	6.2	5.9	5.7	4.7	3.9	3.1	1.6
Public servants	22.9	23.1	23.3	22.9	22.5	22.1	20.1	18.2	15.7	7.9
Memorandum items:										
Administrative and insurance costs of ISS	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Central government cash effect (deficit -)	-0.2	-0.2	-0.4	-0.6	-0.7	-0.8	-1.3	-1.8	-2.2	-2.0

Source: Own calculations based on the Ministry of Finance data.

Table 6. Investment Portfolio of the AFPs in Chile and Colombia

(In percent of total portfolio)

	Chile				Colombia	
	Observed			Bench-	Observed	Bench-
	1982	1980	1996	mark	1995	mark
Public securities	20.0	42.0	40.9	25.0	27.0	25.0
CDs and bonds issued by domestic financial intermediaries	80.0	38.0	22.9	20.0	68.0	35.0
Stocks and shares in domestic market	0.0	20.0	35.9	40.0	0.3	30.0
Foreign securities and stocks	0.0	0.0	0.3	15.0	4.7	10.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Sources: Superintendencies of Chile and Colombia.

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