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THE TROUBLED STATE OF PENSION SYSTEMS IN LATIN AMERICA

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ABSTRACT

A quarter of a century since Chilean-style pension reforms swept Latin America, the state of the region's pension systems is worrisome. Old and new problems are increasingly rearing their ugly heads, some setting off serious alarms, all posing thorny political and technical challenges. Pension issues have therefore once again taken center stage in the policy debate. This paper provides a bird's eye view of the quilt-like landscape of contributory pensions systems left in the wake of the 1990s reforms and of the rise of non-contributory "social" pensions in the 2000s. It then documents and analyzes the key problems ailing different pension arrangements, including the threat to fiscal sustainability posed by over-extended and typically inequitable pay-as-you-go defined-benefit (PAYG-DB) systems, the root causes of the underperformance of fully-funded-defined-contribution (FF-DC) systems, and the issues involved in the mushrooming of non-contributory social pensions. The paper concludes by outlining policy prescriptions.

INTRODUCTION

Following the iconic 1981 Chilean pension reform and stimulated by the threat of fiscal havoc posed by the then existent pension systems, a wave of reforms swept much of Latin America in the 1990s. The reforms boosted the role of individual saving for retirement through the establishment of fully-funded defined-contribution systems (FF-DC), thereby shifting the emphasis away from pay-as-you-go defined-benefit (PAYG-DB) systems.[1]

A quarter of a century since those reforms, pension systems in the region face old and new challenges and, as a result, have taken center stage in the policy debate. Unreformed PAYG-DB systems constitute in many cases a major and growing fiscal threat (i.e., the present value of their pension promises vastly exceeds the present value of future contributions), a problem aggravated by rapidly aging populations. Reformed systems face problems of their own, associated not only with their transitional fiscal costs (i.e., the need to finance pensions paid under the old rules to those that were grandfathered at the time of the reform) but also with their low coverage, as large segments of the population remain out of the contributory pension system). Additionally, FF-DC systems in the region are having a hard time generating adequate pensions, not least because of low saving rates and low contribution densities due to frequent gaps and discontinuities in contribution periods, but also owing to deficiencies in the incentive structure and organization of the savings-based FF-DC pension fund industry. These problems have tended to erode the credibility of FF-DC schemes, raising the risk of reform reversals. In response to the low coverage of contributory systems and the difficulties that low-income workers have in building up retirement savings, many countries in the region have introduced non-contributory social pension programs, typically earmarked to the elderly poor. By and large, although the risks remain latent, these social pensions do not constitute a material fiscal burden, nor do they significantly subsidize informality.

This paper aims to understand the root causes of the salient problems ailing pension systems in Latin America.[2] The rest of the paper is organized as follows. Section 2 describes the quilt-like regional landscape of pension systems. Section 3 documents and analyzes the main challenges facing these systems. Section 4 outlines the reform agenda going forward.

THE LANDSCAPE OF PENSION SYSTEMS IN LATIN AMERICA

Pensions systems throughout the region constitute a mosaic; there is no one single model. Even countries that mimicked the Chilean reform have adopted different approaches for managing the transition from pay-as-you-go defined-benefit (PAYG-DB) to fully-funded defined-contribution (FF-DC) schemes. In a PAYG-DB system, contributions by active workers fund the pensions of current retirees, in accordance with parameters such as retirement age, number of years of service, and pre-retirement average wages. In a FF-DC system, contributions are channeled to individual accounts and invested by pension fund management companies; at retirement, the accumulated savings in those accounts are transformed into a stream of monthly income, for example through annuity products offered by life insurance companies. Increasingly, contributory pensions systems coexist with non-contributory (i.e., financed via general tax revenues) “social” pensions that are focused on the elderly poor.

[1] This article does not discuss the retirement-oriented voluntary and privately managed savings plans/funds.
[2] The main messages in this paper are consistent with those in Levy (2017).

Consider first the heterogeneous landscape of contributory systems. Table 1 offers a non-exhaustive list of Latin American countries classified into four types of contributory pension systems: (a) only PAYG-DB; (b) mixed but competing PAYG-DB and FF-DC; (c) mixed but complementary PAYG-DB and FF-DC; and (d) only FF-DC.

Table 1. Types of contributory pension systems in Latin America

Only PAYG-DB	**Mixed, PAYG-DB and FF-DC**		**Only FF-DC**
	Competing	***Complementary***	
Argentina	Colombia	Costa Rica	Bolivia
Brazil	Mexico	Panama	Chile
Venezuela	Peru	Uruguay	Dominican Republic
			El Salvador

Source: Elaboration by the authors.

Notice that three of the largest countries in the region (Argentina, Brazil, and Venezuela) feature a dominant PAYG-DB contributory system.[3] In addition to these countries, there are several smaller nations in the Caribbean and Central America with only PAYG-DB systems. Argentina is the only country in the group that has undergone a major reform reversal: In 2008, it reverted to a PAYG-DB system from a FF-DC one. Other countries with only PAYG-DB systems have not experienced fundamental reforms.[4]

Ten countries in the region introduced Chilean-style FF-DC schemes in the 1990s. The majority (Colombia, Mexico, Peru, Uruguay, Panama, and Costa Rica) established mixed systems involving two contributory (and mandatory) pillars, a PAYG-DB one and a FF-DB one. While the two pillars complement each other in Costa Rica, Uruguay, and Panama, they compete for the same population of formal workers in Colombia, Mexico, and Peru. Competition, however, takes on different forms. Peru allows contributors to choose between the PAYG-DC and FF-DC pillars only when joining the labor force, whereas Colombia and Mexico give contributors the option to switch from the FF-DC pillar to the subsidized PAYG-DB pillar during their working life and up to a few years prior to retirement.[5] Four countries (Bolivia, Chile, El Salvador, and the Dominican Republic) feature only FF-DC contributory systems.

FF-DC systems involve individual "capitalization" accounts that are fed by mandatory saving contributions assessed on labor income. The savings thus accumulated are administered by

[3] Brazil has a large voluntary, privately administered system of saving-for-retirement funds, which complements the public PAYG-DB system.

[4] In 2010, Bolivia announced the nationalization of the management of its FF-DC scheme. The purpose was not to nationalize savings and eliminate the FF-DC scheme, as was the case in Argentina, but rather to transfer the management of the funds to a state-controlled agency that was not yet in place at the time of writing.

[5] In Mexico, the option to switch is restricted to a transitional cohort, i.e., the persons that were already in the labor force and affiliated to the pension system at the time of the reform. In Colombia, contributors can switch between systems up to ten years before retirement.

private asset managers, typically known *as Administradores de Fondos de Pensiones* (AFPs). Most FF-DC schemes in the region are supported by a kind of minimum pension for individuals who fail to accumulate sufficient savings but who meet minimum age and years of contribution requirements. In 2008, Chile added a Solidarity Pillar to its pension system, which replaces the previous minimum pension and provides a more generous package to at-risk elderly, without requirements in terms of minimum years of contribution.

Table 2. Proliferation of non-contributory social pensions in Latin America

1990-2001	2001-2007	2008-2013
Brazil (1991) reduces retirement age in rural pensions	**Argentina** (2004) Pension Inclusion Plan (*Moratoria)*	**Bolivia** (2008) *Renta Dignidad*
Guyana (1993) universal pension	**Belize** (2003) Non-Contributory Pension	**Chile** (2008) Solidarity Pension
Bolivia (1996) *Bonosol*	**Colombia** (2004) Social Protection Program for the Elderly, PPSAM	**Ecuador** (2009) Pensions for the Elderly turns universal
Brazil (1996) Continued Compensation Benefit	**Ecuador** (2006) Pensions for elderly	**El Salvador** (2009) Basic Universal Pension
	Guatemala (2005) Program for Elderly	**Panama** (2009) *100 a los 70*
	Mexico (2007) *70 y Más* (rural pension)	**Argentina** (2010) Expansion of the program
		Peru (2011) *Pensión 65*
		Mexico (2012) Expansion of the program
		Colombia (2013) Expansion of the program to rural areas
		Mexico (2013) *70 y Más* turns into *65 y Más*

Source: Elaboration by the authors based on Rofman et. al. (2015).

In an increasing number of Latin American countries, formal contributory systems now coexist with "non-contributory" social pensions—that is, pensions that are financed via the general tax system. Social assistance pensions mushroomed in the region in the last 15 years or so, largely in response to the low coverage of contributory systems (which is in turn a direct consequence of high levels of labor informality). More than a dozen Latin America countries currently have some form of non-contributory social pension system (Table 2).

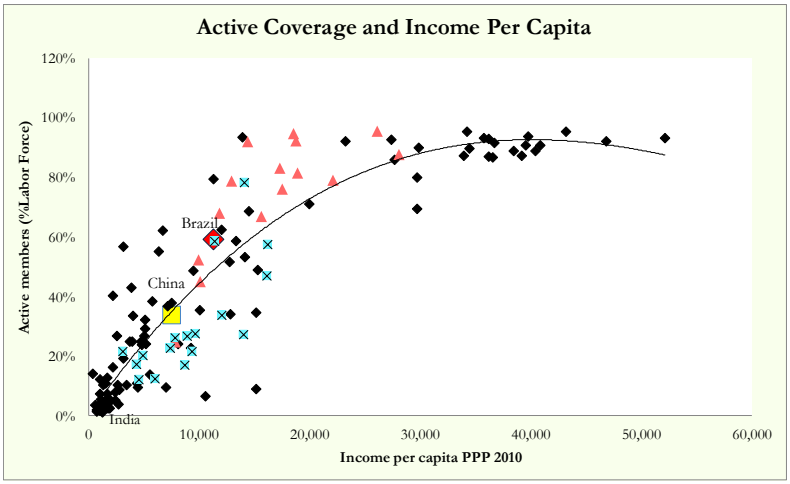
Non-contributory social pensions aim to prevent indigence in old age and are therefore typically targeted to the elderly poor. Hence, they tend to be treated as a social assistance program (akin to

conditional cash transfer programs) rather than as a formal pillar of national social security arrangements.[6]

THE CURRENT TROUBLE OF PENSION SYSTEMS

The current problems of pension systems in the region vary by country and depend not only on systems' designs but also, importantly, on the structure and functioning of underlying labor markets. The most salient problems are the low coverage of contributory systems (both PAYG-DB and FF-DC) and insufficient savings accumulation in FF-DC schemes, both of which are more acute where labor markets are ailed by high informality.[7] Therefore, these problems cannot be fully overcome by pension reforms alone and will durably subside only as labor markets formalize and per capita income rises (Figure 1). This, however, is not a good excuse to postpone much-needed pension reforms that call for a sound diagnosis of the key problems faced by the region's pensions systems. This section aims at facilitating such a diagnosis by documenting and discussing: (a) the challenges of PAYG-DB contributory systems; (b) the disappointments with FF-DC contributory systems; and (c) the issues raised by non-contributory social pensions.

Figure 1. Social security coverage rates of active workers and income per capita



Source: World Bank database.

Fiscally explosive and inequitable PAYG-DB contributory systems

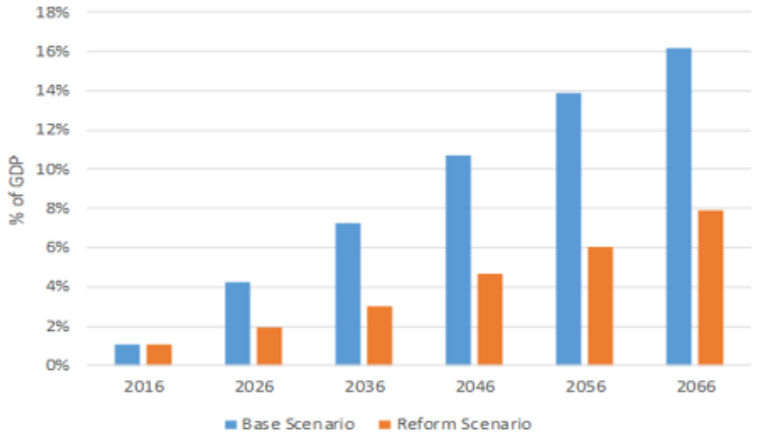
Consider first PAYG-DB systems. The Achilles' heel of this arrangement is the risk of fiscal unsustainability combined with high inequity. On the first count, PAYG-DB systems are vulnerable to falling into a time inconsistency trap whereby myopic politicians expand pension promises—by raising pension amounts, keeping minimum retirement ages low, and reducing the number of years of contribution needed to qualify for a pension—without expanding contributions, thus widening the

[6] The salient exception in this regard is Chile's Solidarity Pension pillar.
[7] Based on International Labor Organization data, Gonzales (2015) estimates that in 14 Latin American countries, an average of 47 percent of employment is informal. See chapters 5 and 6 in Carranza, Melguizo, and Tuesta (2017) for an apt discussion, along with estimates of the impact on pensions of informality.

actuarial deficit of the system and leaving future governments holding the bag.[8] This problem is exacerbated where the actuarial deficit does not yet materialize into cash claims on the government (that is, where the value of contributions from active workers still exceeds the value of pensions paid to retirees). As time goes by and the dependency ratio (i.e., the ratio of retirees to active contributors) rises, however, overcommitted PAYG-DB systems will inevitably run into significant cash flow deficits.

To illustrate the fiscal time bomb embedded in PAYG-DB systems, consider the scenario faced by Brazil even after factoring in the reductions in present and future pension deficits that could be achieved if the pension reform proposed in December 2016 is approved. According to the World Bank (2017a), given the projected rise in the dependency ratio, the present value of future (pre-reform) deficits associated with private sector pensions is about 150 percent of current GDP, approximately twice the size of explicit government debt. While the proposed reform is expected to lower future pension deficits, it will not rein on them completely. In fact, post-reform deficits are projected to rise over time (Figure 2).

Figure 2. Brazil: Estimated deficits of the PAYG-DB system for private sector workers



Source: World Bank estimates.

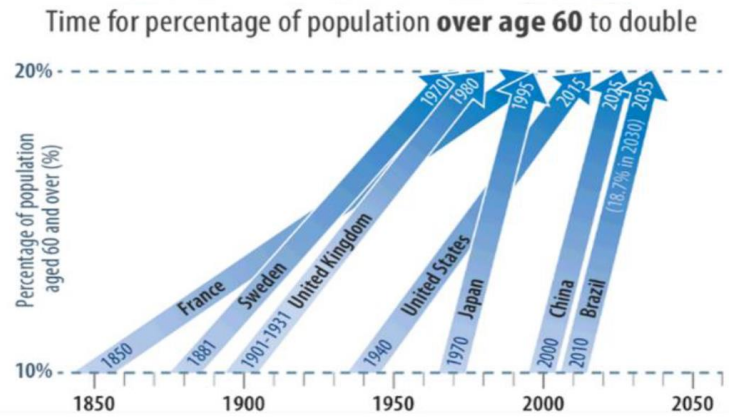
As regards inequity, some PAYG-DB schemes include especially generous subsystems for specific groups of workers (e.g., the military, civil servants, particular categories of civil servants), giving rise to significant horizontal unfairness across the PAYG-DB system. In Brazil, for example, the PAYG-DB subsystem for federal civil servants has a deficit that is about 50 percent that of the PAYG-DB subsystem for private sector workers, even though the former only covers 3.5 percent of the number of beneficiaries of the latter (World Bank 2017b).[9]

Because of the fiscal contingencies posed by over-extended PAYG-DB systems, to square the circle governments may be compelled to renege partially on their pension promises. They could do so by tightening systems' parameters—e.g., by reducing the size of pensions relative to pre-retirement

[8] For example, in 2015 Brazil enacted legislation allowing men and women with 30 and 35 years of contribution and at least 55 and 60 years of age, respectively, to quality for a 100 percent replacement rate, i.e., a pension equivalent to 100 percent of their income prior to retirement.
[9] Similar inequities exist within the Colombian PAYG-DB pillar (see Nunez and Castaneda, 2012).

incomes, raising contributions, or increasing the minimum retirement age. These changes may have to be applied not only to new labor force entrants but also to already active workers and, in addition, taxes may have to be raised on the pensions of retirees, with all the attendant social stress that such reneging on promises could entail. Demographic trends, for their part, render the fiscal threat even more menacing. Indeed, Latin America is on a fast aging path, much faster than the one experienced by now-advanced economies in the past (Figure 3).[10]

Figure 3. Comparative speeds of population aging



Source: WHO (2015).

Problems of fiscal sustainability and inequity also affect the PAYG-DB pillars within mixed (PAYG-DB and FF-DC) contributory systems. The fiscal sustainability threat tends to be greater in countries where the PAYG-DB pillar competes with a highly subsidized FF-DC pillar. Such are the cases of Colombia and Mexico, where PAYG-DB pillars offer more generous pension benefits than the FF-DC ones and workers have the option to switch from the FF-DC pillar to the PAYG-DB pillar prior to retirement. Indeed, the actuarial deficit of PAYG-DB pillars in Colombia and Mexico are estimated to be in the order of 130 and 80 percent of current GDP, respectively.[11] In the case of Peru, by contrast, the competing PAYG-DB pillar does not pose a material fiscal threat, largely because it does not offer comparatively generous pensions *and* because more than half of those contributing to it do not meet the 20-year minimum required to qualify for a pension. However, while not a significant fiscal burden, the competing PAYG system in Peru introduces a fundamental inequity: workers who do not meet the minimum contribution years (typically women, lower income, and less educated workers) get nothing from the PAYG-DB pillar at retirement (not even their accumulated contributions) and as a result end up subsidizing the pensions of those who do meet this minimum (see Comisión de Protección Social, 2017).[12]

[10] According to Celade (2011), the number of elderly in the region will increase from 38 million to 140 million between 2010 and 2050. The OECD (2014) estimates that, for Latin America, life expectancy at age 65 will rise by an average of about 3 years between 2010-2015 and 2050-2055.
[11] See OECD, IADB, and World Bank (2015) and Bosch et. al. (2015).
[12] For a discussion and estimates of the fiscal implications of pension systems in Chile, Colombia, Mexico, and Peru, see Chapter 3 of Carranza, Melguizo, and Tuesta (2017).

Disappointments with FF-DC contributory systems

One of the great innovations introduced by FF-DC schemes is the central role given to workers' savings in the construction of retirement pensions. Savings (i.e., self-protection) as opposed to insurance (i.e., risk pooling) is the optimal way to deal with high-probability, high-cost risks such as the risk of loss of labor income due to aging.[13] This risk is nearly a certainty nowadays due to the remarkable rise in life expectancy registered across the world. Indeed, it may be argued that in the future, any efficient, fair, and fiscally viable pension system will have to include a robust saving-based pillar.[14]

FF-DC systems are now in place in 10 Latin American countries (see Table 1), and the accumulation of individual savings in privately managed pension funds has been quite substantial. At present, the total value of assets in these funds is approximately $450 billion—about 26 percent of the combined GDP of the countries where such funds exist—ranging from a maximum of $175 billion (70 percent of GDP) in Chile to a minimum of $7 billion (10 percent of GDP) in the Dominican Republic. Although the positive externalities of FF-DC systems to the development of the financial sector have only been minimally exploited in the region, the Chilean experience clearly illustrates how a well-structured saving-for-retirement process combined with deep annuities markets can spur the deepening and diversification of the financial system in general, and the development of long-term local-currency finance in particular, with all the attendant benefits that all of this can have for broader economic development.

However, for all their merits, the performance of FF-DC pillars has fallen short of expectations in at least two significant respects. First, they have not led to the expansion in coverage that early reformers envisioned. Reformers expected that clear property rights over individual capitalization accounts where their own savings would accumulate would spur workers to join the new systems *en masse*, but that did not happen.[15] (See below for further discussion of the low coverage problem.)

Second, and perhaps more importantly, FF-DC systems have generally failed to deliver "adequate" pensions from a consumption smoothing perspective. In other words, accumulated savings in FF-DC pension funds have been insufficient to fulfill the expected "replacement rate"—that is, a stream of retirement income expected to be a substantial fraction of the average income earned before retirement.[16] The first-order determinant of this problem has been the combination of low mandatory contribution (i.e., saving) rates, significant time gaps in contributions throughout the work life (i.e., low contribution densities), and relative low retirement ages.[17] Another key determinant, still important but of lesser magnitude, is given by a set of incentive misalignments inherent to the very nature and industrial organization of FF-DC pillars. The rest of this subsection discusses these two determinants separately.

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[13] As shown in the classic paper by Ehlich and Becker (1972), insurance (risk pooling) is a superior protection mechanism compared to saving when dealing with low-probability, high-cost risks. The reason is that the price of insurance (premium) rises with the probability that the risk materializes, whereas the price of saving (the interest rate) does not depend on such probability.

[14] For a fuller discussion see Rudolph (2016), De la Torre and Rudolph (2014), and Comisión de Protección Social (2017).

[15] That expectation was promoted, for instance, by "Averting the Old Age Crisis," a 1994 World Bank publication that made an enthusiastic and highly influential case in favor of FF-DC pension systems.

[16] The OECD has famously suggested that an "adequate" replacement rate would be around 40 percent. Browne and Valdés (2017) study the perceptions and expectations regarding pensions among different cohorts in Chile.

[17] At the time of setting the contribution rates in the 1990s, policymakers assumed too high real rates of return for pension funds and did not anticipate that the world would enter a prolonged period of near-zero interest rates.

The combined impact on replacement rates of low contribution rates, low contribution densities, and low retirement ages under FF-DC pension pillars is quantitatively predominant. Indeed, inadequate replacement rates cannot be attributed to low net returns of pension funds, which have been relatively strong even after adjusting for country risk. One can debate whether the mandatory rate of saving for retirement (channeled to so-called individual capitalization accounts) is high enough—it hovers in the range of 10 percent of labor income in most countries with FF-DC systems (Table 3). Yet there is no doubt that saving rates are insufficient to deliver adequate replacement rates when combined with low contribution densities and low retirement ages, especially considering the marked rise in life expectancy. Low contribution densities are driven by job instability and are a more acute problem in countries with large informal sectors, where transitions in and out of informality are frequent (and tend to disproportionately affect women and lower-income, less-educated workers). For their part, minimum retirement ages have not been adjusted upward in line with increases in life expectancy, and significant differences remain between men and women.[18]

In any case, raising the replacement rate that can be expected from FF-DC systems is a challenge that goes beyond pension reform *per se*. While mandatory saving rates and minimum retirement ages could be raised as a matter of policy, a visible increase in contribution densities can only be achieved via a sustained expansion and improved functioning of the formal labor market.

Before discussing the incentives misalignments that affect FF-DC schemes, it is worth noting that the financial performance of defined contribution schemes has been often misunderstood. While the financial performance of pension systems should be measured in terms of expected replacement rates, it is common in the literature to use asset rates of return as performance metric. This practice obscures the interpretation of DC pension schemes outcomes. Since replacement rates are a function of variables such as length of the contribution period, contribution density, contribution rate, net rate of return, and fees, attributing low replacement rates to returns and fees only offers a rather partial reading.[19]

Moreover, the comparative analysis of pension fund returns and of the fees charged by pension fund administrators (AFPs) in FF-DC schemes is itself subject to limitations that are often inadequately elucidated. To begin with, it makes little sense to compare gross returns across funds and countries without adjusting them for risk, which is not an easy matter. Returns (particularly on debt securities) should first be adjusted at least for sovereign risk.[20] But that may not be enough. Misleading results could also arise when comparing returns on pension funds with different asset compositions. Indeed, the return on a fund invested solely in equity securities should not be mechanically compared to a fund invested only in debt securities.[21] Comparisons may also be misleading if done across finer asset classes—say, between corporate and sovereign debt, between short-term and long-term debt, or

[18] Unlike OECD countries, Latin American countries (with the exception of Chile) do not have convergence plans for retirement ages between genders.

[19] Arguably, low replacement rates may also reflect myopia or insufficient understanding among contributors about the complex links between saving rates, net risk-adjusted returns, contribution densities, and replacement rates.

[20] Sovereign risk premia capture differences in the quality of macroeconomic environments and policies as well as differences in financial volatility. Volatility, furthermore, can vary considerably over time for the same country, leading to high fluctuations in pension fund returns over time. Consider in this respect the case of Brazil: in a two-year period—between July 2015 and July 2017—the overnight repo rate (the SELIC) fell from 14.15 percent per year to 6.9 percent, while the rate of inflation did not change much.

[21] In 2017 in Chile, for instance, the average annual real return of the five lifestyle pension funds was between 1 and 15.4 percent. Using the weighted average of these returns would mask risk heterogeneity, as each of the lifestyle funds reflects different risks and different investment opportunities.

between equities of fast growing small firms and of large mature firms. In all, the nature of risk is a key consideration that significantly complicates comparisons of gross returns in FF-DC systems.

Similarly, comparison of fees charged by different AFPs both within and across countries is not as simple as it might appear. For starters, comparisons are hindered by the dynamic nature of fee structures. Fees tend to be charged as a percent of the *flow* of contributions made by the worker to her pension fund. When expressed as a percent of the *stock* of assets under management, contribution fees appear very high to the young worker (when her stock of savings is low) but should decline dramatically as she approaches retirement (when her stock of savings is high). For the asset manager, however, fees are her main (if not the only) source of income. Hence, a rational pension fund manager that operates in a country whose population is aging should take this hump-like trajectory of fees (expressed as a percent of assets under management) into account and seek to smooth out its fee income over time by building reserves in the early stages of the system (when the population is younger and the number of new entrants to the labor force is higher) in order to pay for asset management in the future (when the population is older and the number of labor force entrants is smaller). However, pension fund managers in the region have not built up reserves. Thus, the observed decline in fees in the DC-FF systems of several Latin American countries may be difficult to sustain in the future. Alternatively, it may lead to a preference among AFPs to invest in mutual funds where fees are internal (i.e., charged directly to the mutual fund so that they do not appear as fees charged by the pension fund manager).

Moreover, comparison of fees should also consider the investment styles of different pension fund managers—that is, how passive or active AFPs are in choosing the assets they invest in. A pension fund manager that passively follows indices should charge lower fees than a more active one that devotes time and energy into selecting and monitoring individual assets. In all, the discussion of fees in the DC-FF industry and the comparison of fees across funds and countries is often unduly simplified. [22]

Beyond the difficulties of comparing returns and fees, FF-DC systems in the region are also affected by incentive problems that threaten the legitimacy and sustainability of FF-DC schemes. Incentive misalignments arise naturally from three key wedges: a principal-agent wedge, a private-social wedge, and a time horizon wedge. Let us discuss them separately.

The principal-agent wedge consists of the misalignment between the interests of the "principals" (workers who save in their individual retirement accounts) and those of the "agents" (asset managers who invest those savings in capital markets). This wedge stems from the simple fact that pension fund managers are pure asset managers (and not asset-liability managers); hence, they do not have a contractual obligation toward workers (they do not "owe" the workers a retirement pension)—they just invest workers' savings in a portfolio of assets and charge a fee for the service while workers earn capital gains and losses on the portfolio. In general, therefore, absent regulation, the interests of the AFPs need not coincide with those of the savers-contributors.

[22] Differences in capital market depth and regulatory constraints (which, for instance, set ceilings or floors on allowable investments) constitute yet another important factor undermining the validity of mechanical comparisons of both pension fund returns and fees. In countries where (due to either regulation or scarcity of assets) pension funds invest mainly in government debt securities and bank deposits, there is little skill involved in asset management and fees should therefore be relatively lower. Indeed, differences in returns may often be largely explained by whether regulations allow for significant investments abroad. Moreover, in countries perceived as risky, absolute returns of pension funds may be comparatively high if not properly adjusted for sovereign risk. In such cases, high unadjusted returns may have nothing to do with the asset manager's skill and therefore cannot justify higher fees.

The private-social wedge prevents players from acting collectively in the pursuit of common interests, leading to important incentive distortions. Economies of scale are a key driver of the private-social wedge. For example, given the high fixed costs involved in setting up account administration and marketing structures, AFPs compete for profits by expanding their market share and, in the process, are unable to coordinate among themselves to benefit from economies of scale (in particular due to decreasing marginal costs of account administration) and reduce socially wasteful marketing costs. AFPs that win the marketing wars end up operating in an oligopolistic market structure. Indeed, as shown in Table 3, the current number of AFPs in most countries is quite small.[23] Once a stable oligopoly is established, however, AFPs are more likely to coordinate among themselves to capture scale economies (for instance, by pooling costs to set up a more centralized system of account management activities) and reduce marketing costs, as illustrated by the cases of Chile and Peru. Yet absent regulation, at that point they also face little or no pressure to pass on the resulting efficiency gains to workers in the form of lower fees.[24]

The third wedge is a time horizon one whereby both asset managers and workers act within relatively short-term horizons, leading to high churning and portfolios that are overweight liquid and short-duration assets. Both investment practices are inconsistent with the long-term nature of retirement savings and with the age profile (years-to-retirement) of contributing workers. Asset managers and workers tend to benchmark a single month or quarter's performance against the average return of the FF-DC pension fund industry. These problems are exacerbated by fundamental uncertainties surrounding distant retirement dates and by bounded rationality constraints that cloud retirement-related saving and investment decisions and create fertile ground for asset managers to fail to discharge adequately their fiduciary duty and rather prey on the cognitive and emotional weaknesses of their clients.[25]

[23] The *effective* number of pension fund managers may be lower than the number listed in Table 3. In Colombia, for instance, while the total number of pension fund management companies is four, the FF-DC system is dominated by two, which jointly manage the savings of 99 percent of the contributors.
[24] The dynamics of marketing wars, collusion, and market structure are discussed in Impavido, Lasagabaster and García-Huitrón (2010), as well as, for the case of Mexico, in García-Huitrón and Seira (2015).
[25] See Akerlof and Shiller (2015), Benartzi and Thaler (2007), and Benartzi and Thaler (2013).

Table 3. Select features of FF-DC pension systems in Latin America

	Contribution Rate (% salary)	Assets under Management		Number of AFP	"Dumb" Portfolios (% of AUM)	Statutory Retirement Age (men/women)
		($ billion)	(% of GDP)			
Bolivia	10.0	15	43	2	81	58/55
Chile	10.0	174	70	6	45	65/60
Colombia	11.5	53	22	4	43	62/57
Costa Rica	4.25	8	14	6	83	65/65
El Salvador	10.8	9	35	2	89	60/55
México	7.8	134	14	11	59	65/65
Perú	10.0	40	21	4	35	65/65
Dom. Republic	8.8	7	10	6	96	60/60
Uruguay	11.5	12	24	4	68	60/60

Note: "Dumb" portfolios are those constituted mainly by government bonds and bank deposits.
Source: World Bank pensions database.

To be sure, the full implications and severity of these three wedges were not anticipated at the time of the original reforms. Yet in one way or another, the issues that confront FF-DC systems—frustrating workers and politicians alike—can be traced to one or a combination of the mentioned wedges. Critics typically complain about pension fund managers earning very high profits while taking little or no risk of their own,[26] charging high fees, behaving like mutual fund managers focused on short-term returns (Opazo, Raddatz and Schmukler, 2009), allocating too much to government bonds and bank deposits (Table 3), and generally designing portfolios that are inconsistent with the age profile and long-term interests of workers.[27] These problems are more acute where the local-currency denominated market for debt securities is underdeveloped and thus does not provide the wherewithal to structure long-term fixed income portfolios that can generate adequate, inflation-protected streams of income for retirement. Policymakers have been grappling with these problems for the last two decades or so. Although partial progress has been made, the fundamental conundrums persist, adding to the political risk of unsound reform reversals.

An additional and most relevant problem of FF-DC systems in the region is that the savings accumulation phase (while the worker is active) is not adequately linked to the so-called payout phase (the generation of a stable income stream during retirement).[28] The only exception is Chile, where a

[26] Being pure asset managers, pension fund managers need to hold capital only to cover operational risks. Higher capital requirements have however been tried in the region as a way of better align the interests of pensions fund managers with those of their clients. Regulations typically require them to invest such capital it in the same portfolios where they invest the funds of their clients. This regulatory requirement, however, does not achieve its intended purpose: it rather induces pension fund managers to construct portfolios that suit their own interests (Randle and Rudolph 2014).
[27] See, among other sources, *Comisión de Protección Social* (2017) and Impavido, Lasagabaster, and García-Huitrón (2010).
[28] A related challenge that may exist even where deep annuities markets exist is the so-called pension risk—i.e., the risk of significant capital losses at the time of converting accumulated savings into an annuity. This risk can be minimized if, at the time of retirement, the asset composition of the pension fund is equal to the composition of assets that an annuity provider would prefer to hold to match its annuity obligations.

deep annuities market that functions well, indeed better than in many advanced economies, and where good schemes for the gradual withdrawal of savings during retirement are in place for workers that cannot (or refuse to) buy an annuity. In other Latin American countries with FF-DC systems, annuities markets are non-existent or severely underdeveloped. This is in large part the result of faulty design features, especially in mixed but competing systems such as those of Colombia and Mexico, where workers in the FF-DC scheme typically opt to receive a pension under the subsidized PAYG-DB pillar. In these cases there is little or no demand for market-supplied annuities. In Peru, by contrast, where the FF-DC and PAYG-DB pillars also compete but the PAYG-DB pillar is not subsidized, a robustly developing annuities market was recently disrupted as a result a legal reform that allows workers to withdraw a lump sum of up to 95.5 percent of their accumulated savings at retirement. Virtually all retiring Peruvians are now choosing that lump sum option (*Comisión de Protección Social*, 2017). In sum, save for Chile, in the absence of well-developed markets for annuity products and well-designed schemes of gradual withdrawal, FF-DC pillars in the region are tragically becoming "lump-sum systems" rather than "pension systems."

The rise of non-contributory social pensions

The low coverage of contributory pension systems along with a widespread policy drive toward greater social equity and the avoidance of poverty in old age have led to a proliferation of non-contributory social pensions in the region. Rofman et al. (2015) estimate that the coverage rate (i.e., the percent of the economically active population affiliated to a contributory system) across the 14 Latin American countries was on average less than 30 percent in 2010, albeit with high variance. At one extreme are Chile, Costa Rica, and Uruguay, where coverage hovers around 70 percent. At the other end are Bolivia, Honduras, Nicaragua, and Paraguay, where coverage hardly reaches 20 percent. The remaining countries in their study lie in the middle of that range, with still low coverage rates of between 20 and 40 percent. The cause of low coverage is, of course, high informality. In fact, an informal worker is typically defined as one that does no contribute to the social security system.

The *effective* coverage problem is much worse than that measured by the proportion of the economically active population that contributes. This is because a large proportion of contributors either does not meet the minimum years of contribution to qualify for a pension under PAYG-DB pillars or is unable to accumulate sufficient savings to avoid a major decline in their income stream at retirement under FF-DC pillars. Once these factors are taken into account, the *effective* coverage rate—that is, the proportion of the labor force that can realistically aspire to a pension under the contributory system—is typically cut in half—for instance, from 28 to 14 percent in Peru and from 25 to 13 percent in Colombia.[29]

Given their decisive role, differences in labor market informality are associated with differences in the design and objectives of non-contributory "social" pensions. In countries where informality is low and coverage high such as Chile and Uruguay, non-contributory social pensions tend to be solidarity-driven: they aim to include the poorest citizens in the national social security system and are therefore well integrated into the core system. In countries where informality is high and coverage low such as Colombia and Peru, social pensions tend to be treated as social assistance programs (akin to

[29] In Peru, the PAYG-DB and FF-DC pillars jointly cover 28 percent of the labor force, yet some 60 percent of those affiliated to either pillar are unable to qualify for a pension under the PAYG-DB system or to save enough to buy an annuity when retiring under the FF-DC system (see Comisión de Protección Social, 2017). In Colombia, the contributory pension system covers only 25 percent of the labor force but about a half of those thus covered meet the minimum contribution period to qualify for a pension (see Rudolph et al., 2006).

conditional cash transfers) that aim to prevent poverty in old age and are therefore less well integrated into the national social security system. Only in two of the countries studied by Rofman et al (2015), namely Bolivia and Trinidad & Tobago, are social pensions universal (i.e., available to all elderly citizens regardless of their socio-economic status).[30] In the remaining countries, social pensions are targeted to low-income retirees. However, an increasing number of social pensions in the region aspire to universality.

Most of the existing non-contributory social pension schemes do not currently constitute a material fiscal burden nor a significant subsidy to informality. The required fiscal outlays in 10 out of the 14 Latin American countries studied by Rofman et al. (2015) do not exceed 0.5 percent of GDP per year, with the average cost for the 10 countries being only 0.2 percent of GDP. This is a result of strict targeting (to the very poor elderly) and the modest size of the social pensions in question (typically linked to countries' poverty lines). Well-targeted, modest social pensions, in turn, do not significantly discourage workers from leaving informality.

However, political dynamics may well put pressure to expand benefits under non-contributory social pensions, leading to a slippery slope that raises fiscal costs in the future.[31] Indeed, in Argentina and Brazil current fiscal costs are already non-trivial, equivalent to 2.5 and 2 percent of GDP per year, respectively, according to Rofman et al (2015). The higher fiscal cost stems from a combination of broad coverage (non-contributory social pensions reach around 90 percent of the elderly population in both countries) and generous benefits (when compared to income per capita, the minimum wage, or the average pension under the contributory system). Under such conditions, social pensions in Argentina and Brazil are more likely to encourage workers to remain informal.[32]

THE POLICY AGENDA GOING FORWARD

The mentioned challenges of pension systems in the region point to four directions for reform, aimed at: (i) making PAYG-DB systems fiscally sustainable while reducing inequities; (ii) ensuring complementarity between pillars within multi-pillar pension systems; (iii) improving the performance of FF-DC schemes; and (iv) perfecting the effectiveness of anti-poverty social pensions while containing their fiscal costs and minimizing their distortionary effects on labor markets. Of course, the specific reform package will vary with the type of pension and will have to be tailored to specific country circumstances. This section briefly discusses each of these reform directions.

One cannot underestimate the political difficulties involved in making PAYG-DB systems fiscally viable and reducing their horizontal inequities. Resistance to reform will likely be fierce because pension promises are perceived as acquired rights and the beneficiaries of special privileges under PAYG-DB subsystems are well-organized and motivated. Yet reform cannot be postponed: the deficits

[30] Fiscal costs in Bolivia and Trinidad & Tobago, where social pensions are universal, are of intermediate size (1 and just under 2 percent of GDP, respectively). Ecuador has recorded a rising trend in the cost of social pensions, which reached about 0.5 of GDP in 2012.

[31] Bosch, Melguizo, and Pages (2013) discuss and document the phenomenon of politically-driven expansion of non-contributory social pension benefits (which they label as a "slippery slope of non-contributory pensions") for the cases of Ecuador and Mexico. Chapter 4 in Carranza, Melguizo and Tuesta (2017) discusses this type of political risks, while chapter 3 in the same publication offers projections of social pensions' fiscal expenditures as a percent of GDP for various countries.

[32] For example, in Brazil the non-contributory social pension under the BPC program is equivalent to the minimum pension under the contributory PAYG-DB system. In 2016, 61 percent of contributory pensions were equal to the minimum wage.

of over-extended PAYG-DB systems are already a significant burden on government budgets and, given rapid population aging, will rise exponentially in the medium term. Resistance can be softened by grandfathering those already in the system when introducing parametric reforms (e.g., raising retirement ages, contribution rates, and/or minimum contribution periods).[33] However, in some countries the deviation from fiscal sustainability is so big that future reforms may have to apply parametric reforms not only to new labor market entrants and younger workers, but also to already active and older workers. Some countries may even be compelled to consider taxing current retirees to ensure an adequate burden sharing of the costs of the reforms.

It is unrealistic to expect that over-extended PAYG-DB systems will become fiscally sustainable without both reducing the pension benefits they provide as well as shifting part of the burden of pension generation to an FF-DC scheme (i.e., to the workers' saving effort). This latter change would require a transitional fiscal effort—to pay for the pensions of retirees and workers that stay under the PAYG-DB system via tax revenues while contributions are deviated to the FF-DD scheme.[34] Such a transition is undoubtedly painful and long—except for Chile, all the countries that introduced FF-DC pillars in the 1990s are still digesting the transitional costs. And as experience has shown, allowing the coexistence of parallel, noncomplementary PAYG-DB and FF-DC systems is a very bad way of trying to reduce the transitional fiscal costs.

Indeed, as noted earlier, mixed systems where PAYG-DB and FF-DC schemes compete for the same formal workers have spawned a variety of thorny problems, including fiscal sustainability issues in PAYG-DB pillars, deep inequities across pillars, and a systematic undermining of the development of annuities markets. Arguably, pension reforms will likely have to move toward multi-pillar systems to strike a sensible balance between the not-easy-to-reconcile but desirable features of pension systems (i.e., fiscal sustainability, high coverage, adequacy of pensions, averting poverty in old age). Such pillars will likely deliver a retirement pension made up of several complementary components, including a social (anti-poverty) or solidarity non-contributory pension, a savings-based stream of retirement income, and possibly also a contributory, PAYG-based modest benefit. It is essential, however, that reforms aimed at multi-pillar systems ensure complementarity between the pillars.

Given that a significant component of retirement income will have to be built on the strength of individual saving efforts, it is crucial to undertake reforms to improve the performance of FF-DC schemes. That requires policies that significantly narrow the three wedges (principal-agent, private-social, time-horizons) discussed earlier to more effectively focus saving and investment decisions on the desired replacement rate (i.e., on the income that a person wishes to have during retirement as a percent of the income earned prior to retirement). An innovative proposal on how to do so, based on lessons from international experience and theoretical advances, can be found in the recently published report of the Social Protection Commission for Peru (2017).[35] The key reforms therein can be summed as follows.

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[33] Greater automaticity in parametric changes can be part of the solution—for instance, the introduction of a rule that automatically raises retirement ages in tandem with evidence of a rise in life expectancy.

[34] Experience shows that these transitions are much more credible and viable when financed by taxes rather than debt. Debt financing of transitions and fiscal deficits more generally creates powerful incentives for the government to borrow heavily from (or even raid) pension funds, undermining the viability of FF-DC systems. Indeed, recent reform reversals (from FF-DC systems back to PAYG-DB systems) in Poland and Hungary were influenced by the need to reduce government debt (Schwarz et al., 2014).

[35] One of the coauthors of this paper (Augusto de la Torre) was a member of that Commission, and the other (Heinz Rudolph) provided considerable information on international experiences and technical inputs to the Commission.

To reduce the private-social wedge, a regulated "utility" could provide a common platform to administer not the assets but all the accounts in the system (thereby capturing scale economies) and to interface with workers (thereby reducing incentives for asset managers to engage in wasteful and manipulative marketing activities). To better align principal-agent incentives, the regulated "utility" could also represent the interests of the workers, on the one hand by promoting independent retirement and financial planning services and, on the other, by outsourcing the investment of workers' savings to professional asset managers. To lengthen saving and investment horizons and to automatically adapt the composition of investment portfolios to workers' age, the default option for workers' savings could be a "target date fund"—that is, a fund targeted to the year in which a cohort of workers expects to retire. The asset composition in that fund would change automatically as the worker approaches retirement age. In addition, a life-cycle benchmark portfolio would be independently established to serve as a point of reference that would make it easier for workers and asset managers alike to evaluate the performance of the target date funds.

Reforms of this type would necessarily have to be complemented by a coherent set of policies geared at fostering the development of user-friendly retirement products (especially gradual withdrawal schemes and no-frills annuities) to enable workers easily to convert their accumulated stocks of savings into stable retirement income streams. Without sound annuities markets, FF-DC systems are seriously handicapped. Solving the unfair competition between PAYG-DB and FF-DC schemes is a necessary but insufficient condition for the development of annuities markets. These markets—as many other features of pension fund systems—are difficult to understand for average contributors. Efforts to advance financial literacy should continue, but it is unreasonable to expect significant improvements. A *laissez-faire* approach is likely to result in high-cost annuities and a high concentration of annuitants among high-income workers, depriving a majority of retirees of an adequate income stream. Therefore, it is advisable to set up a framework that on the one hand nudges (via well-designed default options, for instance) those who reach retirement age to choose annuity products that are easy to understand and on the other hand narrows the scope for retirees to withdraw the bulk of their accumulated savings in lump sum form. A sound and deep annuities market requires scale in order to reduce costs and increase annuities' so-called money's worth ratios.[36] This is easier to attain where annuity providers can adequately hedge against inflation risk, which can be facilitated by the systematic issuance of long-term inflation-indexed government debt. A well-developed annuities market has significant positive externalities for society. In particular, it enables the development of long-term local-currency debt markets because annuity providers (typically life insurance companies) are by their very nature long-term institutional investors.

Finally, by now it should be obvious that non-contributory social pensions are here to stay. They are key to preventing poverty in old age. Moreover, because of social equity imperatives, Latin American countries cannot wait until labor informality disappears for pension coverage to fully expand. Hence, social pensions will have to be integrated as a complementary basic pillar into the formal multi-pillar pension systems. However, non-contributory social pensions should be adequately financed by stable tax revenues (debt financing of social pensions would indeed be an aberration) and should not unduly encourage labor informality.[37] To that end, policymakers would do well to ensure that the monetary amount of the social pension is set in terms of the poverty line (rather than the minimum wage) and is not too high a fraction of the average pension under the contributory system.

[36] See Rocha, Vittas, and Rudolph (2011).

[37] As the Chilean experience shows, fiscal space to finance social pensions naturally arises as the transition (from PAYG-DB to FF-DC systems) phases out. Countries that are still in the midst of such a transition would need to permanently reduce some recurrent expenditures or raise new tax revenue to finance social pensions.

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