

SOCIAL SECURITY REFORMS IN COLOMBIA: STRIKING DEMOGRAPHIC AND FISCAL BALANCES

*Sergio Clavijo**

This paper analyzes the economic rationale for adopting parametric pension reforms and reforms broadening the coverage of public health care in Colombia during 1993-2008. Parametric pension reforms have focused on increasing the retirement age and moderating replacement rates. The health system reforms aimed at reaching universal coverage by 2012, while providing a more homogenous level of services. Our results indicate that the Net Present Value of the debt of the social security system in Colombia is roughly 160 per cent of GDP for pensions and about 97 per cent of GDP for the health system.

1 Introduction

The literature on labor economics identifies three salient stages regarding social security developments at the global level. The first era was born in Germany in 1883, when Chancellor Bismarck had the visionary idea that initiated a compulsory savings system allowing the State to guarantee universal pension benefits.

In the second stage, this system expanded throughout Europe with minor idiosyncratic differences and even reached across the Atlantic to the United States, where several labor compensation packages were developed over the years 1901-28. With the arrival of the Great Depression in 1929-31, the desire to enlarge and secure these labor benefits grew substantially, leading to the well-known New Deal initiated in 1935-36. For enterprises, the expansion of the formal system was beneficial, as it allowed workers to receive a pension benefits package (not subject to taxes) that would help attract highly sought-after skilled labor. This was deemed preferable to an open “wage war”, especially in an environment in which union affiliations had increased from 10 to nearly 30 per cent between 1930 and 1947 (Krugman, 2007, p. 35). With contribution rates initially set at low levels, the benefits of the system, for the enterprise sector, outweighed its costs.

However, with global competition reaching new heights in the 1980s and 1990s, the balance sheets of US firms were hamstrung by massive social security costs (Bernanke, 2008). This change in the competitive landscape compelled the rise of a third stage in social security development, which could well be termed the era of outsourcing and off-shoring. This stage has resulted in increasing labor informality and the loss of prized social security protection in both developed economies and the so-called emerging markets, which had attempted to replicate the successful path followed by the US in the golden period of 1935-50.

The social security path followed by many Latin America countries resembled many features of the social security history of the United States. In the specific case of Colombia, compulsory wage increases came first with the movement toward unionization (1940-50), as related by Urrutia (1969) and Bushnell (1993). Later came the establishment of pension benefits in 1967, through the

* Executive director of ANIF (Asociación Nacional de Instituciones Financieras), a Colombian-based think-tank.

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creation of the public *Pay-as-You-Go* System (Paygo), administered by the *Instituto de los Seguros Sociales* (ISS).

However, this system quickly dissolved into a crisis as a result of low participation rates – only 23-25 per cent of the labor market contributed. In response, the government carried out Law 100 of 1993, creating a dual public-private competitive system in which new generations were given the opportunity to migrate to a “defined contribution” scheme run by the *Administradoras de Fondos de Pensiones* (AFPs). This private system mimicked several elements of the Chilean reform of the early 1980s (Clavijo, 1995).

The aforementioned Law 100 of 1993 also ambitiously set the goal of attaining universal health coverage in Colombia, based on a very complex system of cross subsidies. Paradoxically, what has taken the advanced countries more than a century to accomplish is now being pursued by Colombia in just four decades, albeit at a much higher fiscal cost.

In what follows, we analyze the economic rationale for adopting parametric pension reforms and reforms broadening the coverage of public health care in Colombia during 1993-2008. Parametric pension reforms have focused on increasing retirement age (with disappointing results) and moderating replacement rates (with a fairly good balance between acquired rights of the old-age cohorts and new demographic challenges stemming from young cohorts with longer life expectancies). The health system reforms aimed at reaching universal coverage by 2012 (currently at 86 per cent), while providing a more homogenous level of services across different social strata. The latter reflected the effects of increased “judicial activism,” with potentially substantial fiscal consequences.

We use official simulations regarding the public sector financial gap stemming from current pensions arrangements and run our own simulations regarding the health system financial gap. Based on these results, we compute the Net Present Value (NPV) of the debt of the social security system in Colombia, which currently hovers around 160 per cent of GDP for pensions and about 97 per cent of GDP for the health system (over the period 2007-50).¹

After this introduction, we focus in Section 2 on the parametric pension reforms carried out in Colombia over 1993-2008 and its fiscal effects. Section 3 is devoted to analyzing health care reforms, which have been pursued in tandem with the pension reforms. Conclusions are provided in Section 4.

2 Pension reforms in Colombia

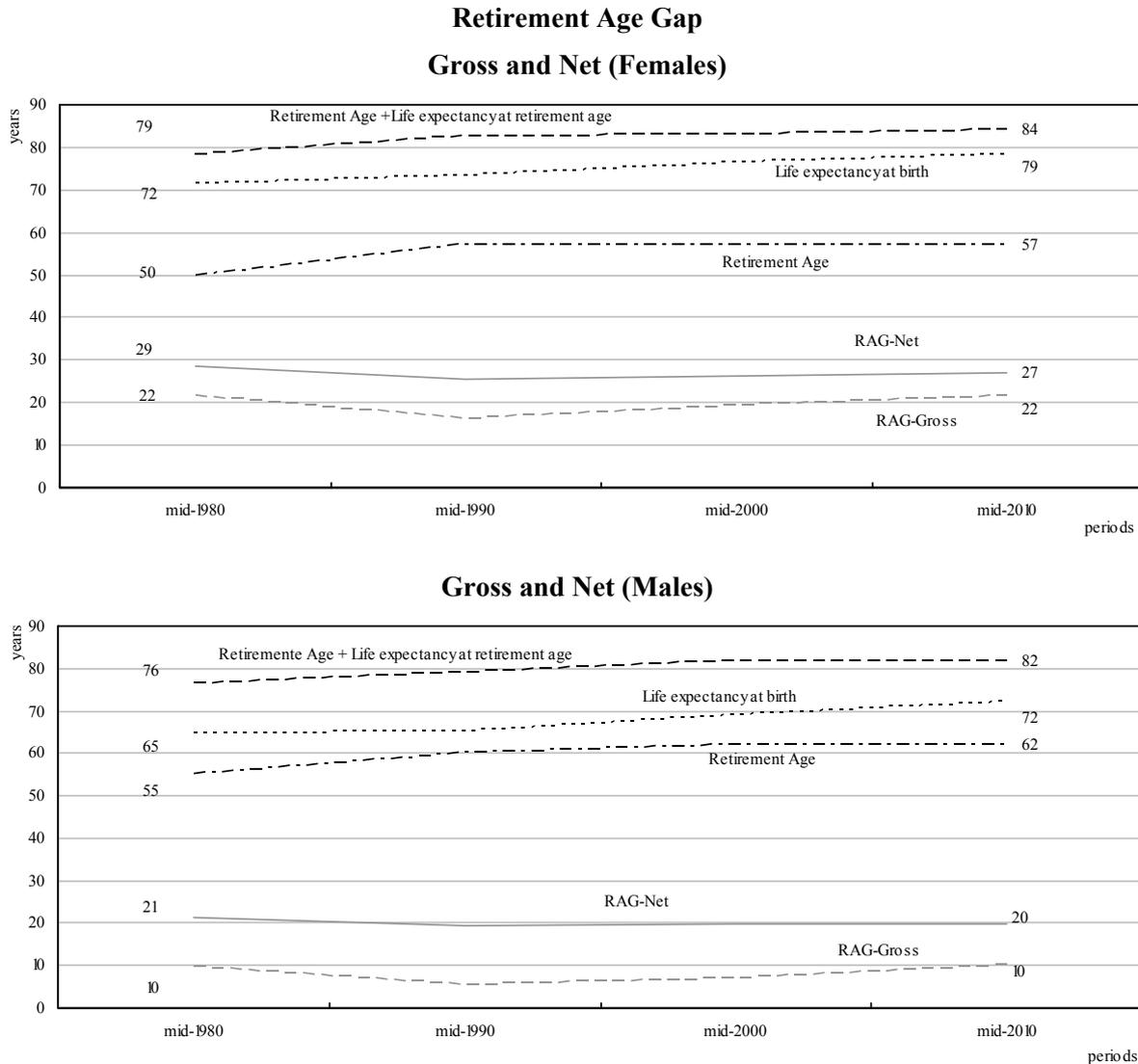
We analyze pensions reforms in Colombia according to parameters related to: a) retirement age and b) replacement rates (equivalent to the ratio of pension to the wage upon which contributions were made). The first generation of such pension reforms took place during the Gaviria Administration (1990-94), as reflected in Law 100 of 1993, and the second generation reforms occurred under the first Uribe Administration (2002-06), as instituted by Laws 797 and 860 of 2003 and the Constitutional Reform of 2005.

2.1 Retirement age

Before Law 100 of 1993, the bulk of public sector workers were covered by Law 33 of 1985

¹ All ratios to GDP used in this document are based on GDP estimates of the Colombian National Statistical Institute (DANE) before the historical revision undertaken in 2008, which resulted in upward revisions to GDP. For example, 2007 GDP is approximately 18 per cent higher under the new estimates.

Figure 1



Source: author's computations based on data from DANE.

regarding retirement conditions in terms of time of service and age. The age of retirement was as low as 50/55 (female/male) after only 20 years of service. Private sector retirement ages were five years higher at 55/60 (female/male).

The retirement age requirements of the mid-1980s in Colombia were rather low when compared to life expectancy figures of 66 at birth or 70 when computed at the age of retirement. In this regard, it is possible to establish what we could term the Retirement Age Gap (RAG). The RAG can be computed in *gross* terms, such that $RAG-Gross = \text{Life expectancy at birth} - \text{official retirement age}$; and also in *net* terms, such that $RAG-Net = \text{Life expectancy at retirement age} - \text{official retirement age}$. The relevant concept for measuring the fiscal impact of pension subsidies is given by the RAG-Net, since it provides the time span during which pensions will be paid. The magnitude of such pension subsidies will be given by the rate of return on pensions in excess of contributions at reasonable rates of return, as discussed below.

Figure 1 depicts the path followed by the RAG-Net during the mid-1980s through the mid-1990s for females, beginning at 29 years of age and declining to 26 as retirement age increased from 50 to 57. But this reduction in the net burden of pensions evaporated as life expectancy, measured at retirement age, continued to rise while maintaining constant the retirement age at 57. Hence, the age of retirement plus life expectancy at retirement age increased from 79 to 84 over the last four decades.

In the case of males, the level of RAG-Net is lower at 21 years, although its trajectory is similar to that of females, declining later to 19 as retirement age increased from 55 to 60. But again, such fiscal relief has narrowed as the retirement age has been fixed at 62 (instead of 65, as initially proposed to Congress in 1993) and life expectancy at the age of retirement, plus the age of retirement, has continued to rise from 76 to 82.

Unless the parameter of retirement age is increased to 60/65 (female/male) in the near future, the RAG-Net will continue to expand to 29/21 (female/male), leading to the need for additional financing of pension expenditures from general tax revenues by 2015. By then, these figures on the RAG-Net would be above the levels prevalent when adopting the 1993 reform.

Given the political difficulties in adjusting these parameters of retirement age (as life expectancy increases), it would be useful to link them through a formula that aims at maintaining the RAG-Net constant and (preferably) below the historical mark of 26/19 (female/male), which is equivalent to using an approach that indexes retirement age to life expectancy, as being discussed in Hungary. In the case of Colombia, this would imply retirement ages be increased to 64/67 (female/male). This would still be below the 69 benchmark envisioned for the United States in the coming decades (see Advisory Council on Social Security, 1997; Jousten, 2007).

These parametric reforms need to be tackled decades before they become effective in order to better prepare the population for such changes and also to avoid judicial set-backs. It is worth noting, for example, that the Colombian Constitutional Court ruled unlawful article 4 of Law 860 of 2003, which sought to bring forward (to 2008) the retirement age increase (from 60 to 62) approved for 2014 under Law 100 of 1993. In this case, the Court argued that pension plan participants had “acquired rights” regarding expected retirement ages, which could not be negated.

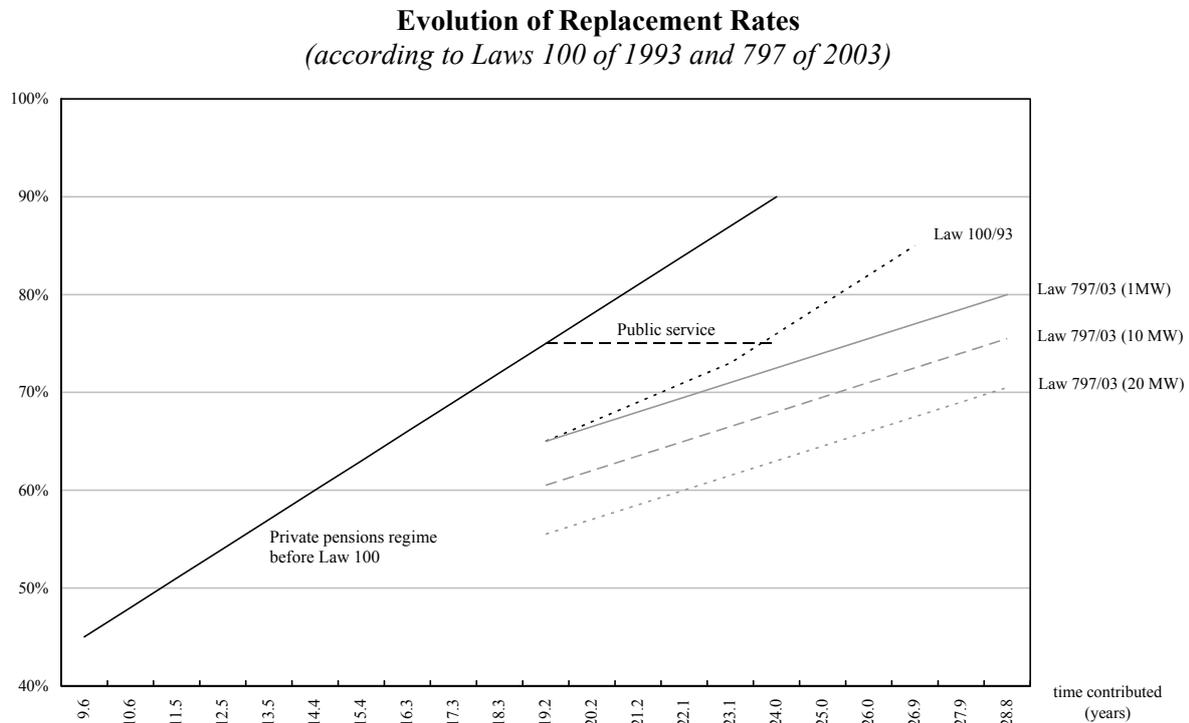
In practice, changing key pension parameters in Colombia has required Constitutional amendments, as occurred in 2005, while fixing the date at which old-age pension parameters would cease to apply (July 31st of 2010), except for the military and teachers. For these reasons, the “transitional pension period,” in which exaggerated pension benefits prevail, has extended for more than 20 years (1993-2014), instead of adopting reforms on a *pari-passu* basis from the early 1990s, as was implemented in Spain under the so-called *Pacto de Toledo*.

2.2 Replacement rates

Replacement rates are defined as the ratio of the pension to wage earnings (upon which pension contributions were made). As it is well known, this variable is crucial for determining financial equilibrium in the paygo-system. If contributions plus (imputed) interest are enough to fund annuity payments over a determined horizon, the system will be in equilibrium. For instance, contributions of about 10 per cent of payroll over 30 years could assure a replacement rate of about 60 per cent over 20 years of pension benefits, if such savings yield a compound real rate of 6 per cent per annum.

In general, paygo-systems in Latin America have promised replacement rates above those that maintain the system’s equilibrium, implying that additional taxes and/or public debt would be used to finance these outlays (Arenas and Llanes, 2006). In the case of Colombia, replacement rates

Figure 2



hovered around 75-90 per cent during the 1980s and early 1990s (see Figure 2). These rates were clearly above the equilibrium for a paygo-system that allowed for easy access (with eligibility for pensions after only 10 years of contribution) and a low level of contributions (6-8 per cent of wages). Furthermore, in several cases, public employees had access to replacement rates of 100 per cent (e.g., for workers in the petroleum sector, education, or legislative branch).

By contrast, Severinson (2008) reports that average replacement rates in the OECD are close to 68 per cent, while contributions are in the range of 10-15 per cent. In the United States, the mode value of replacement rates under the paygo-system has been around 45 per cent (Advisory Council on Social Security, 1997).

Given easy conditions to qualify for a pension, the Colombian paygo-system quickly moved from a position of surplus (close to 1-2 per cent of GDP) over the 1970s-1980s into a position of deficit in the mid-2000s. Since then, the central government has been forced to use incremental tax support (from 2 per cent of GDP in 1998 up to 4.6 per cent of 2008, equivalent to one-third of tax collections) in order to comply with public pension obligations.

Aiming to contain these fiscal pressures in Colombia, Law 100 of 1993 and Law 797 of 2003 moderated replacement rates by means of increasing contributions: a) in terms of years of service (from a minimum of 10 years up to 20 years) and b) in amount (from 6-8 up to 10-12 per cent of wage earnings). Additionally, the constitutional amendment of 2005 dismantled, for newcomers, the extra-payment of about 8 per cent resulting from the so-called “Mesada 14”, generalized by the constitutional court rulings over the years 1994-2004 (Clavijo, 2007).²

² Legal wages in Colombia amount to 13 monthly payments, including a one-month obligatory bonus payment. An additional monthly payment (called “Mesada 14”) had been ordered by Art. 142 of Law 100 of 1993, seeking to level off wages and pensions among public workers. However, the “Mesada 14” continued to be extended to all public and private pensioners during 1994-2004. The constitutional amendment of 2005 put an end to granting “Mesada 14” for people retiring after that year.

Figure 2 depicts the change in replacement rates resulting from these reforms, which point to an average replacement rate in the range of 65-70 per cent for new pensioners starting in 2014. Here we assume that the historical low density contributions (of about 50 per cent of labor time) and low wage contributions (below 2 minimum legal wages for nearly 70 per cent of contributors) will continue to be the norm, as a result of high labor market informality. An over-regulated labor market and high payroll taxes (of about 55 per cent on behalf of the firm, including earmarked taxes) would have to be corrected in order to increase labor formality in the future, as will be discussed further.

These replacement rates under the paygo system differed markedly with those of the private system instituted under Law 100 of 1993. The average return on portfolios managed through Colombian AFPs during 1995-2007 was close to 10 per cent per-year in real terms. This means that a worker contributing for 30 years (full density) could obtain replacement rates close to 60 per cent, which is about ten percentage points below the expected value under the new paygo rules (see Figure 3).

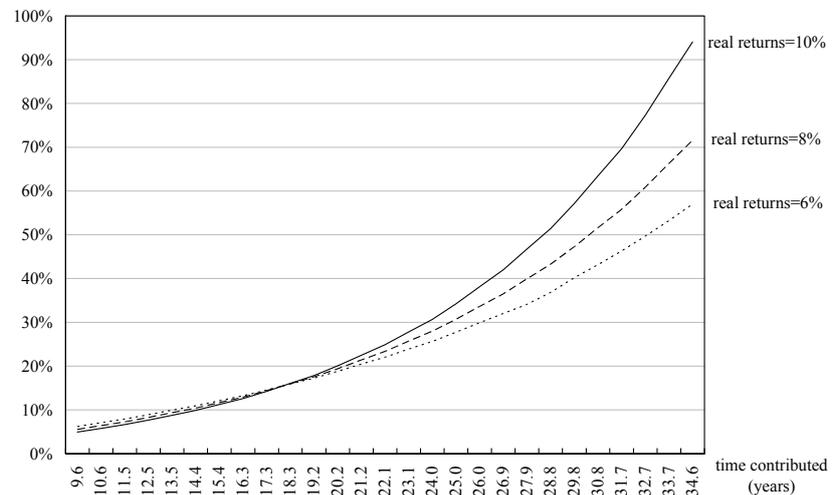
However, high informality is also affecting private sector contributions, so it is very likely that contributions would be closer to the range of 20-25 years (instead of 30-35) and that annual real returns continue to converge to 6 per cent (as has happened in Chile after 25 years under the private-accounts of the AFPs). Under this scenario, replacement rates under the AFPs would be much lower, in the range 40-50 per cent (instead of 60-70 per cent), implying an increasing gap with respect to the expected return under the reformed paygo system. Note that currently about 70 per cent of contributors are with the AFPs and 30 per cent remain with the paygo system.

Hence, even the reformed paygo system provides implicit fiscal subsidies, which could lead to a substantial burden on the fiscal accounts of Colombia if workers revert to the public system. In both systems, contributions need to improve in density (by means of increasing labor formality) and in amount (increasing the share of earnings that are channeled into the system).

In order to contain the fiscal risks owing to a possible increase in participation in the public paygo system, the Colombian government recently enacted decree 2765 of 2007. Under this decree, the public fund of financial guarantees (FOGAFIN) could provide resources to avoid (cumulative) negative real returns on any AFP account at the moment of retirement (following Art. 99 of Law 100 of 1993). Additionally, Law 797 of 2003 has limited the time period for switching between the public and private regimes to 10 years before retirement age, seeking to contain "last-minute" financial arbitrage between regimes.

Figure 3

Expected Replacement Rates under the Private AFP's System (sensitivity to portfolio's real returns)



Source: Author's computations.

Further complications among public-private system movements have emerged from disputes regarding the value of the exit-bond for high wage contributors (above 10 minimum wages) granted under Law 100 of 1993. Decree-Law 1299 of 1994 allowed the value of this bond to reach 20 minimum wages but the constitutional court (C-734 of 2005) reduced it to 10 minimum wages for those moving from the public into the private AFPs after year 2006 (T-147 of 2006). This exit-bond reduction could represent a reduction of about 20 percentage points in terms of replacement rates for those moving from the public into the private system. This means that high wage-earners are likely to remain in the public paygo system due to the double effect of secular declines in the return to private pension portfolios and the capping of exit bonds.

In this light, the rate of return on the private accounts of the AFPs needs to be improved in order to reduce the risk of reversals toward the public paygo system. The world financial crises of 2007-08 caused record-low returns on Colombian-AFP assets (now averaging -2 per cent in real terms over the last 36 months). This difficult financial juncture could exacerbate reversals toward the public system in Colombia.

The approval of the financial reform (currently under discussion in the Colombian Congress), proposing “multifunds” or generational portfolios, is key to improving long-term returns. The reforms are similar in spirit to those implemented in Chile (2002), Mexico (2005), and Peru (2005). As discussed by Conrads (2008), these generational portfolios have the potential of improving the return/risk ratios and avoiding artificial investment “ceilings” that can lead to sub-optimal allocation of portfolio assets. The nationalization of the AFPs by the government of Argentina in late 2008 represents a warning for the region about the need to strike a good balance in terms of coverage and satisfactory replacement rates in private pension systems.

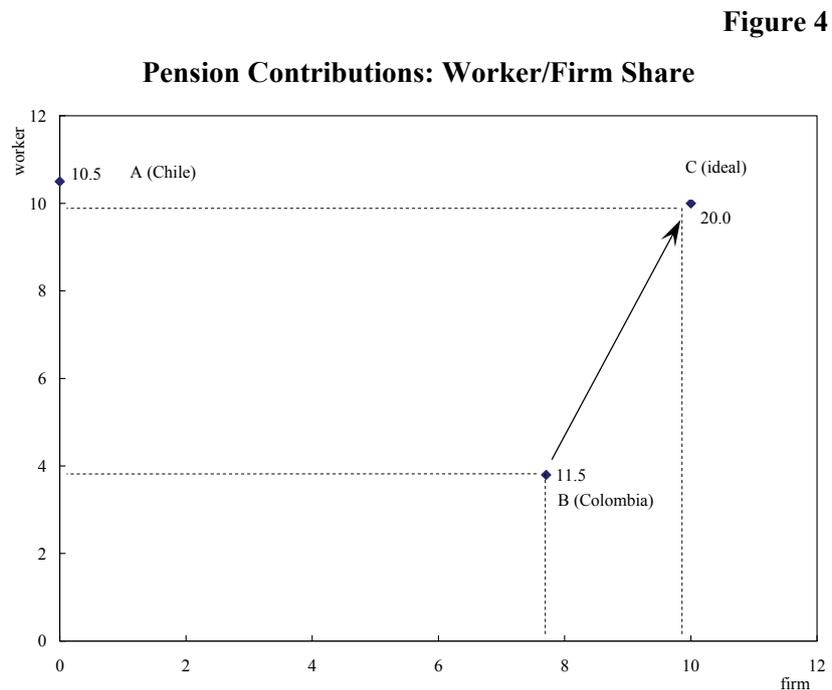
2.3 Coverage and labor informality

Solving the problem of low coverage of the pension system in Colombia (currently at only 25-27 per cent of the active labor force) requires simultaneous efforts on several fronts: 1) a reduction in payroll taxes and 2) restructuring the share of contributions between workers and firms. As shown by Kugler and Kugler (2008), the Colombian social security reforms have increased payroll taxes and only about one fifth of the increase in taxes has been shifted to workers as lower wages. Furthermore, they found that in Colombia a 10 per cent increase in payroll taxes reduces formal employment by between 4 and 5 per cent.

Regarding payroll taxes paid by firms, there is a need for substituting the “pure tax” components through increases in the VAT rate from 16 per cent to 17 per cent. Hence, social expenditures related to child-support programs (ICBF) and labor-training programs (*Sena*), which currently represent 3 and 2 per cent of payrolls (respectively), would be made through regular budgetary channels. The subsidy given to quasi-public entities known as *Co-Familiares* (4 per cent on payrolls) should be dismantled, taking into account that they are now able to run social programs based on their asset accumulation over the last four decades. Taken together, this would allow for a potential reduction of 9 percentage points on firm payrolls, boosting their international competitiveness without affecting key-social programs of the ICBF and *Sena* (Clavijo and Lozano, 2001; Cárdenas and Bernal, 2003).

As for options to achieve a more desirable sharing of the burden of contributions between firms and workers, it is worth highlighting that in Colombia the firms absorb nearly 66-75 per cent of social security costs. This high cost sharing is aggravating labor informality as firms avoid such labor related-costs by out-sourcing and off-shoring. The social drawback of such out-sourcing is that many self-employed workers are left out of the system of social protection, given weaknesses in enforcing mandatory participation for these workers.

While Chile totally dismantled payments on behalf of the firm in the early 1980s (which amounted to 27 per cent of the payroll), Colombia has increased them to nearly 55 per cent (of which 10 percentage points were increased during 1993-2008). Figure 4 compares the cost-sharing between firms/workers in Chile and Colombia regarding pension payments. In Chile the worker pays the entire 13.5 per cent of payroll contribution, where 10.5 per cent of payrolls (78 per cent of the total) goes into his/her account and the remaining 3 percentage points pays for insurance and administrative fees.



Source: Author's estimates.

By contrast, in Colombia low-wage workers (up to 4 minimum wages) contribute to social security with 16.5 per cent of payroll, where the firm puts up 75 per cent of such contributions. Of these contributions, only 11.5 percentage points (72 per cent) go into the private account (see Figure 4). For high wage workers, the “pure tax” component increases as the share going into the private account falls from 72 to 64 per cent.

In short, the structure of pension contributions in Colombia presents a double misalignment of incentives. Firms face high labor-related costs through their high share of social security contributions (75 per cent) and, second, through extra quasi-fiscal payments (ICBF, *Sena*, *Co-Familiares*) that finance nonpension social assistance benefits. Workers also face implicit taxes on their social security payments, where only 64-72 per cent of such payments go into their personal accounts, compared with the 78 per cent observed in Chile.

As mentioned earlier, it is likely that higher contributions feeding directly workers' accounts will be needed to support replacement rates above 50 per cent, especially in light of the secular decline in the rate of return on private pension portfolios. In the case of Colombia, the system should target contributions into workers' accounts of 15-20 per cent, with an even sharing of this burden between workers and firms. Furthermore, the payroll tax should not be used to finance redistributive social assistance programs, which should instead be financed out of general tax revenues.

2.4 Fiscal impact of pension reforms

Pension reforms in Colombia have focused on increasing the retirement age and moderating replacement rates. Fifteen years have elapsed since Law 100 of 1993, providing an appropriate

juncture to take stock of these parametric changes, their effects on the fiscal accounts, and the remaining contingent liabilities of the pension system envisaged for the next 30-50 years.

There are two salient issues regarding social security coverage and fiscal costs in Colombia. The first issue involves the early warnings provided by Colombian economists in the mid-1990s about the forthcoming exhaustion of cash reserves of the paygo system, as younger generations migrated toward the private system of the AFPs. In fact, the public system began using general taxes to pay for pension benefits as early as 2004 (less than four decades after launching the paygo-system and two years before the predicted date). Because the system continues to involve only 25-27 per cent of the labor market, under a dual private-public regressive scheme, the central government has been forced to allocate about a third of total tax revenues (nearly 5 per cent of GDP) to cover pension benefits of a population representing just 6 per cent (about one million retirees) of the total population (43 million).

The second issue involves the computation of contingent liabilities. This entails: 1) an estimate of legal claims for higher pensions (under the paygo system); and 2) additional costs stemming from longer life expectancies, under a fixed retirement age (resulting in larger RAG-Net). The population census conducted in 2005-06 indicates that, by the year 2050, the percentage of the population over 60 years of age will have tripled to 18 per cent and years of pension benefits (per retiree) are likely to continue expanding.

The cash flows required to honor pension benefits under the paygo-system were masked by the cash reserves managed by the ISS between 1967 and 2004 (when they were exhausted). In 1996, the stock of the ISS's pension reserves peaked at 2 per cent of GDP and afterwards began to decline as pension contributions were insufficient to honor pension benefits. The lack of significant new entrants under the new paygo system (1993 onwards) and the long delay in applying parametric corrections (until 2014) has yielded an onerous fiscal transition for Colombia, where the long-term deficit of the central government hovers around 2-3 per cent of GDP.

The rest of the public sector has been unable to compensate for this fiscal strain, unlike the case of Chile. The only significant efforts amount to 0.2 per cent of GDP retained by the central government to help territorial entities pay for their own pension liabilities (under the FONPET) and the funding of pension liabilities of the public oil (ECOPETROL) and telecom sectors resulting from capitalizations and/or privatizations. Taxing pension benefits and reducing the minimum pension guarantee (from 100 to 75 per cent of the minimum wage) were also attempted during the years 2003-06, but without any success in Congress.

According to official figures of the Ministry of Finance and the Planning Department (DNP) of Colombia, pension expenditure (on a cash basis) has increased over the period 2000-08, reaching 4.6 per cent of GDP in 2008. It is likely that such pension payments will peak at 5.2 per cent of GDP by 2010 (see Figure 5). This use of about a third of total central government tax collections to honor pension benefits has burdened the fiscal accounts during the last decade.

In the meantime, most of the new pension contributions have gone to the AFPs. Their portfolios have increased from nearly 2 per cent of GDP in 1995 up to 17 per cent of GDP by end-2008, where obligatory savings stand at 14 per cent of GDP, voluntary savings at 2 per cent of GDP, and unemployment insurance-payments (*cesantias*) at 1 per cent of GDP.

Official computations indicate that the Net Present Value (NPV) of pension liabilities over the years 2007-50, under the new rules, would amount to nearly 160 per cent of 2007 GDP (see Figure 6). This figure entails a significant reduction (of about 100 per cent of GDP) with respect to the NPV of 260 per cent of GDP estimated under no pension reform (pre-Law 100 of 1993), as estimated by Echeverry *et al.* (2001) and Osorio *et al.* (2005).

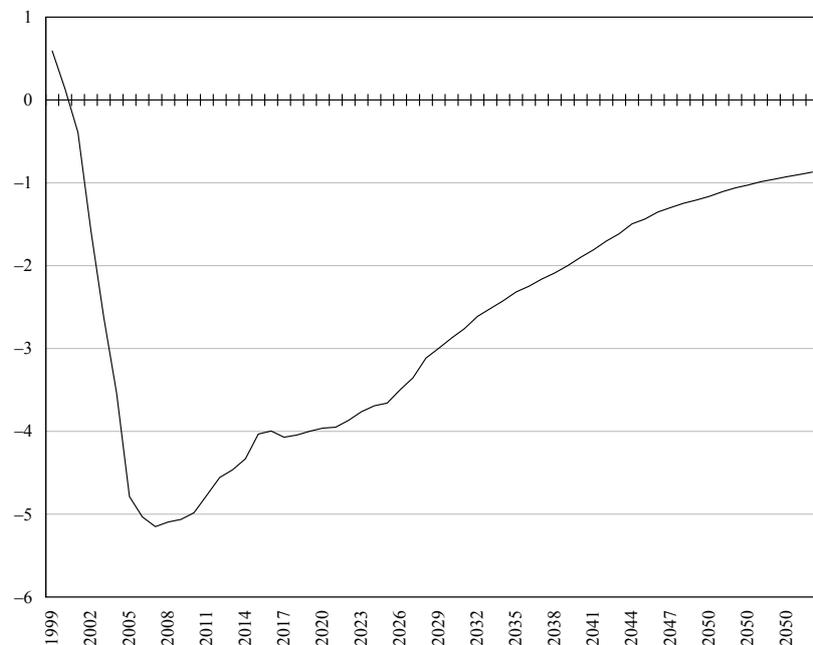
About 40 per cent of the GDP reduction in the NPV of pension liabilities can be attributed to Law 100 of 1993, which focused on reducing replacement rates and raising retirement ages. The remaining 60 per cent of the GDP reduction stems from Laws 797 and 860 of 2003, by further reducing replacement rates, and from the Constitutional reform of 2005, which forbade the use of special regimes into the future.

If the Constitutional Court had not ruled out (through C-754) bringing forward the effective year for the new pension parameters (as proposed by Art. 4 of Law 860), an additional 16 per cent of GDP could have been saved in the public accounts. The Court argued that “expectations of retirement dates” resulting from Law 100 of 1993 constituted valid “acquired rights” that could not be altered in subsequent laws. As we commented earlier, these judicial rulings make it imperative to move early when attempting to change pension parameters (retirement age and/or replacement rates), in order to avoid the risk that the courts intervene.

This reduction of about 100 per cent of

Figure 5

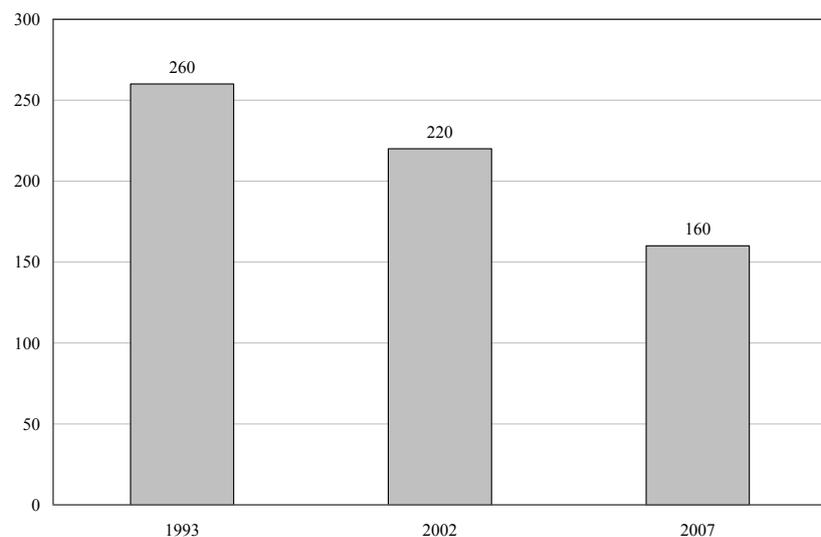
Projected Cash Payments to Support Paygo (percent of GDP)



Source: Ministry of Finance and Department of Planning of Colombia.

Figure 6

Estimated NPV of Pension Liabilities (percent of GDP)



Source: Author's estimates, based on Echeverry *et al.* (2001) and Osorio *et al.* (2005).

GDP in the NPV of fiscal obligations observed in Colombia is below the 200 per cent of GDP accomplished in Chile, where the NPV of pension liabilities was reduced from 300 to 100 per cent of GDP (Vial, 2008), as a result of a more expeditious pension transition from the paygo system into the private AFP system.

Low pension coverage (23-25 per cent of the working force) and implicit subsidies in the new paygo system rules still represent major challenges. These will need to be tackled through the reduction of payroll taxes levied on firms and increases in retirement ages as life expectancy continues to increase.

3 Health reforms in Colombia

3.1 Improving coverage and subsidies allocation: Law 100 of 1993

Law 100 of 1993 effected fundamental changes in the organization and day-to-day functioning of the health care system in Colombia. The main objective was to achieve universal health care coverage. At the beginning of the 1990s, just 28 per cent of the population had health care coverage, mainly those in upper income groups. In general, the private sector accounted for 45 per cent of hospital admissions and about 40 per cent of medical appointments.

Before Law 100, the health system was divided in three sub-systems: 1) a social security area, in which the public-entity of the *Instituto del Seguro Social* (ISS) handled simultaneously the insurance and health services; 2) a public network consisting of a complex and inefficient regional hospital structure; and 3) a private system, expensive in per capita terms and inclusive of only the highest socioeconomic strata.

Law 100 dismantled this disjointed system and constructed a single insurance system based on “cross subsidies” between two components: the Contributive System (CS) and the Subsidized System (SS). The CS divides the health-care contributions cost, at 12.5 per cent of payrolls, between the employer (67 per cent) and the employee (33 per cent). The SS was designed for individuals who lack financial means to pay for health care contributions.

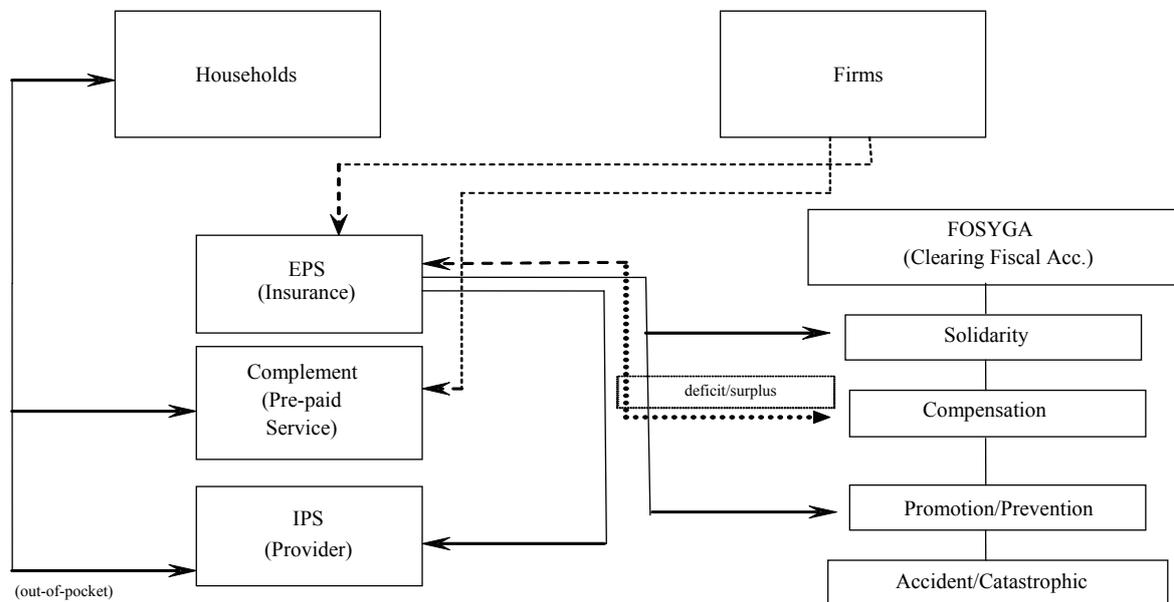
The insurance component of the health care system is based on the *Empresas Promotoras de Salud* (EPS), offering the mandatory basic health care plan known as *Plan Obligatorio de Salud* (POS). The service component is provided through the *Instituciones Prestadoras de Salud* (IPS). The EPS were permitted to create their own IPS, thereby integrating the insurance and health care services process (see Figure 7).

Fiscal decentralization in the Colombian health care system was implemented by Law 60 of 1993 and Law 715 of 2003. Each piece of legislation detailed the sources (revenue-sharing) and the uses (social expenditure) of territorial transfers. The main objective of Law 715 was to reduce volatility regarding territorial transfers, which were linked to tax collection of the central government in the previous year. About 85 per cent of such territorial transfers are earmarked for social expenditure, with 60 per cent devoted to education and 25 per cent for health services.

The *Fondo de Solidaridad y Garantía* (*Fosyga*), a public institution affiliated with the Ministry of Social Protection, serves as the principal mechanism for distributing funds within the health system. Contributions received by the *Fosyga* through payrolls are re-allocated to each *EPS* according to the wage level of each contributor (at the notional value of the so-called *Unidad de Pago por Capitalización*, UPC) and the basic service insured under the mandatory basic health plan (POS). The remaining funds help *Fosyga* pay for the subsidized component (SS). The gap between these collected funds and the expenditures of the health system are to be supplied by the central government. The POS plan differed among systems and social strata during 1993-2007, but the

Figure 7

Colombia: Structure of the Health Care System
(Law 100 of 1993)



Source: Author's conception, based on Clavijo (1998) and Barón (2007).

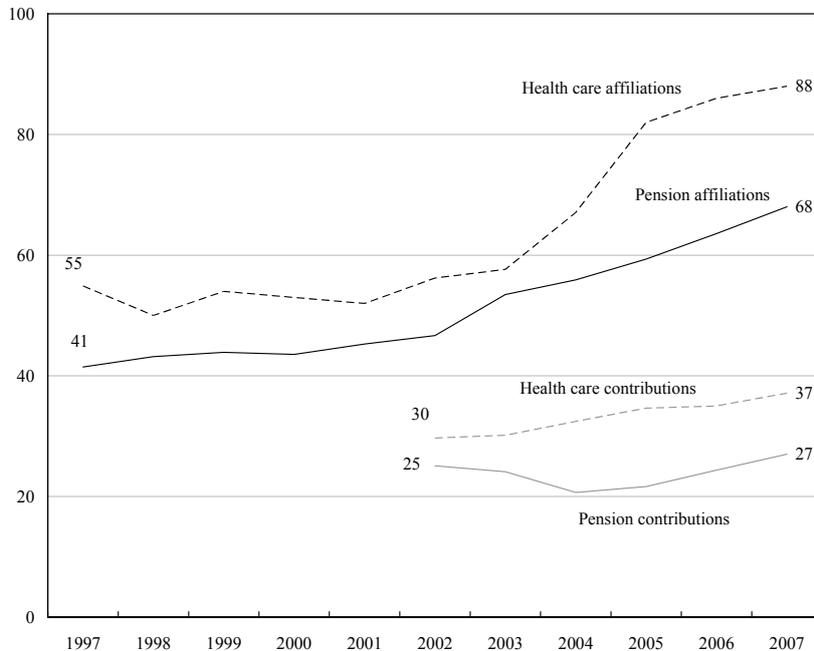
constitutional court recently ordered the harmonization of benefits (T-760 of 2008). More details can be found in Carrasquilla (2008), Clavijo and Torrente (2008), and Santa Maria and Garcia (2008).

Law 100 also realigned subsidies from the supply-side to the demand-side. Instead of allocating resources to public hospitals, Law 100 directed these resources toward users of health care services. The idea was to stimulate competition among the providers of such services and to improve the productivity of the health sector as a whole (see Masis-Pinto, 2008). Such a transition did not occur as rapidly as hoped. At the local level, some estimates indicate that demand subsidies have only increased from 6.4 per cent to just 14.5 per cent of total subsidies during the last decade.

The regional public health care entities have faced difficulties in learning new billing procedures, resulting in a slow transition from the "supply" into the "demand" system. By contrast, the private sector has been relatively successful in adopting the demand-driven system and has gained efficiency through the vertical integration of health services (EPS-IPS). Vertical integration has occurred quickly, estimated currently at 50 per cent within the system. For this reason, Congress recently imposed a limit of 30 per cent on new services contracted through integrated EPS-IPS in order to promote larger competition within the health-care system, according to Law 1122 of 2007.

3.2 Health care results

In Colombia, health care coverage has increased significantly, from 28 per cent of the population in the early 1990s up to 86 per cent by end-2006 (see Figure 8). The coverage of the

Figure 8**Colombia Health Care and Pension Coverage**

Source: Author's computations based on MHCP, DNP, Ministry of Social Protection and Dane.

subsidized system (SS) rose from 4.8 million (12.4 per cent of the population) to nearly 20 million (46 per cent of the population), whereas coverage of the contributive system (CS) tripled from 5 million (13 per cent of the population) to almost 17 million (40 per cent of the population). Special health care programs (including the military) account for an additional coverage of 2 per cent, so total health care coverage is currently close to 88 per cent of the Colombian population.

Unfortunately, this gain in coverage has not occurred with the expected financial balance (that is, two-thirds of the resources from the

contribute system (CS) and one-third from the subsidized system (SS)). The CS is currently financing only 55 per cent of the health costs, and the SS the remaining 45 per cent, including both public and private services. The public sector comprises the central government services, whose scope is being reduced under the new ISS, and the regional hospitals operated at the State level. The private sector comprises EPS-IPS services.

In fact, the ratio of workers actively contributing/labor force has increased slightly from 30 to 37 per cent during 2002-07 in the area of health services (see Figure 8). The ratio of those contributing to pensions remains ten percentage points lower at 27 per cent, given the fact that the retired continue to contribute to the health system (albeit at a reduced rate). As we will later explain, it is likely that the imbalance between the CS and SS components of the health system will be aggravated in the future as problems of labor informality persist, causing additional fiscal stress.

In 2003, Colombia spent the equivalent of 7.7 per cent of GDP on health care after averaging 8.5 per cent of GDP from 1998-2002. According to Baron (2007), Colombia has recently witnessed one of the most pronounced increases in health care spending, going from 6.2 to 7.7 per cent of GDP between 1993 and 2003, mainly as the result of coverage expansion (see Figure 9).

This level of health care expenditure surpasses Chile (5.9 per cent of GDP) and Mexico (5.7 per cent), countries with similar rates of health coverage. Correcting by GDP-per-capita levels, Colombia's health-care expenditure is about 36 per cent above the world average (Gottret *et al.*, 2008). Furthermore, Colombia's expenditure on health care is also above the average level observed in United Kingdom (7.3 per cent of GDP) and Japan (7.6 per cent of GDP) during 1993-2003, where quasi-universal coverage is the norm.

3.3 Fiscal impact of health care reforms

According to Oliveira *et al.* (2006), the main drivers of health care cost can be divided between demographic factors (population growth and epidemiological profiles) and non-demographic factors (including income evolution and technological changes). In OECD countries, health care spending has increased at an annual rate of 3.6 per cent during 1981-2002, where the bulk of such changes stemmed from income factors (2.3 per cent).

In what follows, we will focus on building up a simple accounting framework that would allow us to project the possible evolution of the health-related revenues and expenditures (*i.e.*, health accounts) in Colombia. We lack information regarding epidemiological profiles (now being surveyed by the Ministry of Protection) or technological changes affecting the health-care sector of Colombia, precluding analysis in these areas, as done, for example, by Weisbrod (1991). For these reasons, we will concentrate on changes produced by population growth, income, labor participation rates, and labor formality rates.

We will first take stock of the overall situation back in 2006 and compute the (implicit) fiscal imbalance. We will then make some projections of the health accounts over the years 2007-50, where a key variable will be the evolution of labor formality, which drives the health-care contributions into the contributory system (CS). Finally, we will compute the NPV of such health-care public obligations.

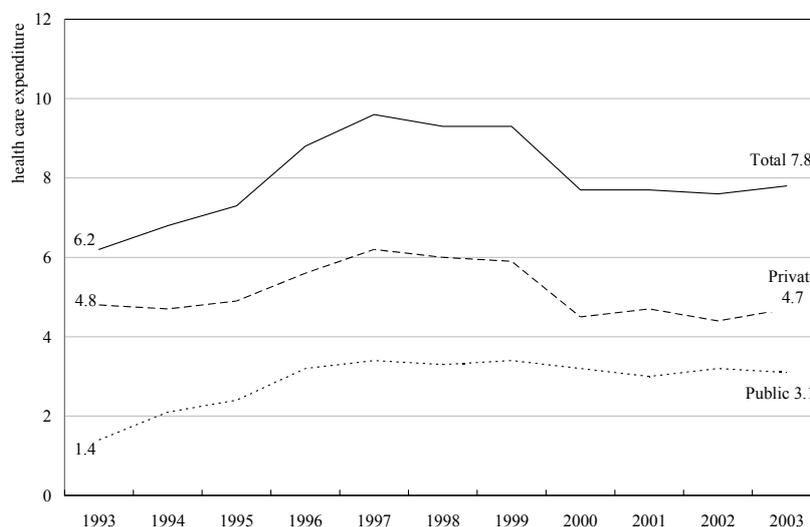
In 2006, the total population of Colombia is estimated at 43 million. The rate of population expansion has been decelerating 1.5-1.85 per cent per-year between 1987-93 down to 1.25-1.5 per cent over the period 1993-2006. In this light, it is reasonable to assume that population growth will continue to decelerate, and reach about 1 per cent per-annum in 2020-50 (see Table 1).

In 2006, the ratio of the working age population (WAP) to total population was about 78 per cent, and the ratio employed/WAP was 53 per cent in Colombia. Both ratios have been stable over time. However, the open unemployment figure has been very volatile, increasing from a long-term average of 10.5 to 14-16 per cent in the crisis years of 1998-2002. More recently, unemployment has been reduced to an average of 11 per cent over 2007-08. All these demographic and labor variables play a role in determining the ratio of workers actively contributing to health care as a percentage of the labor force, currently at 37 per cent.

As noted above, Law 100 of 1993 ended up placing the burden of the health system on public resources, given the high labor informality and the small share of the population

Figure 9

Colombia: Health Care Spending (percent of GDP)



Source: Author's computations, based on Barón (2007).

Table 1

Colombia: Population, Labor and Health Care Coverage Projections
(millions of people)

	2006	2020	2050
Total population	43.2	50.8	68.5
Working age population (78 per cent)	33.8	39.6	53.4
Employed population	17.9	21.0	28.3
Subsidized system members	20.1	26.8	34.3
Contributive system members	17.0	21.3	32.6

Source: Author's computations, based on Dane.

participating in the contributory system. The fiscal burden will increase if the government's objective of universal coverage by 2012 is realized. For purposes of the analysis, we assume that the government's objective is achieved by 2011 and that the balance between the SS and the CS regime will be determined by the intensity of labor reforms leading to an increase in the ratio of active contributors as a share of the labor force.

Health care coverage will be determined by the family density of each contributor, at the ratio of 2.26 persons per contributor (the average of the last five years). The CS component would be in equilibrium if the per-capita cost (UPC), recognized by the *Fosyga* to the EPS, happens to cover for all health services claimed by family coverage. Notice that the ratio of an UPC-cost should be enough to pay for the average cost of each family, at the ratio of 1-UPC for each 2.26 persons per family.

3.3.1 Sources and uses of the health care system

We have classified CS contributors in three wage earning ranges: high, medium, and low. The average wage of the high-wage contributors is equivalent to 12 times the Legal Minimum Wage (LMW) and represents 1 per cent of total contributors. The medium-wage contributors earn on average 6 times the LMW and represent 12 per cent of the total. Finally, the low-wage contributors have an average wage twice the LMW and represent 87 per cent of total contributors.

The system's expenditures consist of: 1) the mandatory basic health plan (POS) and 2) out-of-pocket expenses. We will assume that the cost of the POS will remain in line with the share recognized by the *Fosyga* to the EPS through the CS-UPC value, which equaled \$408,000 in 2006 (or US\$203 per beneficiary). The demand subsidies are divided between: a) full subsidies (91 per cent of the SS population is affiliated through this modality); and b) partial subsidies (9 per cent of the SS population). The *UPC* value of the full subsidy represents 4.4 per cent of the annual LMW.

Supplementary health care expenditures are represented by out-of-pocket spending, representing 1.3 per cent of the annual LMW for high-wage workers, 2.4 per cent for medium, and 1.6 per cent for low-wage workers, according to data obtained from the 2001 household survey. Studies for the OECD countries (Severinson, 2008) suggest an income elasticity of health care expenditures slightly above one. Hence, we will assume a unit income elasticity for out-of-pocket

health care spending in our simulations. For the SS component, out-of-pocket health care expenditures were approximated by historical data.

One particular item that is difficult to forecast is supply-driven subsidies, since they occur on a discretionary basis. We assume that the government maintains its current rate of capital contributions to public hospitals and state health enterprises, representing about \$100,000 (or US\$50) per member attended through the ISS (now launched as a New-IPS in association with several quasi-public entities, known as *Co-Familiares*).

For the purposes of this study, we will focus on the “compensation account” of the *Fosyga*, while maintaining relatively constant the other three accounts (Solidarity, Accident/Catastrophes, and Promotion-Prevention, at 0.4 per cent of the UPC value). The budgetary support for populations displaced by violence is here included as a supply-side subsidy administered through the *Fosyga*.

The fiscal costs of lawsuits presently compose a substantial fraction of health care obligations borne by the State (through the *Fosyga*). Preliminary data suggest that nine of every ten lawsuits are resolved in favor of the patient, so *Fosyga* must reimburse the EPS out of the national budget. Following the creation of a technical health board to resolve judicial disputes between the EPS and the *Fosyga* (Law 1122 of 2007), the Constitutional Court ordered the EPS to fully implement the recommendations of this board when requiring reimbursement for expenses that were not covered under the health plans (ruling C-463 of 2008).

Taking into account the evolution of both nondemographic and demographic factors, we have constructed three scenarios where the key policy variables are the government’s coverage goal and the ratio of active contributors/employed. The baseline scenario assumes: 1) population growth beginning at 1.18 per cent per-year during 2006-10 and ending at 1 per cent per-year over 2020-50); 2) health coverage increasing from 86 to 98 per cent of the population; and 3) the contributors/employed ratio increasing from 40 to 50 per cent.

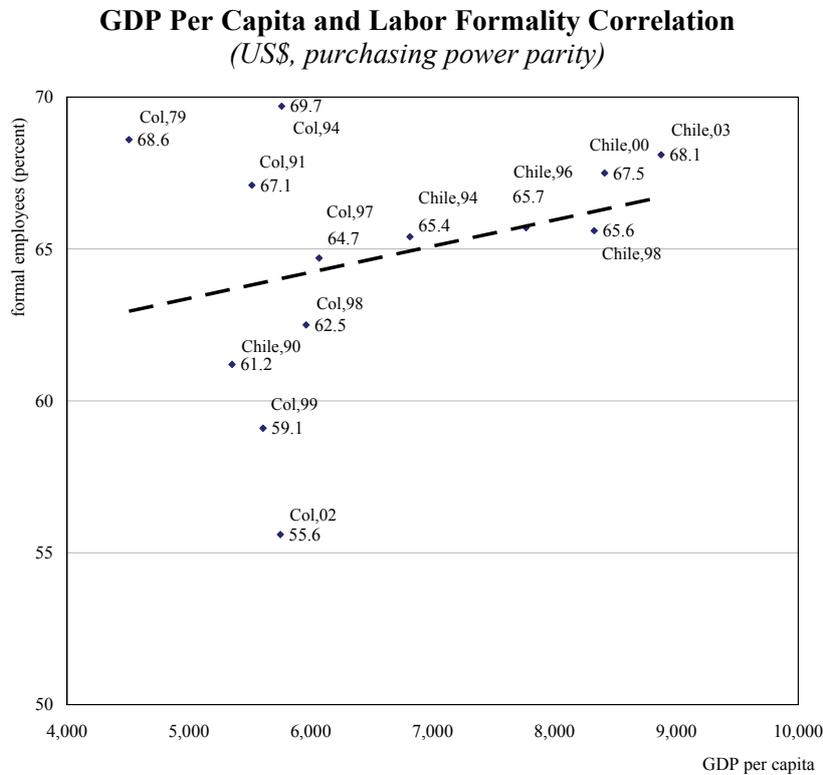
We use the historical correlation between GDP per capita and labor formality over 1979-2003 in order to establish a “target-level” for labor formality in Colombia under different scenarios. Figure 10 shows the results for the cases of Argentina, Brazil, Chile, and Mexico. Depending on the real rate of growth of GDP per-capita and the magnitude of labor reforms (previously discussed), Colombia could increase the Contributors/Employed ratio from 40 (currently) to 60 per cent between 2009 and 2050.

3.3.2 *The fiscal impact of the health care sector in 2006 (base-year)*

The baseline estimation corresponds to 2006. The revenue and expenditure balance (CS+SS) shows a deficit of 1.9 per cent of GDP, with a small surplus for the CS and large deficit for the SS. The high- and medium-wage groups of the CS come out in relative equilibrium, but for low-wage workers, the system has a large deficit.

The private sector produced a slight surplus (0.1 per cent of GDP) in 2006. By contrast, the public sector recorded a significant deficit (2.2 per cent of GDP). In revenue terms, the public sector makes contributions on behalf of one million employees (6 per cent of all employed workers). These contributions, in turn, are divided between regional employees (5 per cent) and central government employees (95 per cent), with the latter including teachers and police. The SS demand subsidies are funded by either the specific regional institution or through the *Fosyga*. At present, regional or local authorities contribute 15 per cent of the partial subsidy and 60 per cent of the full subsidy, with the remainder funded by the *Fosyga* (central government).

Figure 10



Source: ECLAC (2007).

In summary, our computations indicate that the health care sector in Colombia produced a deficit close to 2.1 per cent of GDP in 2006. In that year, the fiscal deficit of the entral government was 4.4 per cent of GDP, although the consolidated fiscal deficit was close to 1 per cent of GDP.

3.3.3 Baseline scenario: improved labor formality

Using our estimations of the health accounts of year 2006 as a foundation, we simulated changes in labor formality that could improve the fiscal accounts by means of increasing the contributive component

in relative terms. Under the baseline scenario (gradual increase in the contributors/employed ratio from 40 to 50 per cent), we find that the public health care deficit increases from 2.1 per cent of GDP in 2006 to a peak of 4.3 per cent in 2038. Thereafter, the deficit stabilizes in the range of 3.0-3.5 per cent of GDP through 2050 (see Table 2 and Figure 11).

Three important phases over the period 2006-50 can be identified. The first phase, covering 2006-10, is characterized by coverage expansion, responsible for the fiscal deficit deterioration from 2.1 to 2.8 per cent of GDP. In this stage, the government's ambitious coverage goal (4.7 million additional affiliates to the SS for a total of 24.8 million and 0.5 million to the CS for a total of 17.8 million) overwhelms earnings contributions growth (0.7 per cent of GDP in the four-year period).

The second phase relates to the interval 2010-35, in which a steady deterioration in fiscal performance is projected, attributed mainly to demographic factors. The health care deficit would rise from 2.8 per cent of GDP to a maximum of 3.8 per cent of GDP. This rise in the deficit is explained by the estimated growth in the affiliated population, predicted to jump from 42.6 million (92 per cent of population) to 56.7 million (96 per cent of population), although total population growth is assumed to slow down from 1.1 to 1 per cent. On the revenue side, the relationship contributors/employed continues to increase from 40 to 47 per cent, improving contributions marginally.

Finally, in the years 2036-50, the health deficit declines from 3.8 to 2 per cent of GDP. This is explained by the increase in contributors as labor formality helps the ratio contributors/employed to further increase from 47 to 50 per cent. This "U"-shaped health care deficit trajectory is driven

Table 2

Health Care and Fiscal Cost Projections

	Improved Formality			Status-quo Formality		High Formality Improvement	
	2006	2020	2050	2020	2050	2020	2050
CS contributors/Employed (percent)	40	44	50	40	40	47	60
(millions)	7.4	9.2	14.2	8.4	11.3	9.8	16.7
Health coverage (percent)	86	95	98	95	98	95	100
(millions)	37.1	48.1	67.1	48.1	67.1	48.1	68.2
Health Care sector deficit (percent of GDP)	-2.1	-3.3	-1.8	-3.8	-6.8	-3.1	+1.9

Source: Author's computations.

by a better balance between the CS and SS. Indeed, as the population and labor formality grow – and the contributors/employed ratio increases from 40 to 50 per cent – the fiscal deficit declines. However, our model suggests this increase is still insufficient to compensate for health care coverage expansion, resulting in a “structural health care” deficit of nearly 2 per cent of GDP by year 2050.

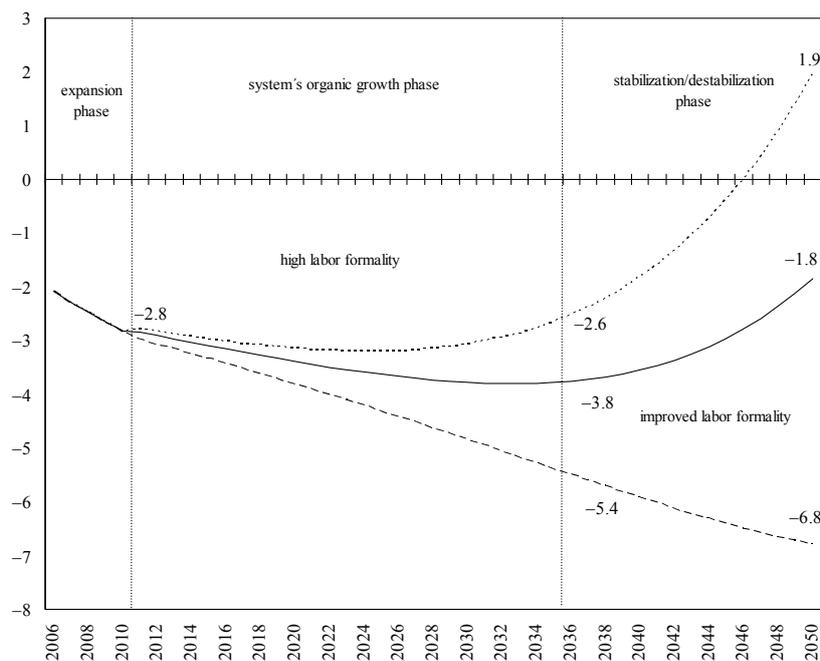
3.3.4 Scenario 2: status quo in labor formality

Under this scenario, we shall assume that the ratio contributors/employed will remain constant at 40 per cent, implying no significant labor and/or payrolls reforms. This means a potential loss of about 3 million new contributors with respect to the previous scenario, where labor formality induced an increase in the contributors/employed ratio from 40 to 50 per cent (see Table 2).

Under this scenario there is a significant fiscal deterioration as a larger

Figure 11

Health Care and Fiscal Cost Projections (trend over 2006-50, percent of GDP)



Author's estimates.

share of the population moves to the SS (increasing from 55 to 62 per cent). By year 2020, the fiscal deficit of the health care system would reach 3.8 per cent of GDP, about ½ per cent of GDP higher than the baseline scenario, and by year 2050 would reach 6.8 per cent of GDP, almost 5 percentage points of GDP above the baseline scenario (see Figure 11).

3.3.5 Scenario 3: high labor formality improvement

This scenario assumes a ratio contributors/employed increasing from 40 to 60 per cent over 2006-50, as a result of significant reforms leading to greater labor flexibility and a reduction of payroll taxes on firms (as previously discussed). This means adding about 2.5 million contributors with respect to the baseline scenario (see Table 2). As a result, the CS component would increase to 45 to 56 per cent and the SS component would decrease in tandem from 55 to 44 per cent, implying better compliance with respect to the original scheme envisioned under Law 100 of 1993.

Under these conditions, the health care deficit would peak at 3.2 per cent of GDP by 2024, about ½ per cent of GDP below the baseline scenario. By 2034, the health care deficit would have eased to 2.6 per cent of GDP (even before ending the “growth phase”) and by 2050, the system could reach a surplus of about 1.9 per cent of GDP as a result of increasing the CS to 56 per cent and containing the SS at 44 per cent (see Figure 11). The recent progress achieved through better surveillance systems (known as PILA), preventing evasion/elusion of health-pension contributions, speaks well of the potential to be gained if labor and payroll reforms provide the appropriate incentives for compliance.

3.3.6 Health care liabilities: estimating the NPV over 2006-50

We now turn to estimating the Net Present Value (NPV) of the fiscal obligations projected above, where we will concentrate on the baseline scenario over the years 2006-50. The first scenario considers a discount interest rate of 4 per cent per year, resulting in an amount of (net) fiscal obligations equivalent to 97 per cent of GDP (see Table 3). The private sector shows a surplus of 35 per cent of GDP. Adding the public sector deficit and the private sector surplus yields a health care sector NPV equivalent to a deficit of 61.4 per cent of GDP.

When calculating the health care system’s NPV using a 5 per cent long-term discount interest rate, the net public obligation amounts to about 80 per cent of GDP. This is about 17 percentage points of GDP less than the one obtained with the 4 per cent discount rate.

Of interest at this point is a comparison of these health care liabilities with the pension system, and an assessment of the total fiscal burden over the 2006-50 period. As indicated earlier, the NPV of pension obligations is about 160 per cent of GDP, compared with health obligations of about 97 per cent of GDP (discounted at the rate of 4 per cent per year). These liabilities are quite sizable, but lower than those in some industrial countries. Follette and Sheiner (2008) have calculated that the contingent liability of Medicare in the United States (excluding Medicaid), amounts to 90 per cent of GDP. When including Medicaid, the liability increases to 259 per cent of GDP (see Figure 12). The NPV of pension obligations in the United States has been estimated at 117 per cent of GDP. This means that the ratio of pensions/health obligations is about 1.3 times in the United States if excluding Medicaid. This ratio, however, is 0.45 when including Medicaid costs, meaning that it is more costly to honor jointly Medicare and Medicaid obligations than public pensions in the United States.

Table 3

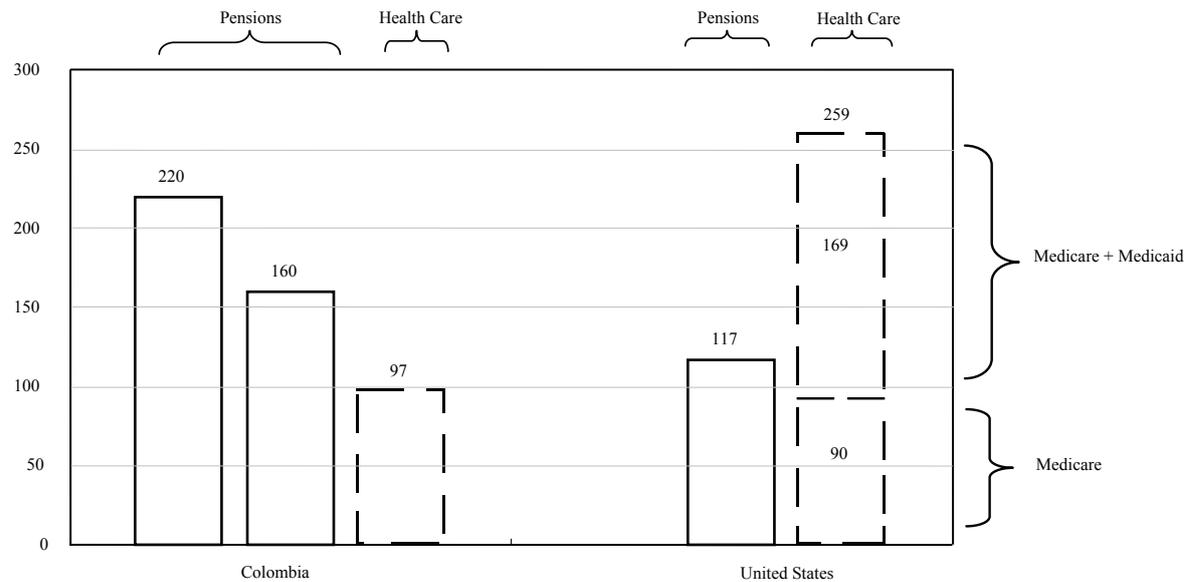
Health Care NPV by Type of Obligation
(percent of GDP of 2007; surplus (+) or deficit (-))

	Discounted at Interest Rate of:	
	<i>i</i> =4.0%	<i>i</i> =5.0%
Gross public spending	-107.0	-90.5
Net public duties (deficit)	-96.9	-80.1
Net private spending (surplus)	+35.5	+27.2
Total balance (public+private)	-61.4	-52.8

Source: Author's computations.

Figure 12

**A Comparison of the NPV of Social Security Public Liabilities
of Colombia and the United States**
(percent of GDP)



Source: Follette and Sheiner (2008), Echeverry *et al.* (2001), Osorio *et al.* (2005), and author's computations.

4 Conclusions

We have analyzed how Colombia underwent first generation pension reform (Law 100 of 1993), in which a dual public-private system was instituted, and also second generation pension reforms (Laws 797 and 860 of 2003), focusing on parametric corrections that aimed at reducing the fiscal costs of a prolonged “transitional-period”. As a result of such reforms, the NPV of pension liabilities (projected over 2007-50) has been reduced from 260 per cent of GDP to 160 per cent of (2007) GDP.

However, low pension coverage (23-25 per cent of the working force) and implicit subsidies in the new paygo system rules still represent big challenges ahead. These need to be tackled through the reduction of payroll taxes levied on firms and increases in retirement age as life expectancy continues to increase. Continued reform of the pension system is thus a key challenge for Colombia in achieving fiscal sustainability.

Regarding the health system, we found that under the baseline scenario (with a gradual increase in the contributors/employed ratio from 40 to 50 per cent), the public health care deficit would increase from 2.1 per cent of GDP in 2006 and peak at 4.3 per cent of GDP by 2038. Thereafter, this deficit would decline and stabilize in the range of 3.0-3.5 per cent of GDP through 2050. The NPV under this scenario would yield (net) fiscal obligations equivalent to 97 per cent of GDP over the period 2007-50. Under a more optimistic scenario of significant labor reforms, the ratio of contributors/employed could be increased from 40 to 60 per cent over 2006-50, resulting in an addition of about 2.5 million contributors with respect to the baseline scenario. As a result, the CS component would increase from 45 to 56 per cent and the SS component would decrease in tandem from 55 to 44 per cent.

A comparison between the pension obligations of 160 per cent of GDP and the health obligations of about 97 per cent of GDP means pension obligations are about 1.7 times more costly to honor than health obligations in Colombia. However, health obligations are likely to increase significantly if labor informality problems are not tackled in the near future as a way to improve contributions. Looking forward, additional research could incorporate the potential impact of epidemiological profiles and technological changes over the health care system as information becomes available in the near future.

The results of this paper underscore that labor market reforms can have important effects on the fiscal accounts, through their impact on contributions in formal pension and health systems. Thus, moving forward on labor market reforms could provide a welcome boost not only to Colombia's growth and labor market flexibility, but also strengthen the fiscal accounts over the longer term.

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