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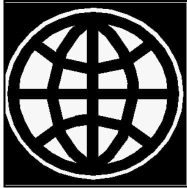

Social Protection Discussion Paper Series

Pension Reform in the Dominican Republic

Robert J. Palacios

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December 2003

Social Protection Unit
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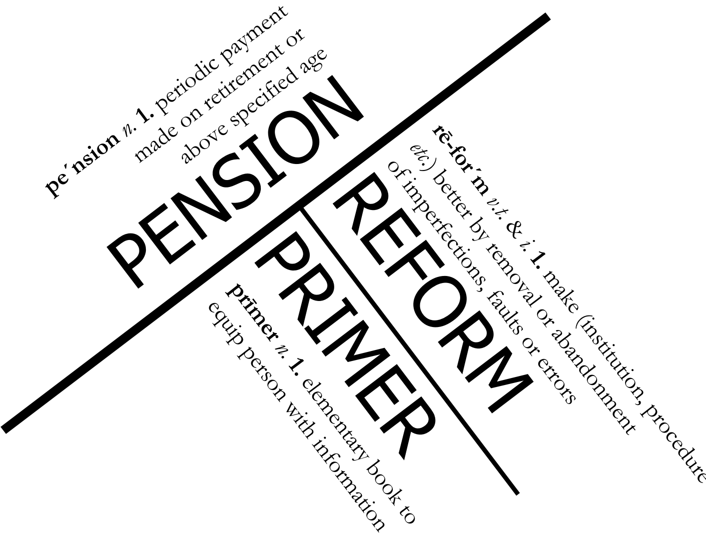

PENSION REFORM IN THE DOMINICAN REPUBLIC

Robert J. Palacios*
December 2003[1]

Abstract

Arguably, the most important public policy initiative under way today in the Dominican Republic is the reform of its social security programs. The reform is taking place in the context of an economic crisis that will make a complex implementation process even more difficult in the first few years. In the longer run, the complete overhaul of the health and pension systems will have a major impact beyond social policy. It will affect labor markets, fiscal policy and even financial markets. In terms of the country's economic development, much is at stake. This paper describes the systemic pension reform introduced by legislation in 2001 but implemented only in mid-2003.

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[1] This main body of this paper was written in January 2003. In order to include developments during the first phase of implementation, a section describing the first three months of operation was added in December 2003.

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I. Introduction

Arguably, the most important public policy initiative under way today in the Dominican Republic is the reform of its social security programs. The reform is taking place in the context of an economic crisis that will make a complex implementation process even more difficult in the first few years. In the longer run, the complete overhaul of the health and pension systems will have a major impact beyond social policy. It will affect labor markets, fiscal policy and even financial markets. In terms of the country's economic development, much is at stake.

The pension reform that is the subject of this paper has ambitious social objectives. The legislation is aimed at a gradual but massive expansion in the number of workers that contribute to a retirement savings scheme as well as much larger public transfers to the poor elderly. In principle, the law would eventually provide a certain level of old age income security for the entire population. A description of the system, its coverage and the benefits it aims to provide is found in the next two sections.

Clearly, achieving these objectives will be costly. The financing required for these programs, including a parallel expansion in health services, will come from two sources: The first is an unprecedented increase in earmarked revenues to be deducted from workers' salaries. The ultimate impact of this change on labor markets is difficult to predict and surprisingly little analysis is available to provide guidance. While beyond the scope of this paper, it is clear that many of the projections presented here are sensitive to this effect. The figures provided should be interpreted cautiously since the potentially negative effect on formal labor market participation is ignored.

Additional resources will have to come directly from the central budget, financed by other taxes or borrowing. The long term fiscal picture will be changed in two ways. First, as payroll taxes are diverted into the new, funded scheme, the government will have to finance the payment of pensions to those already receiving pensions and to older workers that remain in the pay-as-you-go scheme. This is the transition financing required any time a pension system moves from an unfunded to a funded basis. As discussed below, it entails making a debt that already exists explicit and does not necessarily represent an increased fiscal burden, but rather a change in the timing of payments. In contrast, some elements of the reform package represent entirely new categories of transfers. These add to the pension-related liabilities of the public sector. The projections in the fourth section of this paper attempt to quantify both types of cost.

As overall pension system contributions increase and are diverted to the new, funded scheme, the reform will also create a new pool of long term savings to be managed by private financial firms specializing in pension provision. This will change the way that domestic savings are channeled within the economy with important implications for the development of financial markets. The magnitude of the funds to be accumulated and key issues regarding investment regulations are discussed in the third chapter. However, a comprehensive discussion of this topic requires a parallel analysis of the financial sector and is therefore beyond the scope of this paper.

While many aspects of the new system are novel, the main features of the contributory scheme for formal sector workers can be found in eleven other Latin American countries that have pursued similar reforms. In particular, the contributory pension scheme relies on individual accounts managed by specialized, private firms operating under a set of investment limits and other special restrictions. The accumulated balance at the point of retirement is converted into either a scheduled withdrawal or an annuity. Legislation prescribes the purchase of life and disability insurance of a certain amount from private providers. With a few exceptions, these are all common features of reformed schemes in the region. Each country differs of course, and in the Dominican Republic there are variations on the general theme. In the third section, some of these differences are discussed. In some cases, the idiosyncrasies of design are probably appropriate in light of country-specific factors. In other cases, the experience from other countries suggests that certain parameters should be reconsidered.

While many design features of the contributory scheme are borrowed from other countries, there are at least two important characteristics of the Dominican reform that make it somewhat unique. The first is the starting point: As in other countries in the region, the failure of a public, pay-as-you-go, defined benefit scheme to maintain its credibility over the years provided the opening required for systemic reform proposals to emerge. However, in contrast to other countries, the main scheme covered only lower income workers in the private sector due to the presence of a ceiling that excluded higher income workers altogether. This arrangement – unique in the region – had the effect of restricting coverage and therefore the potential size of the unfunded liability. By excluding higher income workers, it also limited the amount of redistribution in the system – intended or otherwise.

Law 87-01 eliminated the anomaly of the ceiling. But the system envisioned in the law also did something else that distinguishes the Dominican reform from most of those that have taken place in the region. By incorporating a special regime for the self-employed and a non-contributory element for those too poor to save, it attempted to integrate programs that often develop in parallel, and organize them within a unified system. In principle, at least, the entire population should fall into one of the three categories of pension coverage all managed under the same institutional and legal framework.

The non-contributory element of the system is a social assistance scheme targeted at the poorest elderly households. This "subsidized regime" is intended to address one of the two key objectives of government intervention, alleviation of poverty in old age. It covers those who have not participated in the two contributory schemes that are the core elements of the system. While some countries provide this additional safety net to address the large proportion of workers that do not participate in the contributory scheme, few have assigned this program any more than a marginal role.[2] In the case of the Dominican Republic, the level of the minimum pension being promised and the potential number of recipients would mean that this element of the system would play a much larger role that is typical in the region.

[2] See Bertranou, Solorio and van Ginneken (2002) for case studies on non-contributory pension schemes in five Latin American countries.

The "subsidized contributory" scheme intended to attract participation by the self-employed can be regarded as an innovation in the region, although the details of the program are not yet defined. In particular, it is unclear how much of a subsidy will ultimately be provided to this group and equally unclear as to what take-up could be expected. The problem of how to include the 'cuentapropista' continues to be a high priority in the Dominican Republic given that roughly half of the labor force falls into this category. This is another element of the labor market effect of the new system that merits further study and the experience may eventually be useful for other countries.

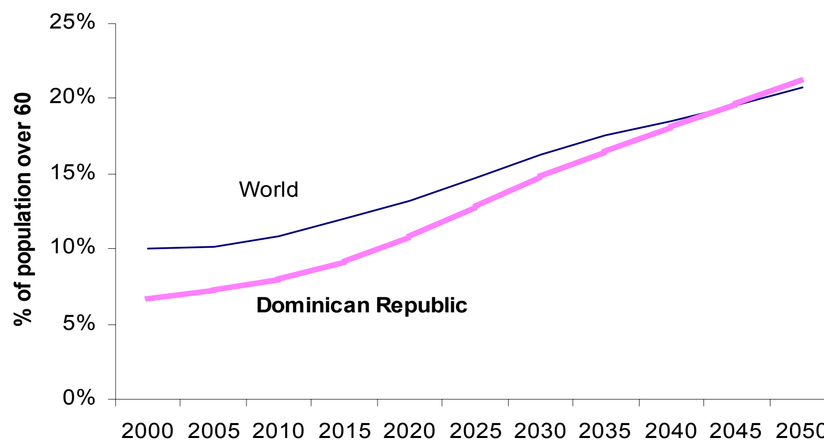
The remainder of this paper reviews issues of design and implementation based on information available as of December 2002 – three months prior to the original deadline for implementation of the contributory scheme – with a special emphasis on the fiscal implications of the reform. The paper is organized as follows: The next section briefly describes the current situation and the rationale for reform. Section III describes the new system and its key features, highlighting some similarities and differences with similar reforms in other countries. The fourth section focuses on financing issues and presents long-term projections. The last section concludes and makes tentative recommendations including some that would entail further research. It also updates the original paper with an epilogue that provides some indicators of the experience with the new system during its first six months of operation.

II. The current situation and rationale for the reform

II.1 Overview

The population of the Dominican Republic is still young but is projected to age rapidly starting towards the end of this decade. Today, only six percent of Dominicans are over the age of 60 but by the time today's labor market entrants retire, this ratio will have tripled (see Figure 1). In the face of this dramatic demographic shift, pension provision appears inadequate. Currently, older persons survive through continued work and private transfers i.e., from children and other family members.[3]

Figure 1 Population Aging in the Dominican Republic, 2000-2050



Source: World Bank population database.

Table 1 shows coverage, pension levels and magnitude of the fiscal commitment for major public schemes. Currently, less than one third of the labor force participates in a formal pension scheme and an even smaller proportion of the current elderly receive pension income. Total spending on pension benefits, including disability and survivors, is less than one percent of GDP while accumulated liabilities to pensioners and workers in these systems is estimated at about one half of GDP. Most of the current spending is on pensioners from the public sector and military. Currently, only about one percent of total pension spending is for social assistance programs aimed at the poorest elderly.[4]

Next, we examine the main formal sector schemes prior to the reform in turn.

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[3] A recent study (World Bank 2001) found that 94 percent of households with elderly members reported the receipt of private transfers.

[4] Public transfers are relatively insignificant and are received by only 9,000 destitute elderly people out of 135,000 estimated to live in the poorest third of households.

Table 1 Key indicators of pension provision in the Dominican Republic in 2000

Publicly-managed Schemes	Participants as % of labor force	Pensioners as % population over 60	Average pension, % per capita income	Pension spending (% of GDP)	Unfunded liability [1] (% of GDP)
IDSS	18.1	4.4	42	0.16	15.0
Public sector (central government)	9.0	5.2	51	0.29	33.5
Public sector (decentralized)	2.6	1.7	105	0.14	6.6
Military/police	1.2	5.2	70	0.23	n.a.
Non-contributory	n.a.	1.6	10	0.01	n.a.
Total	30.9	18.1	n.a.	0.83	55.1

[1] Discounted present value of projected future spending through 2075.
Memorandum: Labor force in 2000 = 3.12 million.

II.2 The mandatory pension scheme for private sector workers – IDSS.

The Dominican Social Security Institute or IDSS[5] is governed by a basic law enacted in 1947 (*Ley No. 1896*) along with its subsequent amendments. The IDSS offered a variety of benefits including maternity, sickness, accidental death and basic health care. Pensions were of the defined benefit type, although it is important to note that the survivorship benefit was paid in the form of a lump sum rather than an annuity. The following rules applied in the cases of old age, survivorship and disability with the following characteristics:

- **Old age pension** is paid at age 60 with minimum 800 weeks of contributions. Reduced pensions are applicable for those employees with between 400 and 799 weeks of contributions. The minimum pension payable varies over time and the maximum payable is 70 percent of earnings. The accrual formula for old age pensions is 40 percent of average earnings during last 2 years, plus 2 percent of earnings for each 100 weeks of contribution in excess of 800 weeks subject to the maximum shown above. Pensions are not automatically indexed.

- **Survivor's benefit** is a lump sum of 60 percent of average final earnings, payable to widows of insured persons or to orphans under the age of 17, subject to a minimum of 20 weeks contributions in the last year and provided the insured person was incapacitated by illness or was a pensioner at death. There is also a funeral grant of 50 percent of annual salary.

- **Permanent disability** pension benefit is 40 percent of average earnings during the last 2 years, plus 2 percent of earnings for each 100 weeks of contribution in excess of 250 weeks. It is paid subject to the loss of two thirds or more earning capacity with 250 weeks of contributions (or a reduced pension if fewer contributions have been made). There is no state assistance to aid recovery, or in any way encourage a return to work.

[5] Instituto Dominicano de Seguridad Social.

In practice, the benefit formula is largely irrelevant. Since benefits are not indexed automatically and the ceiling results in a highly compressed distribution of wages at low levels, most workers end up receiving the minimum pension regardless of how many years of contributions they have registered. This tendency is reinforced by the non-linear accrual rate schedule (2.6% the first 16 years and 1% for each subsequent year). The minimum pension in turn, is determined on an ad hoc basis by the government so that benefits ultimately depend on government decree and not on the benefit formula. In 2001, 97 % of pensioners received the minimum pension.

The financing of these benefits is based on contribution revenues. IDSS nominally receives contributions amounting to 12.5 percent of workers' wages—consisting of 7.5 percent from the employer and 2.5 percent each from the employee and the government.[6] The payroll tax is applied only to low income workers by virtue of a ceiling which differs from standard practice by exempting individuals with earnings above this level rather than deducting contributions up to the prescribed ceiling.

Another important feature of IDSS financing is that contributions are not separated according to particular program such as health or pensions. Prorating the contribution based on expenditures yields a contribution rate of roughly 3 percentage points (excluding the government contribution). While a small reserve exists, the scheme has been run essentially on a pay-as-you-go basis. Our own estimate of the obligation that already exists is about one quarter of GDP.

The scheme is still immature in that coverage had expanded such that the ratio of contributors to pensioners had still not stabilized. The ratio of contributors to pensioners in 2001 was approximately 17:1. This has allowed the relatively small number of pensioners in the system to receive a minimum pension that reached almost 60 percent of the minimum wage and the covered wage respectively in 2001.[7] In the long run, this benefit level could be financed only if contribution rates were to be increased significantly. Given the nature of the ceiling, this would simply continue the current practice whereby the current take home pay of a low income worker is reduced in order to pay the pension of a retired low income worker.

More importantly perhaps, the old system provided for arbitrary internal rates of return between members of the scheme, mostly from workers with longer periods of contribution to workers with fewer contribution years. Combined with the fact that the ultimate benefit was simply at the discretion of the government, it is not surprising that contributions would be viewed as a pure tax.

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[6] The government, however, has rarely paid its 2.5 percent share and the IDSS estimates that the liability of the government on this account is over RD$2.5 billion (about US$150 million)

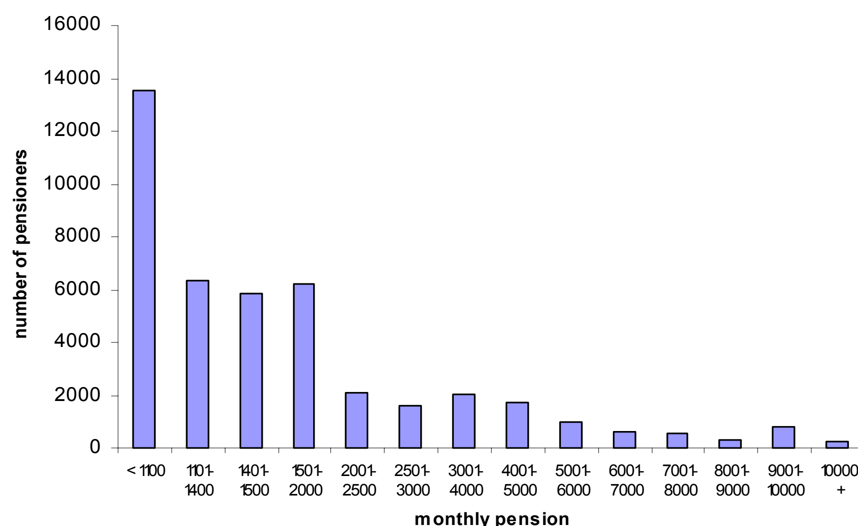
[7] According to Blondet (2001), the minimum pension was increased to 1500 pesos per month in January 2001. However, payments continued at the prior level of 1216.8 until a retroactive payment was made to cover the differential between March and November of that year.

In summary, the IDSS pension scheme suffered from several shortcomings. First, participation was restricted to the lower half of the formal sector labor force due to an anomalous ceiling policy that excluded workers with incomes as low as 1.6 times the minimum wage and above. Second, for those that were covered, there was essentially no link between what they paid into the system and what pension they ultimately received. In fact, the worker that contributed only for the period required to earn pension rights and with the minimum reported income would receive the best internal rate of return. Finally, as the system matured, the contribution rate required to pay the same level of replacement rate (average pension as a share of average covered wage) would rise significantly. Alternatively, the benefit level would have to be reduced. From the point of view of participating workers, this would be a real risk given that the ultimate level of the benefit depended so heavily on the government decision as to the minimum pension level.

II.3 The pension schemes for civil servants, military and police.

In 1981, Law no. 379 was passed establishing a new pension scheme for civil servants, the Pension Fund for Public Employees or FJPEP[8]. With 20 years of service, a public employee can retire at the age of 60 with a pension that is a function of a defined benefit formula with relatively high accrual rates on the order of 3 percent per year of service with a maximum replacement rate of 80 percent. The calculation of the benefit takes into account the average salary during the final three years. An employee that achieves 30 years of service can retire at any age without penalty. The formula is of little relevance however, as the vast majority of pensioners receive the minimum pension.[9] Due to a significant number of special pensions awarded by the President on a discretional basis at high levels, the average pension is 2,500 pesos per month while the median is only 1,400.

Figure 2 Distribution of civil service pensions by amount, 2002



[8] Fondo de Jubilaciones y Pensiones de los Empleados Publicos.

[9] A different, lower minimum pension is applied for pensions granted prior to 1996. Pensions awarded since that time follow the minimum public sector salary which reached 1,500 pesos per month in 2000 and was raised to 1650 pesos per month in 2001.

The scheme is financed on a purely pay-as-you-go basis by employee contributions of 4 percent of salary with the remaining deficit covered directly from the central budget. In 2001, spending from the central budget totaled around 0.3 percent of GDP and the pension obligations already incurred were more than a third of GDP. A significant share of this was due to the fact that the government had assumed the pension liabilities of several recapitalized state enterprises.

It is important to note the high turnover that characterizes the civil service in the Dominican Republic. Typically, a large proportion of the staff – reportedly more than half – is replaced with each change of administration. This has several implications for the pension system, since tenure affects pension rights accumulated by employees and pensioners. The effect is to generally reduce pension liabilities, assuming that a significant group of workers never reaches the 20 year minimum. It also may reduce the average pension for retired civil servants given that they are unlikely to have spent their full career in the scheme. Due to deficient recordkeeping, these data are not readily available.

Information systems and internal administration of the central government scheme has been weak throughout the history of the program. The process of obtaining a new pension can reportedly take several years while a large number of pensioners still listed on the rolls are thought to have died, in some cases many years ago. According to government officials, unwarranted payments could represent more than ten percent of total spending.[10]

In parallel, the decentralized government sector pays pensions to approximately 13,000 people. On average, their pensions are substantially higher than those of central government employees. Also, the ratio of contributors to pensioners (the support ratio) is extremely low at about 1.2 compared to 10 contributors per pensioner in the central government.

Finally, a separate scheme, the Social Security Institute for the Armed Forces and Police or ISSFAPOL[11] set up in 1982 pays pensions to military and police. While membership is small relative to the other schemes, expenditures are high, probably reflecting a lower effective retirement age and a more generous benefit formula. Like the other schemes, it is financed on a pay-as-you-go basis with a six percent contribution from employees. Unfortunately, more detailed information and data for this scheme are not available.

II.4 Voluntary, supplementary and non-contributory schemes.

Although data do not exist in light of the lack of supervision, voluntary private pension plans are thought to cover as many as 100,000 members, mostly in large, international firms. In addition, supplementary special schemes have been set up for certain sectors including construction, hotels and restaurants, and ports. Some public institutions also offer supplementary pensions to their workers. For example, the large number of staff of the IDSS is covered under a generous defined-benefit plan that is largely unfunded. Similarly, the Ministry of Education was permitted to set up a special pension scheme for its employees in 1997. The sum total of the liabilities in this last group of schemes – for which

[10] Interview with Ms. Keymar Barra.
[11] Instituto de Seguridad Social de las Fuerzas Armadas y la Policia Nacional.

the central government will ultimately become responsible, is unknown. A major task facing the new pension supervisor is to oversee an orderly liquidation of most of these schemes in accordance with the law. This will require actuarial studies, audits and a systematic winding up of dozens of individual defined benefit plans in relatively short order.

Finally, the agency responsible for public health, SESPAS[12], manages a small, non-contributory pension program targeted at the destitute elderly.[13] This program pays 300 pesos per month to approximately 9,000 elderly persons. Another program, created recently, provides daycare facilities for poor elderly persons. By 2002, 28 "hogares de ancianos" had been opened serving approximately 1,300 elderly poor.

II.5 Objectives and scope of the pension reform.

The last sections described a fragmented pension system that evolved in piecemeal fashion reflecting the fact that a coherent vision of national pension policy had never been formulated. Why, for example, should only low income workers in the private sector be covered? What was the rationale for a separate scheme for civil servants? The system described is also characterized by an extreme dependence on sporadic and unpredictable decisions of the central government with respect to minimum pension levels. Finally, and related to this second point, the link between the contributions of members of the different schemes and their eventual benefits was practically non-existent.

The sections of the Social Security Law 87-01 that introduced a new pension system to the Dominican Republic sought to remedy these problems. Three important objectives[14] can be noted as follows:

- First, the objective of gradually expanding coverage within a coherent legal framework and with appropriate policy instruments.
- Second, the integration of splintered regimes into a unified system.
- Third, financial sustainability through a shift to significant prefunding of the system.

The first two objectives implied replacing the existing institutions and programs with new ones. With the exception of the military, the legislation envisioned a unique system that would eventually cover public and private sector workers at all levels of income. Recognizing the difficulties of incorporating the self-employed into such a system, a second contributory scheme was added in order to provide extra incentive, via public transfers not yet defined, to attract this important part of the labor force. The rest of the population would be protected through a non-contributory scheme subject to an income test.

Note that all of this could have been done within the context of a traditional defined benefit model financed on a pay-as-you-go basis. However, a third objective was sustainability. In

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[12] Secretaria de Estado de Salud Publica y Asistencia Social.

[13] The program is theoretically targeted at very old persons (90 plus years old) but in practice, actual age is not strictly monitored with an emphasis placed on need.

[14] The objectives of the Social Security reform as stated in Article 3 of the legislation go beyond the ones mentioned here but include each of these.

light of the target benefit levels, contribution rates would have to rise sharply as the scheme matured if it were to be operated on a pay-as-you-go basis. The alternative was to accumulate funds that could be used to pay future benefits and thereby improve sustainability. Once there is a decision to prefund, policymakers face a choice between centralized prefunding whereby a public entity would manage the accumulated savings of workers and a decentralized arrangement which allowed private sector firms to compete for the right to manage individual accounts. The relative advantages of each model were debated in the years leading up to passage of the final legislation and reflected the well-known international debate on the subject.[15] Proposals included both approaches, but ultimately, the decision was made to move to an individual accounts system.[16]

Noticeably absent from the list of principles enshrined in the Social Security Law are those related to individual incentives. Yet sustainability also requires a certain amount of participation by individuals offered reasonable incentives, especially when there is ample scope for fleeing to a large informal sector. As discussed in the next section, state guarantees of minimum pensions and their costs will also be affected by incentives, if for example, individuals are effectively penalized for contributing regularly by losing public transfers.

To summarize, as opposed to the situation in many other countries that have shifted to a new model of pension provision that relies on full funding and private, individual accounts, the pension scheme in the Dominican Republic had remained marginal in terms of its fiscal impact and the ratio of contributors to pensioners was still high. The impetus for reform was due to the perception that the existing schemes had been poorly administered and designed and required an overhaul.[17]

The reform sought to correct the problems of the existing, fragmented system by establishing an integrated pension scheme that would cover all workers with enough income to save for old age. The poorest households would also be covered through the new, expanded non-contributory scheme. Sustainability was addressed by shifting to a funded scheme of individual accounts, although state guarantees offset this shift by creating new implicit liabilities. The decision to rely on a defined contribution approach for the contributory scheme should have the effect of creating a stronger link between benefits and contributions than was evident in the old schemes. However, individual incentives within the system have received less attention in system design than might have been warranted.

The next section describes the new pension system and assesses certain key elements in the design drawing from international experience.

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[15] See World Bank (1994).

[16] By 1999, two reform proposals had emerged. The Government proposal maintained a contributory and partially-funded, defined benefit scheme to be run by a government entity supplemented by individual accounts. The Senate proposal closely resembled the ultimate legislation that was passed and eliminated the public defined benefit element in the system.

[17] The reform appears to have been essentially motivated by internal actors with minimal involvement and no related lending from multilateral institutions such as the World Bank or Inter-American Development Bank. Although both institutions have been involved in the health sector, this activity was not directly related to the reform. Rather late in the process, the IDB approved a technical assistance loan of US$ 5 million to be used during the initial implementation process.

III. The new pension system

III.1 Basic scheme design, coverage and transition arrangements.

The new pension system is made up of three elements corresponding to three categories of working age and elderly persons. The first group is the elderly that are currently poor and those workers who have incomes below the minimum salary and therefore are not obliged to participate in a contribution-based scheme. These individuals would be served by the 'subsidized regime', a social assistance scheme financed from general revenues, targeted to poor households with elderly individuals.

The second and third components of the system are based on contributions that are accumulated along with investment returns while the individual is working (accumulation phase) and are then converted into price-indexed annuities or scheduled withdrawals (payout phase). The 'subsidized contributory regime' is designed to cover the self-employed with incomes above the minimum salary. They will have to make the employee contribution (see below) and the law commits the government to make an additional contribution that is as yet undefined. Importantly, the contributory schemes have corresponding minimum pensions that are set at different levels and with different eligibility criteria.. Financing of the minimum pension within the contributory scheme relies on a solidarity fund contribution set at 0.4 percentage points of the covered wages.

The Social Security Reform law that took effect on August 1, 2001 envisions a multi-stage implementation.[18] The affiliation to the contributory scheme began in February 2003, (with flows into individual accounts in July) 18 months after the law was enacted. The non-contributory, social assistance scheme is to begin operating by August 2004 and the subsidized, contributory scheme would begin by August 2006.

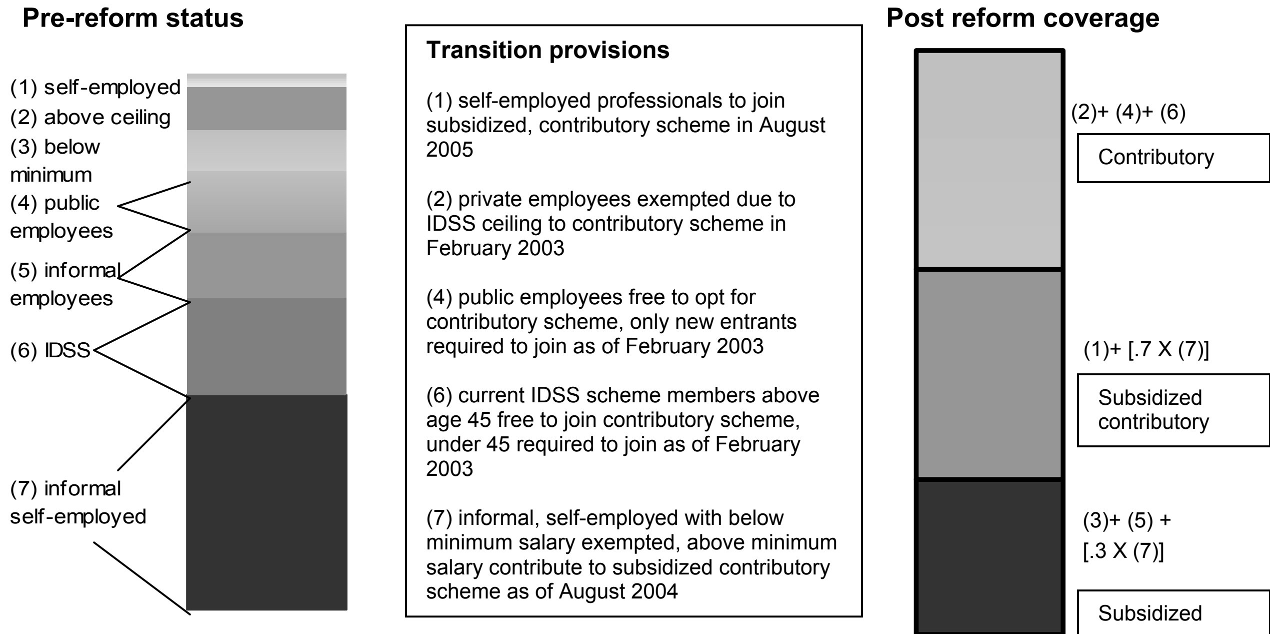
Figure 3 compares coverage before and after the reform. The shaded areas represent the proportion of the total labor force included in each program or not covered depending on the type of worker. For example, prior to reform, the area labeled (6) shows low income employees in the private, formal sector that were covered by the IDSS. Another group, labeled (2), was excluded due to the fact that their salaries were greater than 4,000 pesos per month. Public employees participated in a separate scheme and the rest of the labor force was in the informal sector.

In theory, each of these seven categories of workers would be covered by one of the three pension schemes of the new system. All formal sector employees, both public and private sector, would eventually belong to the contributory scheme (upper right shaded portion). Informal sector workers with incomes above the minimum wage would be encouraged, through matching contributions, to participate in the subsidized contributory scheme. In this representation, we assume that two thirds of these workers are covered. The actual figure will depend on several factors, especially the level of incentives provided. Finally, the remaining informal sector workers with low incomes would be eligible for the non-

[18] Article 8 of Law 87-01.

contributory scheme upon reaching old age. The figure assumes that the lowest quartile of the income distribution would fall into this category.

Figure 3 New pension system in the Dominican Republic



Source: Estimates based on Central Bank (2001) and Social Security legislation. See Annex table.

The system as described here appears to address each of the main population groups within a coherent framework, explicitly recognizing the limitations of a purely contributory scheme. This is especially important given public policy objectives that include poverty alleviation for those already too old to benefit from a new program for long term saving. However, this graphical representation masks at least two important practical issues that will ultimately determine whether the new system will achieve its stated aims and in turn, will produce results in terms of real coverage that differ from those shown in the figure.

The first complication that arises with this design is related to the participation of informal sector workers in the subsidized contributory scheme. Historically and throughout the region, participation of the self-employed in formal pension schemes has been low. Some countries, such as Chile, have even opted to make contributions voluntary for this group. The subsidy required to encourage such workers to participate in light of strong preferences for liquidity and high costs to moving into the formal sector may be very large. Furthermore, the higher the level of this subsidy, the greater the incentive for small firms operating in the formal sector to leave it, thereby moving their workers from the contributory scheme to the subsidized contributory scheme.

A second complication arises with the practical aspects of administering a broad, means-tested scheme for the elderly. In addition, such a scheme would become increasingly expensive as the population ages, assuming that a quarter or more of the elderly were to

qualify for this benefit. And the higher the benefit paid, the greater the implicit tax on those in the informal sector that contribute to the subsidized contributory scheme.

It is important to note that Figure 3 represents a long term vision of the system that would follow a long transition period. The box in the middle of the figure describes the rules for different groups of workers. Perhaps the two most important aspects of the transition are the mandate for all private sector workers under age 45 and all new civil servants to contribute to the new scheme. This effectively closes the old pay-as-you-go schemes permanently. This strategy avoids the situation, observed in Argentina, Colombia and Peru, where parallel schemes will continue to exist indefinitely despite the fact that only a small share of new labor market entrants choose to enter the pay-as-you-go scheme.

Throughout the region, countries have mandated participation in the funded system differently. Table 2 below compares the rules in nine Latin American countries that have privatized part or all of their pension systems. Six countries, including the Dominican Republic, phase out the old public scheme while three – Argentina, Colombia and Peru – allow workers to continue in the old pay-as-you-go scheme. Mexico forces all private sector workers to join the new scheme, but guarantees contributors in the old system at the moment of the reform a benefit that is not lower than what would have been received in the public scheme. Taking this guarantee into account, the mandate for switching imposed on private sector workers appears to be most restrictive in the case of the Dominican reform.

Table 2 Rules for participation in nine Latin American countries

	Who must switch to the new funded scheme?	Is separate civil service scheme phased out?	Are the self-employed covered?	How are past contributions credited?
Argentina	No one, it is optional	Yes	Yes	Supplementary public pension
Bolivia	All workers	Yes	No	Recognition bonds
Chile	New labor market entrants only	Yes	No	Recognition bonds
Colombia	No one	No	No	Recognition bonds
Dominican Republic	All new public and private sector workers and private sector workers under age < 45	Yes	Yes, with subsidy	Recognition bonds
El Salvador	All workers ages 36 to 55	Yes	No	Recognition bonds
Mexico	All workers (but with guarantee)	No	No	Guaranteed PAYG benefit
Peru	No one	Yes	No	Recognition bonds
Uruguay	All workers < age 40	Yes	Yes, if under age 40	Supplementary public pension

Source: Adapted from Devesa-Carpio and Vidal Melia (2001).

In all countries, workers who switch from the old to the new scheme are compensated for the years that they contributed to the former. Like most countries, the Dominican reform utilizes the concept of a 'recognition bond' to deal with this liability. First introduced in the context of the Chilean reform, this special instrument is designed to shift the accrued pension benefit from the old to the new system by calculating the present value of what has been earned to date and issuing a special bond that will eventually be added to the value of the worker's individual account.[19]

Civil servants (federal level) are covered by the reformed system in all but Mexico, where legislation is under preparation to bring in federal government employees. Only three countries, including the Dominican Republic, have mandated participation by the self-employed. Aside from the Dominican Republic, no country provides a direct subsidy to self-employed contributors. However, Colombia and Mexico do subsidize low income workers financed through a solidarity tax on higher income members of the scheme and a matching state contribution, respectively.[20]

III.2 Organization and governance structure.

An autonomous and representative body was created by the Social Security Law to provide overall governance to the new system. The National Social Security Board or CNSS[21] is a tripartite body and also includes representatives from a variety of other sectors. The voting members include the Ministers of Labor and Health, the Governor of the Central Bank that represent the Government as well as representatives of workers and employers. Non-voting members include the general manager of the CNSS and the following representatives:

- The Dominican Social Security Institute (IDSS)
- The National Housing Institute (INAVI)
- One representative of medical professionals
- One representative of nurses
- One representative of the Medical Association of the Dominican Republic
- One representatives of (non-medical) professionals
- One representative of disabled and unemployed persons
- One representative of the microenterprise sector

The CNSS oversees two supervisory agencies, the treasury and the office in charge of providing information and serving as an advocate for members of the scheme. The first supervisor is responsible for the health and work injury subsystems while the second deals exclusively with the pension sector. The Social Security Treasury sends out invoices to employers, receives payments through the banking system and distributes total collections to each individual branch of the social security program. It contracts special entity to collect and store individual and employer records (see Section on collection).

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[19] See Section III.4 below for the calculation of the recognition bond.

[20] We are not aware of any research on the impact of these subsidies on the participation of informal sector workers.

[21] Consejo Nacional de Seguridad Social.

A general manager is responsible for execution of the decisions of the CNSS, submission of the budget, day to day oversight of the above-mentioned institutions, completion of studies required for the implementation of the law and submission of regulations for approval by the CNSS.

For the pension system, the key actor in terms of governance is the supervisor. Nine of the twelve Latin American countries that have introduced mandatory, private pension schemes have opted for a specialized regulator. The arguments in favor of a specialized regulator stem largely from the fact that participating private firms must be sole-purpose in nature and because, as part of a mandatory system, are subject to regulations and entry criteria that are typically stricter than what is applied in the rest of the financial sector.[22]

In the case of the Dominican Republic the specialized supervisor is the Superintendency of Pensions or SIPEN. The start up costs of the new agency have been covered by a central budget allocation in 2002, but in the future, the SIPEN is to be financed by a levy on participants of 0.1% of salary. The new Superintendent, Ms. Persia Alvarez, was appointed in January 2002.

Table 3 shows that staff size normalized by the number of affiliates varies widely ranging from only 12 in Colombia, where supervision is not separate, to more than 70 in Peru. The planned figure for the Dominican Republic would tend towards the high end of this range. On the other hand, the size of the Dominican supervisor in terms of staff per pension fund falls in the middle of the range, at least initially.[23] Budgets are difficult to compare at this point given that they include a significant amount of start-up costs in the initial year of operation.

Table 3 Comparison of budget and staff of Latin American pension supervisors

Country	*Employees*	*Budget*	*Employees/ fund members*	*Employees/ funds*
	number	*$m*	*per million*	*number*
Argentina	183	12.5	31	10
Bolivia	21	1.9	64	11
Chile	134	7.0	23	10
Colombia*	30	—	12	3
Costa Rica[1]	66	3.8	63	7
Dominican Republic[1]	75	5.0	n.a.	8
Mexico	214	26.3	19	13
Peru	85	5.1	74	14
Uruguay*	21	—	46	4

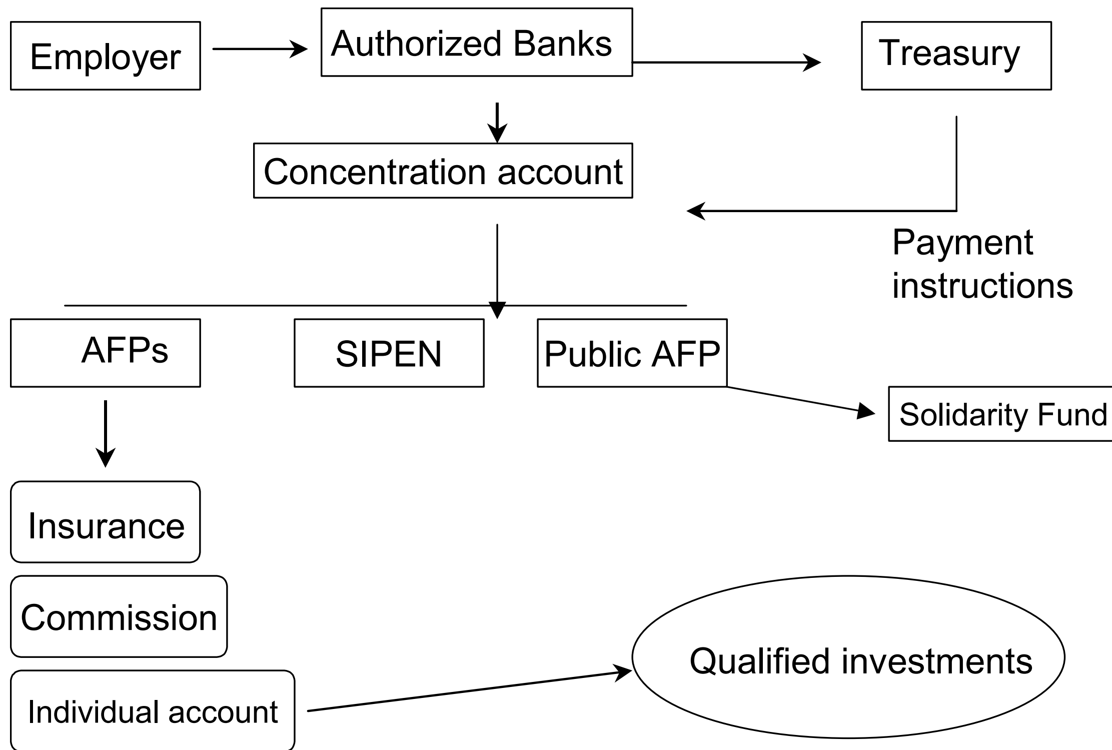
* Pension supervisor is not a specialized entity.
Source: Demarco and Rofman (1999).
1/Figures refer to 2003.

[22] There are other arguments from a more practical perspective including deficiencies in already existing regulatory agencies and the possibility that as part of an integrated structure, this long term saving instrument may be subject to pressure from shorter term considerations – for example, crises in the banking sector.

[23] As discussed below, the initial market is likely to include at least nine pension fund managers. However, consolidation and mergers could eventually result in a much higher ratio of staff per fund.

In addition to the supervisor, the success of the new pension scheme will depend heavily on how well the new Social Security Treasury functions. The Treasury oversees a complex process of collection and recordkeeping that is the backbone of the system. Figure 4 below provides a schematic representation of the flows of funds in the system.[24]

Figure 4 Payment flows in the new funded pension system



Among Latin American countries, some like Chile, have opted for a decentralized system of recordkeeping[25] while others, such as Argentina and Mexico have centralized this function. In the former case, employers pay contributions directly to the pension funds that in turn are responsible for maintaining records that are monitored by the supervisor. Centralized arrangements vary. In Argentina, one agency is responsible for collecting income taxes and a series of payroll contributions for social insurance programs including the pension system. In contrast, Mexico established a centralized recordkeeping and collection system with the sole purpose of handling the flows of information and funds in the new pension system. Another important difference is that the Mexican agency is owned by the industry and set up as a non-profit company.

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[24] Note that the concentration account is held by a qualified commercial bank that has been chosen through an annual lottery.

[25] In 2002, a new, Internet-based system for collection and recordkeeping known as PREVIRED was being introduced in Chile. Proponents claim that the new system reduces employer administration costs significantly and that the system is generally more efficient.

In the new Dominican system, the centralized function is monitored by what is essentially a public institution – the Treasury. However, like the Mexican system, a non-profit, private foundation is established to handle daily transactions and maintain the database. The Treasury is ultimately responsible for sanctions and for ensuring that funds are correctly allocated to each of the individual programs within the social security system.

A third entity was also established in accordance with the law. This was the Direccion de Informacion y Defensa de los Afiliados or (DIDA). As its name suggests, it is encharged with providing information to affiliates and defending their interests as consumers. This initiative to promote better public understanding of the new social security system and to serve as a permanent source of information to participants is unique in the region. Experience in other reforming countries with these efforts has been mixed and the information provided through private sector marketing campaigns has tended to dominate during the first years of the reform.

There is a particular need to ensure that workers facing a choice in 2003 between their current pension scheme and the new one are well informed. As of December 2002, for example, there had been no effort to provide information to several thousand civil servants who will have the option of staying in their defined benefit scheme or opening an individual account at one of the new private pension funds.

These institutions are responsible for implementing an ambitious new system and were facing the challenge of being ready for the introduction of the contributory scheme in February 2003. At time of writing, each was in the process of hiring staff, purchasing hardware and software, setting up offices and dealing various other practical issues.

In parallel, an intense effort was under way to issue detailed regulations on issues ranging from rules on advertising by private pension funds to investment limits. Along with important parameters already specified in the legislation, these regulations will define the new contributory scheme. For our purposes, these issues can be usefully grouped into those affecting the *accumulation* and *payout* phases.

III.3 The accumulation phase.

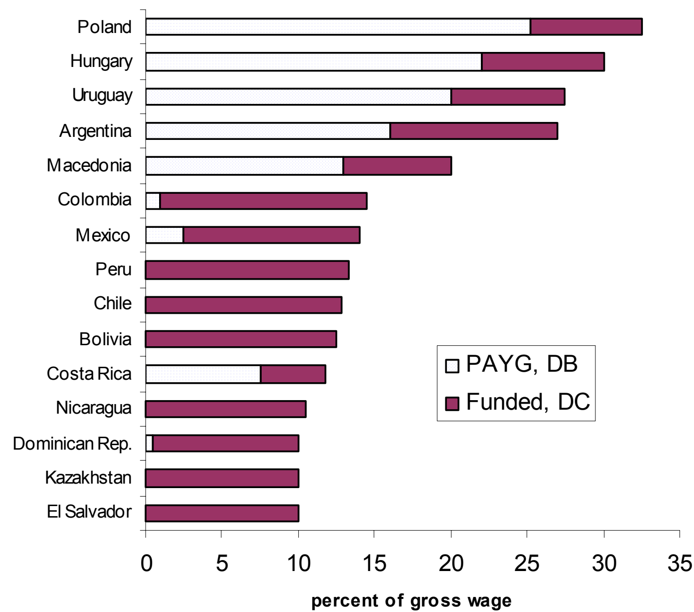
The key policy choices regarding the accumulation phase of a defined contribution scheme include: (i) the level of total contributions (ii) mandated insurance coverage and commissions that reduce the net amount to be invested (iii) the structure of the market for providers and (iv) investment rules.

III.3.1 Contribution rates.

A key policy choice is the mandated contribution rate for the pension system. In some countries, this has two components, corresponding to separate public and private schemes. (The dark shaded portion of the bar for each country is the contribution that goes to the private, funded scheme while the lighter portion is the contribution to the residual public, pay-as-you-go scheme). Figure 5 compares contribution rates in a number of countries in

Latin America and Eastern Europe that have engaged in systemic pension reforms.[26] Note that with the exception of Costa Rica, most of the countries that have opted to maintain a pay-as-you-go defined benefit scheme have total contribution rates above 20 percent. These correspond to higher benefit targets (not shown here). The Dominican Republic joins Bolivia, Colombia, Chile, El Salvador, Mexico, and Nicaragua in setting a relatively low contribution rate that is used exclusively to finance the individual account balance.[27] This policy implies moderate benefit levels under reasonable assumptions. This topic is discussed in Section III.4.

Figure 5 Contribution rates for public and private pension schemes in Selected countries that have implemented systemic reforms



Source: Adapted from Palacios and Pallares (1999). Contribution rates in Argentina have varied in recent years.

III.3.2 Charge structure and limits.

The contribution rates shown in Figure 5 refer to the percentage of the gross wage that is used to finance the pension system. What ultimately matters in terms of accumulating a balance to be converted into a stream of retirement income however, is the share of the total wage that goes directly into the individual account to be invested. The share of the total contribution that ends up invested varies across countries depending on the cost of mandated insurance, other charges, and the commissions charged by the private (and sometimes public) firms offering the service.

[26] Note that the contribution rate in the Dominican Republic increases gradually over a five year period until reaching 10 percent.

[27] Caveats here include the solidarity fund contribution in Colombia and the Dominican Republic and other minor differences.

With the exception of Mexico, all Latin American countries opting for systemic pension reform have privatized the provision of disability and survivors insurance. The company administering the pension fund is generally required to purchase (or self-insure) a policy that provides an annuity (specified by law) in the case of death or disability. In the event that one of these contingencies arises, the insurer is required to provide the difference between what is in the individual's account and what is required to purchase the annuity. The premium charged comes out of the total contribution to the system.

The Dominican Republic has taken a unique approach to the question of insurance charges. Other countries have defined the benefit level that must be provided and left it up to the market to determine the premium that would be charged. In the new Dominican system in contrast, both the benefit level (the product) and the price are defined with the latter being limited by law to 1 percent of wages.[28]

The second important charge is for commissions to the private firms that administer the system. Most countries that operate this type of system have restricted only the structure of charges, in an effort to make these more transparent to workers.[29] Like most countries, firms in the new Dominican system will have to charge on contribution flows rather than on balances, although a performance related fee based on investment returns is also permitted. Only El Salvador and the Dominican Republic have opted for caps on commissions.[30] In El Salvador, the total charge for commissions including insurance was limited to three percent of wages by law. In the Dominican Republic, the charge for commissions is set at 0.5 percentage points out of the total contribution of 10 percent.

The limits were undoubtedly an attempt to answer critics concerned with the possibility that high commissions would reduce pensions. However, this charge structure and in particular, the limits on insurance premia and commissions has several implications. First, if the limits are too low, it might discourage private providers from entering the market at all. Second, it may result in artificially high market concentration to the extent that there are economies of scale that prevent smaller firms with differentiated services from participating due to their inability to charge more than the legal limit. In Table 4, these limits are compared to the actual experience with charges in other countries.

It shows that the level of charges envisioned in the legislation is lower than what has been observed in practice in other markets in the region, including some that are significantly larger than the projected market in the Dominican Republic. It should be noted that the figures are difficult to compare given the different levels of promised benefits in the insurance component and differences in the regulatory framework across countries.[31]

[28] Demarco and Grushka (2003) describe the situation in other Latin American countries and analyze the determinants of the premium.

[29] Mexico allows for a wide variety of charge structures in contrast to most of the systems in the region.

[30] Kazakstan has also imposed caps on commissions in its newly privatized system.

[31] In the case of Bolivia, charges are cross-subsidized through charges on a pool of assets created through the sale of a number of important state enterprises. It should also be noted that the two

Nevertheless, the total charges are higher than the limits set in the legislation both in terms of the commissions as well as the sum of the commissions and insurance.

Table 4 Comparison of charges in Latin American private pension schemes

Country	Total fees as % of wages	Disability and death and other	Commissions as % of wages	Net contribution as % of wages
	a	**b**	**c=a-b**	**d**
Argentina	2.26	0.41	1.85	8.74 (2.74)
Bolivia	2.21	1.71	0.50	10.00
Chile	2.43	0.67	1.76	10.00
Dominican[1] Republic	2.00	1.00	0.5[2]	8.00
El Salvador	2.98	1.40	1.58	11.02
México	4.37	2.50	1.87	6.10
Peru	3.55	1.27	2.28	8.00
Uruguay	2.75	0.81	1.94	12.25

1. Fees include 0.4% for solidarity fund, 0.1% for supervision, and 0.5% commissions.
2. Commissions also include up to 30 percent of returns above a certain benchmark.

Data for June 2002. For Argentina, figure assumes return to 11% contribution.
Source: AIOS (2002).

III.3.3 Market structure for providers.

Latin American pension systems have been based on personal plans whereby individuals choose from among specialized providers in contrast to some arrangements where employers make these arrangements or other groups such as unions may set up closed funds. Another key common feature of the pension fund market in Latin America is that the participating institutions must be dedicated exclusively to the sole function of managing these funds, limiting economies of scope that could otherwise appear. Finally, the industry is subject to significant entry criteria that limit entry.

There appear to be significant economies of scale in the industry and combined with the characteristics mentioned above, this has led to concentration in the market as shown in Table 5 below. Not surprisingly, the number of providers tends to be larger when the absolute size of the market is also larger. The number of affiliates per fund manager ranges from more than two million in Mexico to as low as 100,000 in Costa Rica. The latter figure is likely to rise however, as consolidation takes place.

The estimated number of members during the initial years of the new system in the Dominican Republic is based on a projection that takes into account the younger members of the IDSS who are forced to join, workers previously excluded due to the IDSS ceiling and a fraction of public employees. The actual figure could be larger or smaller, but the relative

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pension fund providers operating in Bolivia were selected based on an international auction that included a 5-year concession.

size of the market would not be significantly changed. With around a million potential affiliates in the initial years, the size of the market is more similar to El Salvador or Uruguay suggesting that the initial number of providers will be reduced, perhaps by half. This follows a similar pattern throughout the region.

Table 5 Market for pension fund managers in nine Latin American countries

Country	Affiliates	Average monthly wage in US$	Number of pension fund managers	Affiliates per pension fund manager
Mexico	28,044,152	487	12	2,337,013
Argentina	8,977,362	230	12	748,114
Chile	6,480,819	456	7	925,831
Peru	2,877,081	531	4	719,270
Costa Rica	1,044,568	250	9	116,063
El Salvador	956,583	312	3	318,861
Dominican Republic*	927,082	244	9	103,009
Bolivia	702,808	276	2	351,404
Uruguay	606,118	463	4	151,530

Source: AIOS (2002) and SIPEN (2003). Data for DR for September 2003.

As of September 2003, there were nine pension fund managers operating. The regional pattern of consolidation along with the impact of caps on commissions is likely to reduce this figure during the first decade of operation. This would eventually restrict competition and increase the potential for collusion. It could also lead to the concentration of ownership of domestic capital market instruments by the private pension funds.

Market concentration will also be increased by the presence of an AFP established by the state-owned Banco de Reservas that is expected to play a dominant role in the system. In addition to its participation in the contributory scheme, it will be responsible for the management of the accounts held by self-employed workers in the subsidized contributory scheme and will manage the solidarity fund. The presence of a public sector institution in the new system could distort the AFP market if it is not forced to operate on a level playing field or if there is an implied state guarantee.

III.3.4 Regulation of investments.

In contrast to defined benefit schemes in the Anglo-Saxon world that operate under prudent person rules that allow wide discretion to pension fund managers, all of the Latin American and East European private pension schemes impose portfolio limits. These are justified on several grounds including state guarantees that would otherwise lead to moral hazard and the need for transparency and frequent valuation which dictates investment in securities that are regularly traded on regulated markets.

There is also an underlying public policy objective embodied in portfolio limits, however. All mandated pension schemes operate with a range of target benefit levels, implicit or explicit. These are often expressed as replacement rates whereby the annuity generated by the scheme is compared to the earnings from which the individual financed his consumption while still working. In a defined contribution scheme, where the annuity depends on the balance accumulated which in turn depends on the investment return (along with the contribution rate, the number of contributions made and the age of retirement), portfolio limits restrict the range of possible outcomes.[32]

Most Latin American countries have imposed the same asset allocation restrictions on all members of the system. This kind of system may be appropriate when (a) the system has just started to operate and consumers have little information (b) regulators are new and inexperienced and (c) when restrictions on foreign investments combined with thin domestic capital markets effectively limit the range of options that could be considered. On the other hand, it ignores individual preferences and reduces competition that would result from increased product differentiation in the industry.

The Chilean system operated under a single portfolio rule during its first two decades. However, recently, it has introduced limited multiple portfolio options from which affiliates can choose in order to match their preferences in terms of risk and return. They are offered five portfolio choices that range from relatively high to very low volatility. Individuals approaching retirement age (within 10 years) are not permitted to choose the most aggressive portfolio. Workers that do not actively select a fund are assigned a portfolio choice according to their age (i.e., younger workers are placed in a fund with a larger share of equity instruments).

On the question of portfolio limits, the Dominican legislation appears to allow flexibility.[33] As of October 2003, pension funds were allowed, subject to detailed regulations, to invest in the following instruments:

> a) Term deposits and other securities issued by the banking institutions, *the BNV*, the *Instituto Nacional de la Vivienda* (INAVI), and the regulated and accredited S&Ls.
> b) Mortgage-backed instruments issued by the banking institutions, the *BNV*, the *Instituto Nacional de la Vivienda* (INAVI), and the regulated and accredited S&Ls.
> c) Debt issued by public and private companies.
> d) Publicly offered equity shares.
> e) Letters of credit, debt, and securities issued or guaranteed by foreign countries, central banks, foreign or international banking entities, traded in major international markets.
> f) Securities issued by the *BNV*, for the development of a secondary mortgage market.
> g) Funds for the development of the housing sector.
> h) Any other instrument approved by the *Consejo Nacional de Seguridad Social* (CNSS), with previous consideration and recommendation of the *Comisión Clasificadora de Riesgos*.

[32] Although this is the result of restricting asset allocation choices for individuals, these limits are not derived from an explicit range of target outcomes, for example, a price indexed annuity whose initial value lies between 40 and 80 percent for a worker that contributed his entire career and retired at 65.
[33] See Article 97.

This list allows for a wide variety of potential portfolio limits to be issued in the form of detailed regulations. It also leaves open the possibility of multiple portfolios.[34] Permitted investments must receive approval from a body composed of the financial sector regulators including the Central Bank known as the Risk Classification and Investment Limits Commission.[35]

However, the law also includes two elements that could lead to lower risk-adjusted returns for the members of the scheme. First, there is a clause which aims to force the fund managers to favor investments that 'maximize the impact on job creation, housing construction and industrial activity…". Although the same article specifies that these investments should have the same risk and reward profile to qualify, the experience with economically-targeted investment (ETI) is that assessing this can be problematic.
A second important consideration for a small country with limited domestic capital markets is the option of international diversification. While not prohibited, the law states that foreign investment will be permitted only with approval from the CNSS on a case by case basis. While other countries, most notably Chile, have achieved good rates of return without foreign investment, this was done in the context of major reforms in the financial sector and privatization that combined to increase the supply of high quality domestic securities. Despite these advantages, limits on the share invested abroad gradually rose and today are equivalent to thirty percent of the total value of a particular fund.[36]

There are many advantages of investment abroad. First, it would allow workers to diversify away from the country-specific risk and allow them to generate better pensions for a given level of risk tolerance. Second, it would mitigate problems arising from a shortage of domestic instruments into which pension funds can be channeled without compromising principles of liquidity and accurate valuation. Third, it would reduce the potential for conflicts of interest that would arise in a concentrated market where a few private pension funds were purchasing a large proportion of securities of local firms. Finally, it might reduce political risk observed in other countries whereby governments find it convenient to finance their deficits using the captive pension fund market.

On the other hand, there is increasing evidence of a positive synergy between gradually accumulating pension funds as long term investors and the deepening of domestic capital markets.[37] This has led some experts to suggest the use of foreign exchange derivatives as an alternative mechanism for diversification without requiring that savings go abroad.[38] However, while this achieves some of the diversification objective, it does not provide the other benefits mentioned above.

The magnitude of accumulated savings in the pension system, shown below in Figure 6, combined with the incipient nature of capital markets in the Dominican Republic provides a

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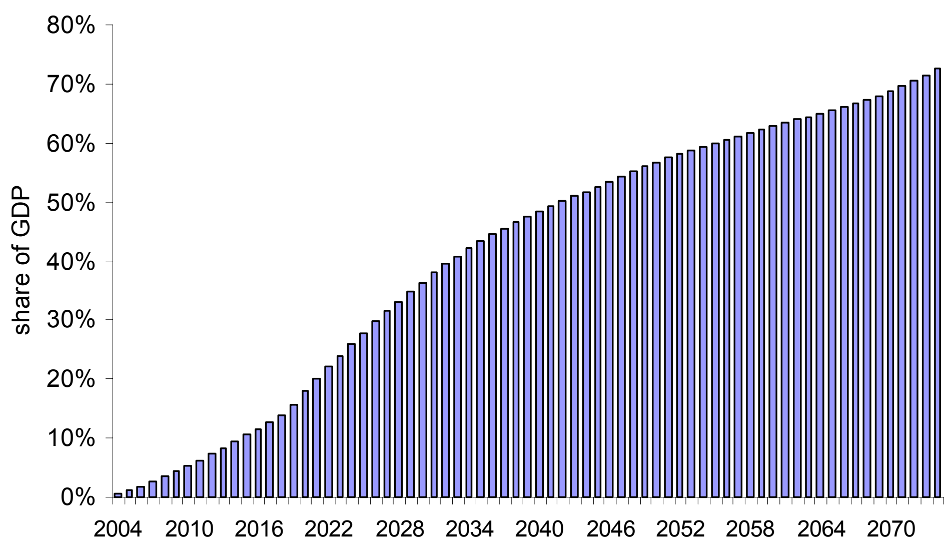
[34] Article 100.
[35] "Comision Clasificadora de Riesgos y Limites de Inversión", see Article 99.
[36] In the new "multifondo" arrangement, the share in a particular portfolio can be higher as long as the total combined assets of funds A-E do not sum to more than 30 percent foreign securities.
[37] See Walker and Lefort (2001) for empirical evidence for Latin America.
[38] Feldstein (2002) suggests this option and points out that domestic investments that increase corporate revenues at home lead to the externality of higher tax revenues for the government.

strong argument for encouraging investment abroad. This is not to say that a significant portion should not be attracted by local investments and contribute in this way to the growth of the economy. What is to be avoided however, is that pension funds worth more than a quarter of GDP and representing the retirement income of a large part of the labor force are not well diversified. Allowing substantial foreign investment is also consistent with current policies which have allowed Dominicans to maintain accounts in US dollars. In fact, roughly one quarter of bank deposits were in dollars in 2002.

Regulations on the domestic investments of pension funds (AFPs)[39] establish a set of detailed guidelines for pension funds including requirements for transfer and purchase of securities, definition of secondary markets and new issuances in which AFPs are allowed to invest, methodology for valuation of each type of instrument and prohibitions on investments that may imply conflict of interest for managers. Dominican AFPs may eventually offer two portfolio options.[40] Both include fixed as well as variable income securities. The difference is that at least 70 percent of Type 1 funds must be invested in assets denominated in Dominican pesos while Type 2 funds must invest at least 70 percent in assets denominated in US dollars. However, the Type 2 funds can be offered only to Dominicans residing abroad.

Figure 6 Projection of accumulated assets in the new private pension system



Source: World Bank staff projections. Note: Does not include solidarity fund.

[39] A series of resolutions on local investments have been issued by SIPEN and can be found on http://www.sipen.gov.do. The main limits are set out in http://www.sipen. gov.do/documentos/resolucion_01_CCRLI.pdf.

[40] These two options may not be offered by an AFP during the first year of the system. The regulation does not specify what will be allowed after that period although article 100 of the law does allow for the possibility of multiple portfolio options. Individuals cannot divide their balances between two types of fund and can shift from one to another only once per year.

The current regulations provide a reasonable foundation for an investment regime that would serve the interests of participating workers. However, a key question is the extent to which foreign investment will eventually be allowed for workers living in the Dominican Republic. The arguments for international diversification are well known and are even more compelling in the case of the Dominican Republic. The recent crisis and doubling of the exchange rate versus the US dollar are further reminders of the inherent risks of a system that does not allow workers to reduce country-specific risks. Since the ultimate decision over the kind of foreign securities that will be allowed rests with the CNSS, heavy restrictions in this area could also be used to channel funds towards investments with motives other than generating the best pensions for participating workers.

The evolution of investment limits will be crucial towards generating the desired long term real returns. As discussed in the next section, these returns will play an important role in determining replacement rates produced by the system as well as the magnitude of the contingent liability related to a series of minimum pension guarantees.

III.4 The payout phase.

Upon retirement, the balance accumulated in the DC account will be withdrawn to finance consumption during old age. The main design issues at this stage are (i) the prerequisites for withdrawing the funds, (ii) the modalities of this withdrawal, and (iii) the guarantees (minimum pensions) that are triggered when the benefit level falls below a certain level. The key indicator for the system is the initial replacement rates that different workers are likely to attain.

III.4.1 Withdrawal of funds.

There are four contingencies that could lead to a withdrawal of the accumulated savings from the AFP for members of the contributory scheme – retirement, severance at age 57 or above, disability and death.

In the contributory scheme, workers can withdraw funds if they have contributed for 30 upon reaching age 60 or, if they have reached age 55 and have accumulated an amount sufficient to purchase an annuity that is at least 150 percent of the minimum pension (without regard to the number of contribution years). The 30-year contribution rule promotes persistence in contributions, but since many workers spend only part of their working lives in formal sector employment, it will also inevitably force some individuals to wait beyond age 60 before withdrawing from their accounts. The rule is more binding for lower income workers since they are less likely to accumulate the balance required to finance 150 percent of the minimum pension.

Separately, workers aged 57 or older that are laid off are allowed to take a special early retirement and qualify for the minimum pension of the contributory scheme, but only if they have made 300 monthly contributions. With fewer contributions, they are given the choice of purchasing an annuity with the accumulated balance or continuing to contribute until reaching the required period to become eligible for the minimum pension.

There are two levels of disability certification, total and partial (benefit levels are discussed in the next section). Certification is done by regional medical committees that include three doctors chosen by the CNSS. Appeals can be submitted by both the claimants and the insurance companies to the Technical Commission for Disability. The regional and national committees are supervised by a special Technical Disability Commission established in the law. It is presided over by the Superintendent of Pensions and includes the following members:

- The President of the National Medical Commission
- Director of DIDA
- One member of the Dominican Medical Association
- One representative of the AFPs
- One representative of the private health funds (ARS)
- One insurance sector representative
- One representative of the nurses
- One representative of the rehabilitation centers

Finally, in the event of death of an affiliate while still working, survivors benefits are provided to spouses under age 50 for five years, to spouses aged 50-55 for six years and for spouses older than 55, a life annuity. In the case that there are minor children (or children still in school below age 21), the benefit will be split between the spouse and the children equally. If there are no survivors eligible for the benefit, the balance of the account would be divided among the legal heirs of the estate.

III.4.2 Modalities of withdrawal including disability and survivors' pensions.

Article 54 establishes two old age benefit options, the scheduled withdrawal and the life annuity. Most Latin American countries have allowed both of these options.[41] Detailed regulations were issued in a series of resolutions[42] Important considerations in this regard include (a) mandates for joint annuity purchases (b) deferment options and (c) rules regarding calculation of the annuity as well as the scheduled withdrawal including mortality tables and other assumptions. In addition, as the experience in other Latin American countries has shown, market transparency and information provided to the consumer will be important if the market is to be driven by competitive forces.[43]

In the case of death or total disability, the prescribed benefit is sixty percent of the average (indexed) wage during the previous three years. Partial disability benefits are set at thirty percent of this base and status is subject to reevaluation. Surviving spouses under age 50 receive the benefit for five years, those between ages 50-55 receive it for 6 years and those over age 55 at time of death receive it for life . Both types of pension are indexed to prices.

Insurance companies offering these products will be authorized by the insurance and pension fund supervisors. The insurer is obliged to make up the difference between the

[41] The exceptions are Argentina and Uruguay who, like most of the Eastern European reformed schemes have mandated annuitisation.
[42] Circulares 75-03, 76-03 and Circulares 15-02 and 1603 available at the SIPEN website.
[43] See Palacios and Rofman (2001).

amount accumulated in the individual account and the amount required for the purchase of the prescribed annuity. This is the method used in private systems throughout Latin America.[44] Here an important consideration will be the reserve requirements for matching price indexed annuities with appropriate assets in terms of duration and indexation.

It is important to note that prior to the introduction of the new system, survivors (mostly widows) received only a lump-sum payment upon the death of their participating spouse, unlike most defined benefit pension schemes in the region. The introduction of a price-indexed annuity in the new scheme is a significant change in favor of women. Another important policy affecting spouses of workers covered by the scheme, as yet undetermined, is whether or not to require a joint annuity purchase upon retirement.

III.4.3 Minimum pensions. In addition to the social assistance pension, a minimum pension is guaranteed to all participants in the two contributory schemes provided they fulfill certain contribution requirements.[45] The basis for the various minimum pension levels and the criteria for receiving a benefit are compared for the three schemes in Table 6 below.

This arrangement gives rise to three important questions: First, how will the minimum pension levels affect poverty rates among the elderly. Second, what is each likely to cost and how will this be financed and third, what kind of behavior is encouraged by the relative differences across these minima. The first two issues are discussed below. The last question requires more information (for example, the government's contribution to the scheme for the self-employed) and merits a detailed labor market analysis that would reveal the potential for gaming the system by moving from one of the three schemes to another.

In terms of poverty impact, the non-contributory program has the biggest potential impact. A recent World Bank poverty assessment study showed that:

"*The presence of elderly (over 65) is associated with poverty.* Overall, each member over 65 years increases the household's likelihood of being poor by 4 percentage points. This together with the fact that poverty among senior citizens over age 65 at 27 percent is close to the overall poverty for the overall population (28.6 percent) suggests lower life expectancy among the elderly poor. This can be attributed to the absence of an adequate safety net or a pension scheme which would provide the elderly with a minimum standard of living…" p. 15 World Bank (2001).

Private transfers play a large role in income support for the elderly. Data also show that formal pension income does not contribute significantly to incomes in the lower part of the household income distribution.[46] The new social assistance scheme could change this

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[44] In Mexico, the disability insurance element remains in the public pension scheme. This is also the case in the privatized schemes in Eastern Europe.

[45] Importantly, the minimum pension does not extend to disability and survivor pensioners.

[46] Whitehouse (2000) cites a study showing that among Dominican households with elderly members in the bottom quintile, only ten percent of income comes from pensions while almost half comes from private transfers.

pattern, replacing private transfers and supplementing the incomes of poor households with elderly members. While the poverty impact could be significant, it could also prove costly as shown in the next section. It will also require administrative capacity to monitor household incomes to determine eligibility.

Table 6 Minimum pension rules in Dominican Republic

	Non-contributory	Subsidized contributory	Contributory
Age of eligibility	60	65	60
Minimum years of contribution	None	25	30
Benefit level	60% of minimum public sector wage	70% of private sector minimum wage	Equal to the lowest legal minimum wage
Indexation	Prices	Prices	Minimum public sector wage
Income test	50% of national minimum wage (per capita HH income)	None	None
Financing	Budget	Budget (as per article 76) and contributions of self-employed	0.4% solidarity tax accumulated in a separate fund

Source: own elaboration based on the legislation.

The role of the minimum pension in the contributory portions of the system depends on the replacement rates produced and the future level of the minimum salaries to which they are pegged. In the case of the contributory scheme, the minimum pension is set equivalent to the minimum public sector wage. The ratio of this minimum to the average covered wage among IDSS members was around 60 percent in 2001.[47] Taking into account civil servants and higher income workers in the private, formal sector, this figure is closer to 30 percent. This suggests that a significant proportion of the affiliates in the new system will receive the minimum pension under reasonable assumptions about net rates of return and wage growth.

This has two important implications: First, a large proportion of workers will receive the minimum pension and the funds set aside for this purpose (the accumulated solidarity fund based on a 0.4% tax on wages) may not be sufficient. (A rough estimate of the shortfall is presented in the next section.) Second, the benefit level for many participants will be determined not by the performance of the system, but rather by the government decision as to where to set the minimum wage to which the minimum pension is pegged. This undermines the rationale of a system that relies on competition between private pension funds by making net returns irrelevant for many workers. The same arguments apply in the case of the subsidized contributory system where the minimum pension is linked to the average of private sector minimum wages, except that here the outcome will depend on the level of the subsidy provided by the government in the form of matching contributions.

[47] The average covered wage is calculated by dividing contribution revenues by the contribution rate and then dividing by the number of contributors. To the extent that revenues are reduced by underdeclaration and late payments, the average covered wage will be lower than the actual wage. Improved collection rates would raise the covered wage, reducing this ratio.

There are four policy levers that could be used to mitigate this problem. First, high rates of return could reduce the number of workers claiming the minimum pension. Sensitivity of replacement rates is significant as shown in the next section and this highlights the link between investment policy and fiscal costs through the minimum pension. Second, an increase in the contribution rate would, other things constant, reduce the number receiving minimum pensions. However, raising labor taxes beyond the current twenty percent may aggravate problems already expected in the labor markets. A third option would be to gradually increase the retirement age required for the minimum pension in such a way as to maintain life expectancy at retirement constant over time. Finally, the minimum pension could be redefined in such a way as to protect its real value over time while allowing it to fall relative to the average salary.[48]

III.4.4 Initial replacement rates for different workers.

In the case of new labor market entrants, the ultimate accumulation is a function of the contribution rate, the various charges deducted, how often the worker contributes and the investment return. After a 5-year phase-in period, the contribution rate will reach ten percent of wages subject to a ceiling of up to twenty times the minimum wage.[49] Commissions charged by the private pension funds, known as Administradoras de Fondos de Pensiones or AFPs, are set at 0.5 percent of wage plus a portion of investment returns above a benchmark yield. Another half a percent is used to finance a guarantee fund (0.4%) and the pension supervisor (0.1%). Finally, the law stipulates a one percent cap for life insurance premiums. This is also the source of financing for disability insurance.

Based on a net contribution of eight percent, Table 7 illustrates a range of possible outcomes varying two of these factors – contribution history and investment return. The first two rows show the case of a 20 year old worker entering the labor market in 2003 and retiring in 2043 at age 60. In the first row, a high 'contribution density' leads to a replacement rate of about 50 percent with returns four percentage points greater than wage growth.[50] With only a two percentage point difference between returns and wage growth, the replacement rate falls to 33 percent. If the same individual were to retire at age 65 instead of 60, the replacement rate with the more favorable rate of return assumption would reach about 60 percent. Comparable figures are presented in the second row for a worker that contributed for the 30 years required to qualify for a minimum pension. The table highlights the importance of investment performance for the viability of the system.[51] It also confirms the

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[48] In Mexico, for example, the minimum pension is linked to the real value of the minimum urban wage in 1997.

[49] The employer pays 7.12% while the employee pays 2.88%.

[50] The differential between the rate of return on pension fund investments has historically been greater than 3 percentage points over long periods of time. Among the new Latin American pension schemes, this differential has been even higher in many countries, including Chile with the longest experience. The legal maximum fee for administration of 0.5 percentage points of wage is taken into account in the replacement rate calculations.

[51] The relative rate of return guarantee reduces the dispersion of participant outcomes but does not *directly* affect average returns.

earlier assertion that most low income workers would receive the minimum pension as currently defined.[52]

Table 7 Initial replacement rates by rate of return and contribution history

Worker profile[1]

	Wage growth Plus 2 percent	*Wage growth Plus 4 percent*
(1) Enters funded scheme age 20 and contributes for 40 years	32.6	48.7
(2) Enters funded scheme age 20 and contributes for 30 years	22.6	32.0
(3) Enters funded scheme age 40 and contributes for 40 years[2]	44.1	48.5
(4) Enters funded scheme age 40 and contributes for 30 years[2]	29.6	33.5
(5) Case (1) retiring at age 65	43.0	58.9

1/Male entering scheme in 2003 and retiring at age 60 and opting for a (price-indexed) annuity. Assumes two percent real wage growth and national mortality rates are used for annuity calculation. 2/Includes value of recognition bonds for 20 years of contribution to the old IDSS scheme.

The potential outcome for those already participating in a pension scheme at the moment of reform is more complicated. There are at least four distinct cases. In each case, the factors mentioned above would apply, but the accumulation period would be shorter since there are fewer years until retirement. In addition, the final accumulation will depend on the value of the recognition bond. The law defines the value of this to be 1.5% per year of participation in the old scheme multiplied by the covered wage during the 12 months that preceded the promulgation of the law. The bond is indexed at a rate of two percent above inflation. Note that this last parameter means that higher wage growth results in lower replacement rates for workers that have recognition bonds.

The first case is current civil servants. They all have the option of staying in the old scheme or switching to the funded scheme. In the case of civil servants that expect to spend their entire careers in government, there may be an advantage to remaining in the old scheme because it is heavily back-loaded and the internal rate of return is likely to be higher. For civil servants anticipating a move to the private sector it may be advantageous to shift to the new scheme. In view of the relatively high turnover in the civil service, this situation may be relevant for a significant number of workers. Combined with a lack of confidence in the government's defined benefit promises, the number of civil servants that may opt to switch

[52] Preliminary calculations of net replacement rate schedules by Whitehouse (2003) cited in Palacios (2003) confirm that the minimum pension guarantee dominates the results if it is maintained at its current level relative to the average wage. When comparing the Dominican Republic to other Latin American countries that have introduced systemic reforms of this type, Whitehouse finds a much higher degree of redistribution through the MPG in DR than in other countries.

to the funded scheme may be quite high. No attempt to present a typical case is included here due to a lack of data on this group of workers.[53]

Members of the IDSS below age 45 have no choice but to join the funded scheme and claim their recognition bond. The third and fourth rows in Table 7 show the case of a 40 year old IDSS member forced to switch to the new scheme. In this case, the replacement rates converge with those of a new entrant when the rate of return is 4 percentage points higher than wage growth. For workers covered by the IDSS aged 45 and over, the short accumulation period combined with the low value of the recognition bond is unlikely to generate a pension higher than what the IDSS pays as a minimum pension. Nevertheless, the uncertainty associated with future IDSS pension levels might lead some of these workers to shift to the new scheme.

The outcome for the fourth group of workers is also very difficult to predict. These are the estimated 240 thousand or so private sector workers currently excluded from the IDSS by the ceiling. They would be forced to participate in the new scheme, just as those members of the IDSS under age 45. They would not be entitled to recognition bonds, so that their accumulations would depend on contributions made after 2002. Older workers in this category approaching retirement age would not have sufficient time to generate meaningful replacement rates.[54] On the other hand, because these individuals have relatively high incomes, it would require fewer years to accumulate enough to generate the pension level that must be achieved in order to withdraw their accumulations.

The most important result of this brief analysis of the potential benefits that will be generated by the new system is that most IDSS workers and a significant number of civil servants that enter the new scheme are likely to receive the minimum pension or, in the case of low contribution density, half of the minimum pension. Only relatively high income workers in the private sector that are for the first time being included in a mandatory pension scheme along with the upper end of the wage distribution of civil servants are likely to receive pensions above the minimum. The percentage falling into these two categories is probably around one third of all participants. This result is due to a relatively low contribution rate combined with a high ratio of minimum pension to average covered wage.

This result has several important implications: First, there is a fiscal cost associated with the minimum pension to the extent that the contribution to the solidarity fund is not sufficient to cover the difference. This point is analyzed further in the next section. Second, the logic of incentives in the system would seem to be seriously compromised if most participants will not be affected by the net rate of return because, under most assumptions, they will simply receive the minimum pension. Third, both the costs and the incentives are inextricably linked to a political parameter, namely, the minimum wage. As mentioned in the last section, changes in four parameters – rates of return, the ratio of minimum pension to average covered wage, contribution rates and retirement age – could mitigate these problems.

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[53] In the next section, two scenarios are presented for the purposes of fiscal projections given the uncertainty associated with the possible switching pattern of the public sector workers.

[54] Older workers are provided with extra tax incentives for supplementary, voluntary contributions into their individual accounts.

IV. Financing the reform package[55]

There are two types of cost associated with the pension reform package. First, there is the transition costs associated with a shift from a pay-as-you-go to a funded pension scheme. This type of cost is not incremental and does not increase the liabilities of the public sector. It may even reduce them under certain assumptions. However, it does shift government borrowing needs forward. In contrast, costs associated with expanding pension coverage add to the government's pension bill. Included in this category are the potential liabilities generated by new minimum pension promises.

IV.1 Financing the transition.

The rights already acquired by workers and pensioners can be considered an implicit pension debt that does not appear on the government's balance sheet.[56] It includes the obligations accrued to date to workers covered by the IDSS and civil service pension schemes as well as the value of annuities already being paid to pensioners from both schemes. This figure is estimated to be approximately 80 percent of GDP in the year 2002.[57]

When these two schemes are terminated, the flow of contributions from workers who switch to the funded scheme that currently finance part of this spending is lost. In addition, the value of recognition bonds paid to these switchers and pensions that must be paid to those who remain in the old system continue to generate public spending. The transition period lasts until the final member of the old system dies, in this case, in about 50 years in the case of the IDSS and even longer in the case of the public sector scheme depending on whether younger workers decide to switch to the funded scheme.

The projections of the pension system finances before and after the reform are based on economic and demographic assumptions. The assumptions used in the base case are reported in Table 8. Note that income per capita growth is assumed to be equivalent to average wage growth throughout the projection. Also, the baseline assumption for the differential between the gross rate of return and wage growth is two percentage points.[58]

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[55] Note that all of the projections in this section were made prior to the introduction of the scheme. This is especially relevant with regard to the number and age distribution of the individuals choosing to move to the funded system. The assumed switching pattern is compared with the actual in Section V. The projections were also made prior to the banking crisis that was still unfolding at the time of writing. This mainly affects the results for the short term and in particular, raises the transition costs relative to GDP via lower than anticipated economic growth estimates.

[56] See Holzmann, Palacios and Zviniene (2001) for concepts and definitions.

[57] These figures are based on data of relatively poor quality in the case of the civil service obligations and should be viewed with caution. The estimated pension debt for workers and pensioners in the central government, the decentralized public institutions and the IDSS was estimated at 45.2, 10.8 and 22.2 percent of GDP, respectively. Note that this figure excludes the liabilities of complementary pension schemes many of which will eventually be passed on to the state as they are closed as per legislation.

[58] The net return is lower due to the commissions deducted from the contribution. These were assumed to be 0.5 percentage points of wages in accordance with the law. Commissions based on returns were not taken into account. The contribution rate considered for the purposes of the

The real interest rate is used only for the purposes of discounting future flows. This is consistent with a diversified portfolio and with empirical evidence on long term returns to private pension funds.[59]

Coverage is assumed to rise slightly over time. This is reflected in an increase of about 3 percentage points in the ratio of contributors to the labor force (from 11 to 14 percent) as well as an increase from 25 to 30 years in the number of contribution years achieved by the time a contributor retires. An increase in coverage is consistent with the assumed growth in per capita income and the observed tendency of coverage rates to increase over time with incomes. The assumption here of a modest coverage increase is justified by the effect of the ceiling already mentioned that would have effectively limited the growth in coverage to workers in the lower half of the income distribution. Note that while the kind of ceiling currently applied is eliminated by the reform, separate reform projections have been done for the population currently covered by IDSS and the new group of private sector workers that will be included due to the change in the ceiling.

Table 8 Key economic and demographic assumptions

Year	2001	2002	2003	2020	2050	2075
Economic Assumptions:						
Real GDP Growth	2.7%	4.2%	2.3%	5.0%	3.9%	3.0%
Real wage growth	2.0%	3.5%	3.6%	3.2%	2.4%	2.1%
Inflation Rate	9.0%	6.0%	10.0%	7.0%	5.9%	5.0%
Real Interest Rate	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Real Returns on Individual Accounts	-	-	5.0%	5.8%	4.4%	4.3%
Demographic Assumptions:						
Population Growth Rate	1.5%	1.5%	1.6%	1.2%	0.4%	0.1%
Percentage of Population over 60 Years Old	6.7%	6.7%	6.8%	10.4%	20.5%	24.5%
Life Expectancy at 60						
Male	16.5	16.5	16.5	16.9	18.5	19.8
Female	18.3	18.4	18.5	19.6	21.4	22.6
Total Population (000')	8,553	8,685	8,822	11,206	14,044	14,968

Source: own assumptions with regard to economic variables; World Bank population database for demographic variables.

In addition to these assumptions, the government has discretion in setting key parameters such as minimum pension levels and indexation rules with regard to the pre-reform system, additional assumptions must be made for future government decisions on these key variables. In the base case, it was assumed that observed minimum pension levels of 2002 rose with average wages throughout the projection period. This assumption is consistent with the recent evolution of the minimum pension (in fact, the minimum appears to have increased faster than wage growth over the last decade).

It should be noted however, that the results are largely driven by this key assumption and if the minimum pension had been allowed to fall relative to average wages, future spending would have been lower. Indexation of benefits above the minimum pension is irrelevant in

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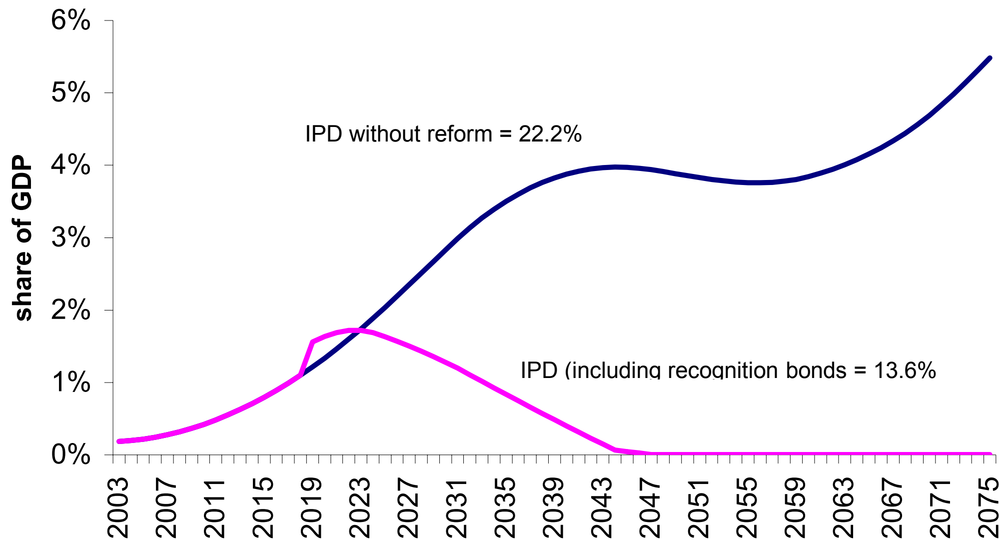
projections was 9.5% of wage due to the 0.1% and 0.4% of wages deducted for the financing of the supervision and the solidarity fund, respectively.

[59] See Iglesias and Palacios (2000).

this scenario. This is because practically all old age pensioners receive the minimum pension due to the truncated distribution of wages caused by the low ceiling that was applied in the old scheme. In the case of the reformed system, the minimum pension as specified in the law is linked directly to the minimum wage. Again, the ratio of the minimum wage to the average wage was assumed to remain at current levels throughout the projection period. This affects the cost of the minimum pension guarantee to the solidarity fund and ultimately the government, as the latter must cover any deficits that arise.

With these assumptions in mind, Figure 7 shows the spending on IDSS benefits through 2075 before and after the reform, excluding any government spending on the minimum pension guarantee (see IV.2.3). The top line represents projected benefit spending in the IDSS in the absence of reform and with a continuation of the current minimum pension policy. The sharp rise in spending is driven by the underlying demographic aging and the maturation of the system. The implicit pension debt is estimated at about 22.2 percent of GDP in 2003. The bottom line is the projected spending on recognition bonds and pensions for those who remain in the IDSS scheme (here assumed to be all workers over age 45). In this case the present value of future spending comes to less than 13.6 percent of GDP. Thus, while the reform under these assumptions results in roughly five years of higher spending corresponding to the first years that the recognition bonds are being paid, the total liability to current members of the scheme is reduced by about one third.

Figure 7 Projected IDSS spending before and after reform



Source: World Bank projections – see text for assumptions.

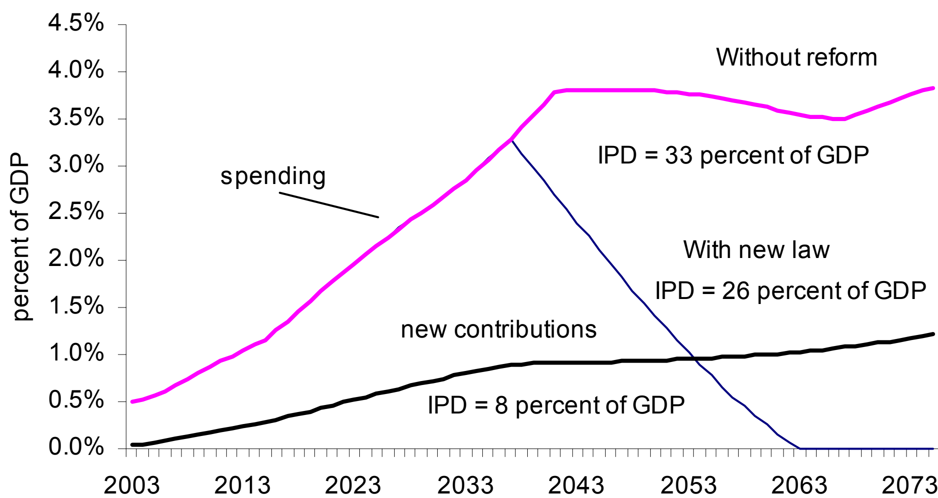
This is largely due to the way that recognition bonds are likely to be calculated and the wage growth assumptions. After the face value of the bonds is calculated based on current wage levels, the value of the bond grows at two percent in real terms. Meanwhile, wages (and

income per capita) are assumed to grow by more than three percent in real terms over the relevant period. To the extent that this differential is reduced, 'savings' would be reduced.

Note that the IPD is not the present value of future spending flows, but rather the rights that have already been acquired by 2003 based on previous contributions. The savings based on comparing the present value of future deficits in the pre and post reform cases would be much larger because the relationship between the contribution rate and the benefit level would not have been sustainable in a mature system resulting in large deficits.[60]

Figure 8 presents the same comparison for the civil servants' schemes. Here, the transition is much slower because only new entrants are diverted to the funded scheme. There are no recognition bonds to consider, but the government will have to make a 10 percent contribution to the funded scheme.

Figure 8 Projected civil service pension spending and new contributions before and after reform, 2003-2075



Source: World Bank staff projections using PROST software.

If only new civil servants enter the funded scheme, transition costs would be relatively small in the first few years, not exceeding 0.1 percent of GDP until 2010. Over time, the contribution to the funded scheme rises rapidly. Spending only begins to decline after about thirty five years. The present value of the new contributions is 8 percent of GDP. The implicit pension debt in 2003 falls from 33 to 26 percent of GDP while the present value of future spending falls from about 68 to 59 percent of 2003 GDP.

60 The present value of future deficits (assuming a 3.6% contribution rate) through 2075 in the unreformed case is approximately 60 percent of GDP higher than that in the reformed case.

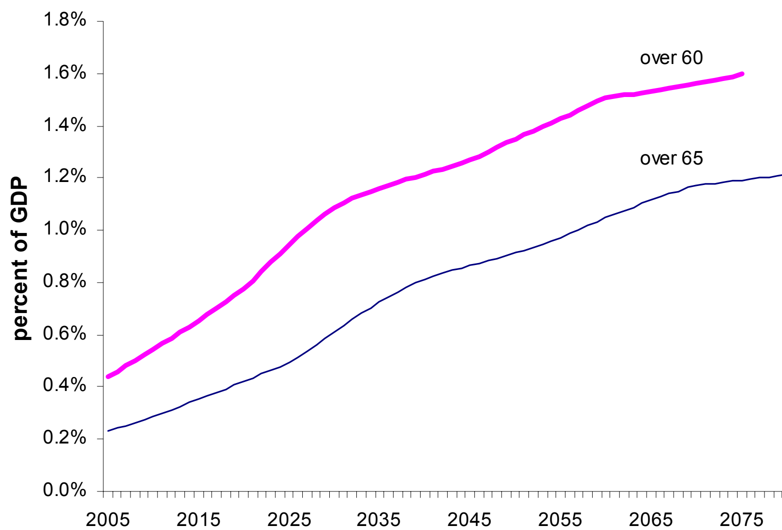
IV.2 Financing new benefits.

The reform package includes (i) a new social assistance program (ii) a promised matching contribution for self-employed workers and (iii) a minimum pension for the contributory scheme that could easily lead to the need for a government bailout. The introduction of a survivors' pension to the old IDSS system also increases spending. Together, these benefits imply a significant new cost for pension provision, especially in the long run. An attempt is made to quantify the first two items below. These projections are subject to a high degree of uncertainty. In the case of the social assistance program, the benefit level depends on the future level of the minimum wage in the public sector. In the case of the subsidy for the self-employed, the spending depends on the determined level of the subsidy. As mentioned above, there is also a distinct possibility that the solidarity fund will not be sufficient to cover the minimum pension, although this cost is not estimated.

IV.2.1 Spending on the new social assistance benefit.

This program would start operating only towards the end of 2004. It is estimated that approximately one quarter of persons age 60 and over or 135,000 people would be eligible for a benefit equivalent to 60 percent of the minimum public sector wage. In Figure 9, this benefit is price indexed after initial award. The figure shows initial spending levels of around 0.4 percent of GDP, rising along with the number of elderly to more than one percent of GDP after two decades, before eventually stabilizing at around 1.5 percent of GDP. The present value of the projected spending through 2005 is around 17 percent of GDP.

Figure 9 Projected spending on new social assistance pension 2005-2075



Source: World Bank staff estimates using PROST software.

With no earmarked source of financing, this expenditure represents a large claim on the budget. As in the case of the minimum pension for the contributory scheme, spending could be reduced by increasing the retirement age, freezing the benefit level in real terms or a

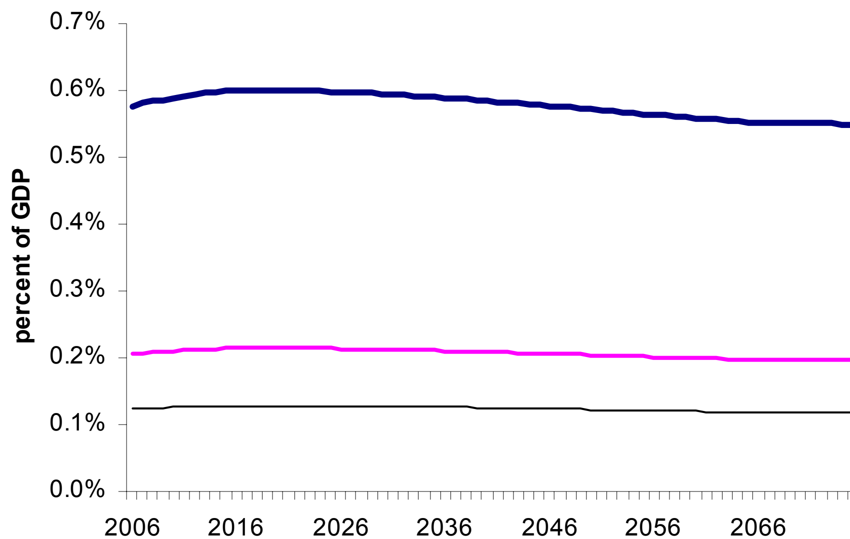
combination of both. The bottom line shows the impact of raising the eligibility age to 65. Alternatively, the criteria for the income test could be tightened, thus improving targeting.

IV.2.2 Government contribution for the self-employed.

Budget resources will also be required for the planned contribution subsidy for self-employed workers. The law mandates that the subsidy begin in August 2005, but does not state the level to be paid. It does state however, that the subsidy would be inversely related to the worker's reported income. This could be achieved through a flat contribution or a matching contribution with a low ceiling. A flat contribution would be easier to administer, although a matching contribution up to a certain level would provide more incentive to report an income greater than the minimum.

Figure 10 presents three cases – high, low and intermediate – corresponding to different assumptions as to the amount of the subsidy and take-up. In the high spending case, seventy percent of the informal self-employed and all formal sector self-employed workers join the scheme in order to benefit from a flat subsidy of 10 pesos per day, equivalent to about 5 percent of the minimum wage in 2006, or the equivalent in terms of a matching contribution with a ceiling. The intermediate case, only half of the self-employed participate and are subsidized at a rate of 5 pesos per day and the low case pays 3 pesos per day.[61] The ratio of the subsidy to average income remains constant. In the high case, the discounted present value is about 10 percent of GDP.

Figure 10 Projected costs of the subsidy for the self-employed, 2006-2075



Source: World Bank staff projections. See text for assumptions.

[61] A key assumption in the projection is that the self-employed remain a constant share of the labor force throughout the projection period.

IV.2.3 Minimum pension guarantees for the contributory schemes.

In addition to the social assistance program and the subsidy to the self-employed, the system redistributes income through two minimum pension guarantees. In the case of the contributory scheme, the required resources depend on the number of participants that qualify for the minimum pension which is equivalent to the lowest minimum salary. The group of workers most likely to fall into this category is those currently covered by the IDSS since these workers belong to the lower half of the wage distribution. In fact, the average covered wage is not much higher than the minimum wage for this group.

In order to arrive at a rough estimate of the magnitude of this liability, it is necessary to make an assumption about the future level of the minimum pension in relation to the salary upon which these workers are contributing. Currently, this ratio is about 60 percent. Assuming that this persists, we estimate the difference between the annuity generated by the individual account accumulation and the minimum pension amount. This difference would have to be covered from the solidarity fund and ultimately, by the government.

The figure below provides estimates of the potential cost of this guarantee. The top line uses the baseline assumptions presented in Table 8, where gross returns are around two percentage points higher than wage growth with the result that practically all current IDSS workers would receive the minimum pension.[62] The line shows the cost of 'topping up' the annuities that can be purchased by these workers as a share of GDP. The bottom line shows a more optimistic return scenario of about four percentage points above wage growth. Even under these favorable conditions, most of these lower income workers would receive the minimum pension and require an ex-post subsidy.[63]

The minimum pension is nominally financed by a solidarity tax equivalent to 0.4 percent of wages. The fund that is accumulated is invested by the pension fund manager of a state-owned bank, the Banco de Reservas. Any shortfall would be covered by the government.

According to Figure 12 below, the solidarity fund would grow steadily until around 2020. After that time, the required expenditures shown in the last figure would exceed the revenues and interest and the fund would start to be drawn down. In the figure below, two scenarios are shown. In the baseline scenario, the fund is depleted by 2025 while with two percentage points higher return, the fund is exhausted by sometime around 2030. By 2075, the cash flow deficits grow to more than two percent of GDP per annum. Although these deficits will appear only after three decades, the present value of the flows required from the government budget is on the order of 10-20 percent of GDP.

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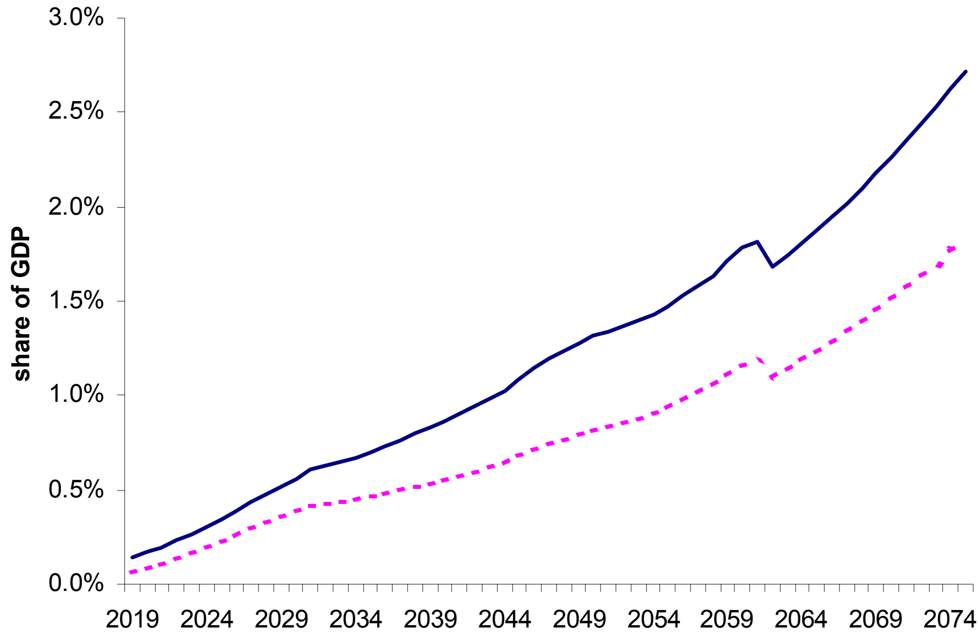
[62] The projections here are based on averages and do not take into account the distribution of contribution histories at retirement.

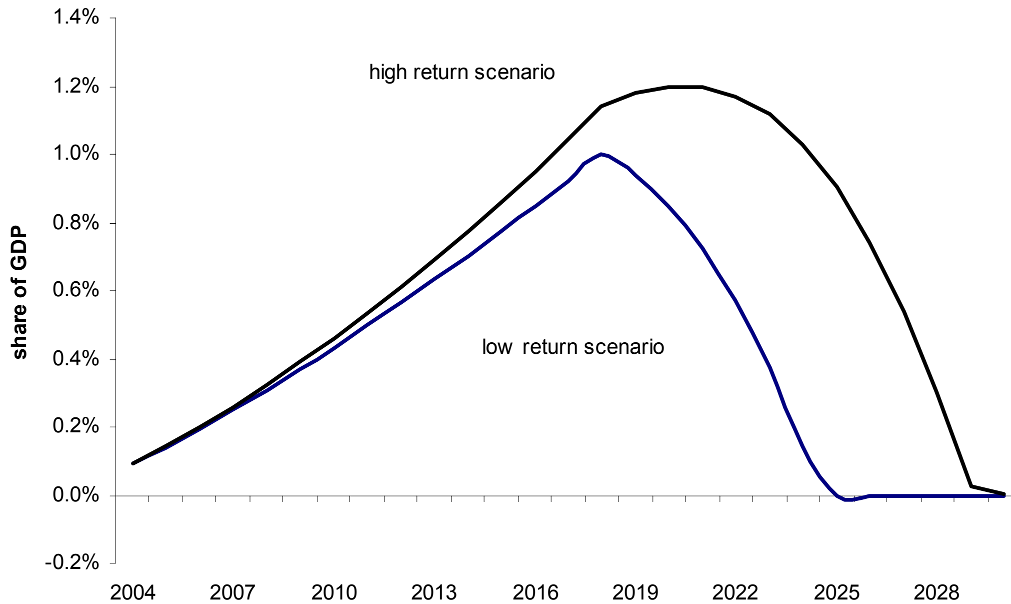
[63] A better methodology for calculating the liability related to this guarantee would be to use an options-pricing approach (Lachance and Mitchell 2002). However, this requires reasonable information about the likely investment portfolio along with historical data on the risk and returns associated with these assets. The liability would be significantly larger if measured in this way.

Figure 11 Projected spending on minimum pension in the contributory scheme



Source: World Bank projections – see text for assumptions.

Figure 12 Projected accumulation and depletion of the solidarity fund



Source: World Bank staff calculations.

Note that this simulation does not include minimum pension guarantee payments for the self-employed. In order to produce an estimate for this expense, it is necessary to know the

size of the subsidy. The interaction between the size of the subsidized contribution and the liability for the minimum pension guarantee for this group is complicated, however. On the one hand, the greater the subsidy, the higher the likely take-up by the self-employed. This would have the effect of increasing the cost of the minimum pension guarantee for this group. On the other hand, a higher per worker subsidy will translate into greater account balances and this would reduce the cost of the minimum pension guarantee. In other words, if relatively few self-employed join with a relatively high government contribution to their individual accounts, the cost of the guarantee will be lower while the cost will be higher to the extent that large numbers of self-employed join the system with relatively low government subsidies.

Assuming that most self-employed participants declare the minimum wage as the base for their contributions, the guarantee is very likely to be triggered for the vast majority of workers, since the replacement rate that would have to be generated by the individual account accumulation upon conversion to an annuity would have to be more than 70 percent. In the high take up scenario, the cost of the guarantee would be similar to the cost of the guarantee for the regular contributory scheme.

IV.2.4 Summary of fiscal impact of pension reform.

Table 9 below summarizes the costs associated with the pension reform package. The net effect of the law, subject to the many caveats made earlier, is to maintain roughly the same overall present value of future spending. The reform to the existing contributory schemes for IDSS members and civil servants would significantly reduce the net present value of future spending reflecting the fact that contribution rates were much too low to cover the spending of these schemes once they fully matured and life expectancy at retirement increased.

Most of the effect is due to the reform of the IDSS scheme. This is due to several factors. First and most importantly, the cost of recognition bonds is much lower than the cost of continuing the IDSS in its current form. Foregone contributions are less than the reduction in spending, a result that confirms the unsustainability of the IDSS without a significant increase in contribution rates or reduction in benefits. Second, it turns out that the contributions that the government must make as employer for new civil servants are about the same as the reduction in the future spending on these same workers.

The fiscal improvement related to the gradual closure of the civil servants pension scheme is much smaller. This is due to the assumption that only new civil servants will join the funded scheme while all IDSS workers under age 46 are required to do so. There is however, a possibility that younger civil servants will decide to join the new system in which case the long term fiscal situation would be further improved (although the cash flow in the short run would worsen). It was unclear at the time of writing how many civil servants would choose to move to the new system voluntarily. Further analysis is recommended in this area. However, a major constraint is a lack of individual records for civil servants that would allow a detailed analysis of the incentives this group would face when given the choice between old and new systems.

Table 9 Summary of preliminary cost estimates of the reform package

	Pre reform	Post reform	Net effect
	Present value as share of 2003 GDP		
IDSS expenditures (including recognition bonds)	83.8	25.9	-67.9
Lost IDSS contributions (assumed 3.6% of wages)	0	9.7	+9.7
Civil servants spending (central government)	68.2	59.0	-9.2
Civil servants contributions (central government)	0	8.2	+8.2
Civil servants spending (decentralized government)	16.0	14	-2.0
Civil servants contributions (decentralized government)	0	1.4	+1.4
Subtotal: transition financing	168	118.2	-50.2
New social assistance Scheme	0	17-25	+17
Subsidy for self-employed (high case)	0	5-10	5-10
Liability for minimum pension in contributory scheme	0	11-19	+11-19
Liability for minimum pension in subsidized contributory	0	0-15	+0-15
New survivor benefit IDSS	0	0.1	0.1
Subtotal: new benefits	0	33.1-69	33.1-69
Total: all costs	168	151-187	Minus 19 to plus 17

Source: World Bank staff calculations. See text for explanations.

In summary, the reform of the public, defined benefit schemes that currently cover less than one third of the Dominican labor force can be expected, under reasonable assumptions, to have improved the long term fiscal situation. This result holds even if the costs of the minimum pension guarantee are included. Long term savings would be greater to the extent that current civil servants choose to shift to the new system.

The new social security law goes beyond reforms to the existing system however. In addition, it provides for subsidies to the self-employed in order to encourage them to participate in the formal pension system and establishes a new, broad safety net for the elderly poor. If these new extensions of the pension system were to reach a significant part of their target populations, the fiscal cost would be significant. The figures cited in Table 9, especially those that refer to the subsidized contributory scheme, are only indicative. Nevertheless, the potential magnitude of the fiscal commitment implied by these new programs may be so large as to offset any savings generated by the rest of the reform.

One important factor not taken into account in these projections is the potential for behavioral effects due to incentives created by the new system. For example, the subsidy to self-employed workers could lead smaller firms to shift to the informal sector in order to

take advantage of the subsidy. The new social assistance benefit could lead to a reduction in private transfers to support the elderly that would increase the number of recipients. Finally, the unprecedented increase in payroll tax levels to finance both health and pension schemes in the new system could result in lower formal sector employment that could reduce projected contribution flows into the system.

Finally, the figures presented here do not address the question of how the transition or the new programs would be financed. To the extent that new borrowing is used to finance expenditures, the overall fiscal and macroeconomic impact would vary. On the other hand, the emergence of deficits over time in the two contributory schemes would also have required the government to either find new revenues, cut spending or borrow. The reform essentially brings forward the need to deal explicitly with this problem.

V. Conclusions and epilogue

The purpose of this paper was to describe the new pension system, highlight a number of problematic design issues and present preliminary estimates the potential fiscal impact. There are many areas that merit further detailed studies that lie outside the scope of this paper or in some cases, would require further definition of government policy. These include the quantification of liabilities to be absorbed by the government for supplementary pension schemes, an analysis of the likely outcome of a switching process for civil servants, the potential for participation under different incentives for self-employed workers, and a detailed analysis of the impact of pension fund demand on capital markets. In addition, a broad study of the labor market impact of the new social security system and the unprecedented increase in payroll taxes that it brings, is urgently needed.

V.1 Conclusions: the need for further adjustments to the design of the system

Section III highlighted a number of problematic features of the new system. Among the more important considerations were (i) the level of the minimum pension guarantee and how it is determined; (ii) the specification of both the price and the insurance product with regard to survivor and disability benefits (iii) investment rules that do not allow for sufficient diversification of country-specific risks and (iv) caps on fees and charges that may result in excessive market concentration.

There are two obvious problems with the minimum pension guarantee. First, as it is specified relative to a minimum wage that is set by the government on a discretionary basis, it is subject to volatility and political pressure. Second, and related to this, should the current ratio of the minimum pension to the average covered wage be maintained indefinitely, a large proportion of covered workers would see the returns generated by the pension fund managers as irrelevant since they would receive the minimum pension regardless. The solution to this problem is to tie the minimum pension level to an objective poverty line and possibly to increase the contribution to the individual account slightly in order to generate higher average replacement rates.

Problems with the disability premium have already surfaced, forcing the superintendent of pensions to issue interim arrangements that temporarily provide lower benefits than what was originally established in the legislation. By allowing the market to determine the premium that should be charged for the mandated level of insurance coverage, this problem would be remedied. However, noting the potential for price collusion between affiliated pension funds and insurance companies in this concentrated market, the demands on the pension and insurance supervisors will be great.

Investment rules that do not allow for overseas investment will force workers to bear the country-specific risks that have become all too apparent in 2003. At the same time, the gradual liberalization of domestic investment limits must go hand in hand with improvements in capital markets at a time when the banking sector is in the midst of significant restructuring. The development of a transparent secondary market for public debt and extension of the yield curve after the crisis would be positive developments for both fiscal management and the pension fund sector.

V2. Conclusions: impact of transition financing and new benefits

Section IV focused on fiscal sustainability. As noted, the reform involves transition costs but the shift from an unfunded to funded system does not, under reasonable assumptions about the counterfactual, lead to larger total liabilities. According to the figures presented here, if the liabilities emerging from the minimum pension promises are kept under control, the reform of the contributory system improves the long term fiscal picture. However, unless the transition financing is accommodated – i.e., tax financed – to some extent, it may only convert implicit liabilities for public debt.

An important source of uncertainty regarding the financing required for the transition is the switching pattern of civil servants. While all new entrants will have to join the funded scheme, the decision is open for current civil servants. The larger the number of public sector workers that opt for the new scheme, the greater will be the short term financing needs. Prudent fiscal planning for the short and medium term requires more information in this regard. In parallel, more information should be provided to these individuals so that informed choices can be made at the time of the reform. One option would be to extend the period during which the decision can be made to allow for a concerted information campaign targeted at current government workers.

In addition to financing the transition, the reform creates a new transfer for low-income elderly and an unspecified subsidy for self-employed workers. These two programs, along with the potential liability caused by a high proportion of minimum pension recipients, could place a heavy burden on the central budget. These programs could, however, be modified in order to save costs while not sacrificing the original objectives. The alternatives for dealing with this problem are where scheme design and sustainability intersect.

For example, one alternative, raising the contribution rate for pensions, would lead to higher average pensions and a smaller cost to the government to cover minimum pension guarantees. However, such an increase would exacerbate the potentially negative impact on labor markets of the sudden, unprecedented increase in payroll taxes that the new social security system already implies. On the other hand, the legislated minimum pension levels and eligibility criteria could be revised in such a way as to reduce the contingent liability as well as improving incentives to contribute to the two contributory schemes. Allowing the minimum pension to fall relative to the average covered wage while protecting its real value is one alternative. Gradually raising the age of entitlement for the minimum pension, perhaps linking it to life expectancy at retirement age, is another.

There is also an important link between investment performance and the cost of minimum pensions. The causality runs in both directions: First, poor returns would increase the proportion of contributors that will eventually receive the minimum pension. Simultaneously, as individuals realize that performance at the margin will have little effect on their pensions (since they will receive the minimum regardless), they will have little incentive to monitor the competing private firms offering the service. This would undermine the basic rationale of the system which relies on these consumers to promote efficiency by allowing them to choose their provider.

With regard to the subsidized contributory scheme, the objective of expanding coverage is linked to the amount of subsidy offered. Matching contributions could make participation of the self-employed attractive. On the other hand, the greater the subsidy to these groups, the lower the incentive to participate in the contributory scheme and a larger subsidy would be more expensive. A study of the potential effect on take-up of the subsidized contributory scheme, perhaps through a pilot program, would be useful.

If these issues can be resolved to a satisfactory degree, the new pension system may provide an increasing proportion of the country's aging population with a reliable source of income security in old age. The holistic approach to alleviating old age poverty and mandating savings for retirement could become a model for other low and middle income countries facing similar conditions at a relatively early stage in their demographic transition.

V.3 Epilogue: The difficult birth of the pension system in late 2003

After a period of rapid growth in the 1990s, real GDP in the Dominican Republic is expected to fall by at least three percent in 2003. The proximate cause is a banking crisis that may cost the country more than 15 percent of GDP and has led to a spiral of inflation, devaluation and sharply rising public debt.[64] It was in this context, that the largest social program in the country's history was introduced and that payroll taxes to finance them doubled.

These macroeconomic developments alone would be sufficient to conclude that no other country has faced an environment quite as hostile to a structural pension reform of this type. The fact that the economic crisis is largely blamed on the failure of financial sector supervisors is cause for even greater concern about the future of this new, privately managed scheme where all of the largest managers are affiliated with major financial groups in the country. In short, this could be the most difficult birth of a pension system ever witnessed.

Despite the circumstances however, the early indicators published in SIPEN's first statistical bulletin are promising and better than what may have been expected. For example, the number of affiliates is in line with the projections reported in this paper which were based on pre-crisis assumptions. Whereas the projections assumed 991 thousand affiliates, by December 31, 2003 the actual figure was 986,538, including 155,082 in the public, defined benefit scheme. The age distribution closely resembles what was forecast, namely a preponderance of younger workers in the funded scheme. On the other hand, only 722 thousand workers actually contributed in December. No doubt this is partly due to problems in the affiliation process (individuals registering without intention to contribute or registering twice) as well as the real impact of the economic downturn on formal employment. Nevertheless, overall pension coverage has expanded when measured in terms of contributors relative to the labor force, partly because the anomalous ceiling that applied under the IDSS has been removed.

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[64] Between 2002 and 2003, inflation went from around 10 to more than 35 percent, the peso/$US dollar exchange rate went from 17 to 35 and the public debt to GDP ratio went from 24 to 48 percent.

After some delays, preliminary accounts show that the collection system run by the firm UNIPAGO has functioned well relative to the experience in other countries. For example, the percentage of funds that cannot be allocated appears to be less than five percent which is significantly lower than what has transpired in other countries during the initial months of operation.

On the other hand, the negative impact of the external shocks, along with problems related to the design of the system, are already beginning to surface. Fiscal constraints presumably are behind the failure to raise the subsidized pensions to the legal level or to index IDSS or civil service pensions already awarded according to inflation. This is particularly troubling given the vulnerability of pensioners on fixed incomes facing rising prices. It could be argued that this development is not related to the reform and would have occurred regardless. Nevertheless, it is an example of a failure to comply with the new legislation and weakens the credibility of the overall reform the hallmark of which was its holistic approach.

In terms of the pension fund market, all except one of the pension fund managers is charging at the cap, suggesting that either this has become the accepted industry level or, as is likely, the cap has been set at a level that will result in a high degree of market concentration. Already the top four AFPs – one of them a public institution – have two-thirds of the affiliates and mergers are under way. The fact that the insurance premium has been set by law has also caused teething problems and forced the supervisor to step in with an interim agreement that essentially reduces the benefit level for a temporary period – a stop-gap measure that will require future correction.[65] Finally, while the importance of early performance should not be exaggerated, returns have trailed inflation and assets are concentrated in bank deposits and savings and loan institutions.

The preponderance of workers with salaries at or near the minimum wage[66] has borne out concerns that the minimum pension level, if it continues to be set as it is today, will determine the pension of most workers and reduce the degree of vigilance and competition in the industry. Moreover, the devaluation has reduced the average covered wage in US$ terms to such an extent that pension fund managers that measure revenues in dollars rather than pesos will be faced with losses, further exacerbating the concentration problem.

More difficult to estimate are the fiscal and labor market consequences of the system in the context of an economic crisis of this kind. Clearly, government finances are now much more sensitive to the loss of revenues from the PAYG system. However, those revenues were not significant in the overall budget picture and transition costs are spread out over time. More doubtful is the government's ability to implement the rest of the social security package including financing the subsidized contributory schemes and the subsidized schemes. The estimates presented above suggest that attempting to pay for these new programs could increase deficits significantly even in the short term. The new levels of

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[65] Although there have only been 7 applications for disability benefits, this may underestimate the true number of cases. More importantly, according to Perez-Montas (2004), the insurance companies that are receiving premium income are not in a position to pay out benefits due to the fact that the Medical Commissions that are supposed to certify disability do not appear to be operating as yet.

[66] Around half of affiliates have salaries at or slightly above the minimum wage.

public debt may result in an awkward postponement of those elements of the Social Security Law that affect the majority of Dominicans and especially the poor.

For the contributory scheme that is already up and running, the key to weathering the current storm would seem to lie with financial sector supervision and how quickly it can step up to the task at hand.[67] While the quality of the entire financial sector has an impact on the new pension system, the role of SIPEN in protecting the nascent pension fund sector is paramount. It is premature to assess their performance thus far although strong leadership and technical assistance (primarily Chilean) are cause for some optimism. In the next year, the SIPEN will have to consolidate and increase its staff levels significantly.

The supervisor and the Consejo Nacional de Seguridad Social may also have to resist pressures to take actions that compromise the performance of the new pension funds. The short term fiscal pressures that the government faces, the fact that elections will take place in 2004 and the weakness of the banking sector all raise the probability that politically-driven investment allocations could be promoted by the current government. In order to face this challenge, the superintendent will have to exercise a high degree of independence.[68] This will be particularly difficult as the country enters elections in the Spring of 2004 and in the context of the economic crisis.

[67] In this regard, the World Bank plans to extend a financial sector technical assistance loan or FTAL in 2004 which includes elements designed to improve all areas of financial sector supervision.
[68] It is interesting to note that when faced with a banking crisis in the second year of the reformed Chilean pension system, pressures to channel pension funds to the financial sector were resisted by then superintendent Juan Ariztia.

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Annex 1 Selected Tables

A.1 Pension Payments by the Central Government, December 2000

	Number of Pensioners	Monthly payment (RD$)
Total	39,868	93,405,794
Non-military retirees and Pensioners	15,821	22,337,260
Pensioners being processed	9,717	19,485,024
CDE	3,439	21,607,013
CEA	4,835	10,388,909
Grupo Corde	1,769	6,429,417
Newly issued decrees (pending)	4,287	13,158,171

Source: Ministry of Economy

A.2 Contribution rate schedule for new pension scheme starting 2003

Components	Year 1	Year 2	Year 3	Year 4	Year 5
Personal Account	5.0	5.5	6.0	7.0	8.0
Insurance	1.0	1.0	1.0	1.0	1.0
Fondo de Solidaridad Social	0.4	0.4	0.4	0.4	0.4
AFP Commission	0.5	0.5	0.5	0.5	0.5
Operations of *Superintendencia*	0.1	0.1	0.1	0.1	0.1
Total	7.0	7.5	8.0	9.0	10.0
Contribution					
Worker	1.98	2.13	2.28	2.58	2.88
Employer	5.02	5.37	5.72	6.42	7.12

Source: Social Security Law

A.3 Breakdown of wage bill by type of worker and formal sector status

	Number	Percent of total	Wage bill (millions)	Percent of total	share of GDP
Total	3120249	100%	195,398	100%	60.5%
Formal sector workers	1493386	48%	106,936	55%	33.1%
public employees	360865	11.6%	24,203	12%	7.5%
IDSS contributors	565000	18.1%	16,145	8%	5.0%
self employed & owners	78102	3%	16,894	9%	5.2%
below minimum or semi-	246466	8%	5,121	3%	1.6%
estimated above ceiling	242956	8%	27,671	14%	8.6%
Informal sector workers	1626863	52%	88,462	45%	27.4%
self employed & owners	1252437	77%			
employees	374426	23%			

Source: World Bank staff estimates based on Central Bank (2001).

A.4 Affiliates and contributors by AFP, September 2003

Participation in the Market by AFP
December 31 2003

AFP	Affiliates	Participation as a Total of Affiliates (%)	Contributors	Participation as a Total of Contributors (%)	Contributions to IA (RD$)	Participation as a Total of Contributions to IA (%)
BBVA Crecer	120,745	12.24%	97,161	13.44%	130,787,726.02	9.99%
Camino	18,764	1.90%	13,033	1.80%	21,793,550.53	1.66%
Caribalico	18,292	1.85%	13,959	1.93%	22,678,969.67	1.73%
Popular	284,709	28.86%	258,599	35.78%	486,369,084.59	37.13%
Porvenir	117,363	11.90%	103,154	14.27%	150,276,477.79	11.47%
Profesional	11,846	1.20%	11,457	1.59%	35,233,469.25	2.69%
Reservas	111,325	11.28%	62,729	8.68%	99,895,647.79	7.63%
Romana	11,764	1.19%	11,399	1.58%	19,325,066.81	1.48%
Siembra	136,648	13.85%	117,580	16.27%	230,922,633.56	17.63%
Subtotal AFP	**831,456**	**84.28%**	**689,071**	**95.33%**	**1,197,282,626.01**	**91.41%**
PAYG	**155,082**	**15.72%**	**32,207**	**4.46%**	**111,549,577.94**	**8.52%**
Without information			1,541	0.21%	994,674.57	0.08%
Total	**986,538**	**100.0%**	**722,819**	**100.0%**	**1,309,826,878.52**	**100.0%**

Source: UNIPAGO

A.5 Affiliates by AFP and Age

Distribution of Affiliates by AFP and Age Cohort
December 31, 2003

AFP	Age										Total
	19-	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 +	
BBVA Crecer	3,127	24,111	26,200	21,788	16,637	11,557	7,184	4,511	2,767	2,863	**120,745**
Camino	403	3,301	3,670	3,229	2,712	1,975	1,430	974	548	522	**18,764**
Caribalico	331	2,645	3,142	3,058	2,716	2,151	1,654	1,142	719	734	**18,292**
Popular	6,279	52,343	62,429	53,971	41,531	27,692	17,118	10,668	6,096	6,582	**284,709**
Porvenir	3,289	23,891	26,605	22,028	15,904	10,350	6,627	4,018	2,462	2,189	**117,363**
Profesional	186	1,754	2,909	2,534	1,897	1,153	709	324	179	201	**11,846**
Reservas	1,134	12,859	16,935	17,934	18,287	16,608	11,929	7,401	4,232	4,006	**111,325**
Romana	219	1,152	1,519	1,672	1,620	1,432	1,230	1,011	754	1,155	**11,764**
Siembra	3,344	25,782	29,778	25,313	18,981	13,052	8,377	5,247	3,284	3,490	**136,648**
Subtotal AFP	**18,312**	**147,838**	**173,187**	**151,527**	**120,285**	**85,970**	**56,258**	**35,296**	**21,041**	**21,742**	**831,456**
PAYG	**311**	**4,637**	**10,488**	**14,456**	**20,026**	**23,201**	**25,768**	**20,426**	**13,896**	**21,873**	**155,082**
Total	**18,623**	**152,475**	**183,675**	**165,983**	**140,311**	**109,171**	**82,026**	**55,722**	**34,937**	**43,615**	**986,538**

Fuente: UNIPAGO

A.6 Contributors by AFP and Age

Distribution of Contributors by AFP and Age Cohort
December-03

AFP	Age										Total
	19-	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 +	
BBVA Crecer	1,950	15,110	16,548	13,914	10,111	6,660	3,768	2,209	1,212	1,130	**72,612**
Camino	212	1,791	2,079	1,792	1,423	1,012	644	422	220	205	**9,800**
Caribalico	212	1,601	1,982	1,846	1,681	1,283	876	581	346	278	**10,686**
Popular	4,384	37,384	46,858	40,964	31,567	20,635	12,551	7,720	4,301	4,342	**210,706**
Porvenir	2,253	16,527	19,115	15,916	11,212	7,002	4,186	2,424	1,412	1,107	**81,154**
Profesional	134	1,337	2,344	2,036	1,546	970	567	264	135	151	**9,484**
Reservas	593	6,251	8,051	7,864	7,301	5,956	4,063	2,547	1,406	1,380	**45,412**
Romana	141	836	1,246	1,429	1,373	1,242	1,050	892	669	885	**9,763**
Siembra	2,180	17,295	21,219	18,484	13,844	9,127	5,532	3,327	1,865	1,804	**94,677**
Subtotal AFP	**12,059**	**98,132**	**119,442**	**104,245**	**80,058**	**53,887**	**33,237**	**20,386**	**11,566**	**11,282**	**544,294**
PAYG	**32**	**913**	**2,011**	**2,725**	**3,640**	**4,101**	**5,054**	**4,157**	**2,632**	**2,967**	**28,232**
Without information	640	1,207	879	577	429	246	135	68	53	109	**4,343**
Total	**12,731**	**100,252**	**122,332**	**107,547**	**84,127**	**58,234**	**38,426**	**24,611**	**14,251**	**14,358**	**576,869**

Source: UNIPAGO

A.7 Average Salary by Age

Insured Monthly Wage by Age Cohort
Average wage in DR$
2,003

Age	Months		
	October	November	December
< 20	$ 3,427.24	$ 3,613.84	$ 3,774.85
20-24	$ 4,510.65	$ 4,688.35	$ 4,831.30
25-29	$ 6,091.05	$ 6,288.36	$ 6,434.34
30-34	$ 7,301.26	$ 7,495.59	$ 7,685.60
35-39	$ 8,271.79	$ 8,434.87	$ 8,637.20
40-44	$ 8,735.15	$ 8,913.60	$ 9,127.84
45-49	$ 9,267.71	$ 9,430.18	$ 9,660.37
50-54	$ 9,480.93	$ 9,607.23	$ 9,843.62
55-59	$ 8,895.26	$ 9,031.55	$ 9,280.40
60 +	$ 8,161.69	$ 8,294.00	$ 8,560.76
Average	**$ 7,067.78**	**$ 7,229.75**	**$ 7,407.06**

Source: UNIPAGO

A8. Monthly Collection by AFP

Monthly Collection by AFP according to Concept, in DR Pesos
December, 2003

AFPs	Individual Account		Disability and Survivorship Insurance	AFP's Fees	Solidarity Fond	Interests	Other Charges	Total
	Mandatory Contributions	Voluntary Contributions						
BBVA	23,778,269.19	245,830.03	4,662,878.65	2,382,931.01	1,906,352.53	61,440.16	309,665.41	**33,347,366.98**
Camino	4,124,713.53	27,928.89	803,877.00	413,203.20	330,563.97	8,810.97	60,541.42	**5,769,638.98**
Caribalico	4,407,118.37	34,827.58	858,018.55	441,449.56	353,162.19	8,902.68	47,307.47	**6,150,786.40**
Popular	92,231,190.09	685,070.88	18,018,182.18	9,236,458.40	7,389,159.89	160,154.61	816,844.74	**128,537,060.79**
Porvenir	27,874,113.39	143,208.08	5,491,097.37	2,791,795.17	2,233,447.34	52,794.81	270,511.85	**38,856,968.01**
Profesional	5,905,437.08	24,058.79	1,160,598.99	590,848.12	472,670.42	3,535.78	17,032.51	**8,174,181.69**
Reservas	18,244,838.46	224,001.72	3,536,242.19	1,828,522.79	1,462,836.61	48,874.18	249,245.88	**25,594,561.83**
Romana	3,465,946.10	70,263.39	622,927.29	346,632.92	277,305.00	421.25	2,025.71	**4,785,521.66**
Siembra	42,589,574.30	232,319.56	8,331,450.44	4,266,497.57	3,413,195.04	90,555.33	423,065.36	**59,346,657.60**
Subtotal AFPs	**222,621,200.51**	**1,687,508.92**	**43,485,272.66**	**22,298,338.74**	**17,838,692.99**	**435,489.77**	**2,196,240.35**	**310,562,743.94**
PAYG	**16,353,522.74**	**4,647,262.74**	**3,064,182.91**	**1,636,478.30**	**1,309,169.93**	**13,421.47**	**60,586.14**	**27,084,624.23**
Sipen Operation								**4,807,012.71**
Without information	982,407.25	10,456.33	189,759.40	98,452.13	78,760.47	2,520.36	20,332.05	**1,382,687.99**
Total	**239,957,130.50**	**6,345,227.99**	**46,739,214.97**	**24,033,269.17**	**19,226,623.39**	**451,431.60**	**2,277,158.54**	**339,030,056.16**

Source: UNIPAGO

A.9 Portfolio Investment Composition

Portfolio Investment Composition
of the Pension Funds, by Issuer*
December 31, 2003

Economic Sub-sector / Issuer	$DR	Percentage (%)
Commercial and Service Banks	**1,231,935,429.32**	**55.8%**
Banco Dominicano del Progreso	385,611,702.23	17.5%
Banco Profesional	335,175,023.54	15.2%
Banco Popular	159,191,297.43	7.2%
Banco BHD	76,761,734.00	3.5%
The Bank of Nova Scotia	70,238,735.06	3.2%
Banco Santa Cruz	12,996,079.73	0.6%
Banco Mercantil	37,933,827.53	1.7%
Banco Leon	41,856,171.65	1.9%
Banco de Reservas	112,170,858.15	5.1%
Savings and Loans Associations	**779,571,789.80**	**35.3%**
Asociacion Popular de Ahorros y Prestamos	311,007,548.44	14.1%
Asociacion La Nacional de Ahorros y Prestamos	396,680,104.75	18.0%
Asociacion Norestana de Ahorros y Prestamos	2,338,147.96	0.1%
Asociacion Mocana de Ahorros y Prestamos	2,087,296.32	0.1%
Asociacion Cibao de Ahorros y Prestamos	462,118.41	0.0%
Asociacion Dominicana de Ahorros y Prestamos	66,996,573.92	3.0%
Development Banks	**134,058,989.11**	**6.1%**
Banco de Desarrollo Industrial	22,776,330.63	1.0%
Banco de Desarrollo ADEMI	61,198,251.42	2.8%
Banco de Desarrollo Atlas Cumbres	4,647,445.29	0.2%
Banco Lopez de Haro de Desarrollo y Credito	45,436,961.77	2.1%
Financial Entities	**3,862,552.75**	**0.2%**
Motor Credito	3,862,552.75	**0.2%**
Banco Nacional de la Vivienda	**57,244,161.17**	**2.6%**
Total	**2,206,672,922.15**	**100.0%**

* It does not include nor the investment portfolio of pensions fund of the Central Bank neither complementary funds.