PENSION NOTES

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PENSION SYSTEMS REFORMS AND THEIR EFFECTS ON PAYGO PROGRAM DEFICITS AND THE FINANCING OF THE PUBLIC BUDGET

Executive Summary

If Chile had not carried out the 1981 pension reform, which replaced the Pay-as-you-go (PAYGO) systems[1] with an individually-funded system, increasing fiscal deficits would have been generated in its pension programs, together with permanent pressure for providing the fiscal resources necessary for financing them. The 1979 parametric adjustments of retirement ages and benefits only delayed the appearance of fiscal deficits, but they would still have appeared as of 2025, reaching magnitudes of 8.0% of GDP by the 2050s. This is despite the fact that the contribution rates in the PAYGO systems were close to 20%, and that approximately 50% of members who reached the official retirement age could not access a pension because they did not meet the required minimum number of years of contributions, thus fully or partially losing the contributions they paid into the respective programs.

The 1981 reform generated a transitional financial deficit in the former pension programs, due to the diversion of contributions from the PAYGO systems to the individually-funded system and the payment of Recognition Bonds to the workers who transferred to the new system. The maximum operational deficit, equivalent to 4.7% of GDP, occurred in 1984. Projections show that the deficit subsequently recorded a downward trend to levels of 2.0% of GDP in 2009 and 1.5% in 2020, and will practically disappear by 2050 (0.1% of GDP). On the other hand, it is estimated that expenditure on Recognition Bonds will be 0.2% of GDP in 2020 and 0.0% of GDP in 2025.

These figures show that the long term trend of the Chilean reform is a significant saving of fiscal resources, which would not have occurred without the reform, since such resources would have been used to cover the deficits of the contributory PAYGO systems. Thanks to the ongoing release of public funds generated by the reform, financial resources have been allocated for other purposes, especially the financing of benefits provided by the non-contributory pension programs.

[1]From the civil sector.

The granting of the benefits of the Solidarity Pension System, created in 2008, required increasing fiscal resources in the first ten years of its operation. These resources were equivalent to just over 0.5% of GDP in 2009, rising to 0.8% of GDP in 2018. Benefit amounts increased significantly in December 2019, causing additional fiscal effects. The total fiscal expenditure on the solidarity system is expected to be 1.2% of GDP by 2022, i.e., 0.4 percentage points higher than in 2018-2019. If no new adjustments are made to the system's benefits and/or coverage, expenditure on the solidarity system will be 1.2% -1.3% of GDP in the coming decades.

The fiscal consequences of the reforms that created the individually-funded systems in Colombia and Peru are different to those in Chile. This is basically due to the fact that the contributory PAYGO systems in these two countries were not replaced by the individually funded system, as happened in Chile, but rather, both systems continued operating in competition with one another. In the short and medium term, the Colombian and Peruvian reforms imply lower fiscal effects, because, unlike Chile, new workers entering the labor market may choose to join the PAYGO system or the private individually funded system. The ongoing operation of the former system means that it continues to receive a significant part of workers' contributions, although it will have to pay the corresponding pensions in future. Thus, the pressure on fiscal financing will be greater in Colombia and Peru in the long term, aggravated by the financial problems faced by the PAYGO systems, due to demographic trends and other operational deficiencies.

The demographic situation of the three countries, although not their trend, is also different. Chile is an "older" country, since the ratio of the population between 15 and 59, compared to the population aged 60 and over, will be 3.6 in 2020, whereas in Colombia and Peru it will be 4.9 and 5.0, respectively. However, by 2050 this indicator will drop to 1.7 in Chile, 2.1 in Colombia and 2.3 in Peru.

Social Security transfers for the financing of PAYGO programs from the public budget were approximately 3.7% of GDP in Colombia in 2017. Pension liability, on the other hand, was almost 110% of GDP in 2017. After the creation of the individually-funded system, denominated the Individual Savings with Solidarity System (RAIS), pension liability dropped by more than 130% of GDP. In non-contributory pensions, on the other hand, the Colombia Mayor program that provides subsidies to the elderly living in destitution or extreme poverty, had a budget allocation in December 2018 of approximately 0.1% of GDP.

In Peru, the figures available from the Pension Standardization Office (ONP, the institution that manages the PAYGO program) show a deficit in pension programs fluctuating between 0.1% and 0.3% of GDP between 2011 and 2018. The financial problem will be aggravated by demographic trends in future. An extremely important source of financing for pension programs managed by the ONP, apart from transfers from the Public Treasury, are the contributions of members who will not be receiving their pensions because they failed to meet the minimum number of years of contribution required. Under the existing rules, approximately two-thirds of their contributing members (generally lower income) will not receive a pension. Expenditure on non-contributory pensions by the Pension 65 Program, on the other hand, required public resources equivalent to 0.12% - 0.13% of GDP between 2014-2018.

I. Introduction

The effects of the new individually-funded systems, implemented by the pension reforms, on the financial situation of the former pension programs and the fiscal resources allocated to their financing, was one of the most relevant issues that had to be analyzed at the time the new system and the transition period were designed.

The purpose of this pension note is to analyze the effects that the reforms that created the individually-funded systems have had on the financial deficits of the PAYGO systems in three countries in the region: Chile, Colombia and Peru.

This note addresses the Chilean situation in greater depth, since the individually-funded system created by the 1981 reform is about to complete 40 years of operations. There is also additional information that enables visualizing not only the short and medium term effects, but also the long term effects being generated by the reform.

The note also reports on the public budget funds that are being used to finance non-contributory pension programs.

II. Fiscal effects of the reform of the pension system

A. Chile

In 1981, Chile replaced the mandatory, contributory, defined benefit PAYGO pension systems, mostly under non-competitive public management[2], with a single individually-funded, defined contribution, competitive, privately managed system for all workers[3], with a subsidiary State role. The reform was designed to enable members of the former systems to choose between remaining in them or switching to the new system, while making it mandatory for workers who entered the labor market as of January 1983 to enroll in the latter. This design entailed a long transition period, during which the former systems which merged into the Social Security Institute (IPS) have been operating side-by-side with the new system. The former systems will disappear in the long term, however.

[2] There were more than 100 pension regimes managed by 32 pension funds, but workers were unable to choose the fund and were allocated by the type of work.

[3] Of the civil sector

The 1981 pension reform has had significant effects on the pension system and other markets closely related to it, and on the fiscal situation. It has also generated a strong macroeconomic impact. Among all of these effects, this section will analyze the impact of the creation of the individually funded system on public finances, starting by pointing out what would have happened if the reform of the pension systems had not been carried out, given its characteristics, parameters and demographic trends. To this end, Cerda's estimates (May, 2006) will be considered, since he specifically studied this matter.

Subsequently, the 2008 pension reform also produced significant fiscal effects, mainly associated with the creation of the Pension Solidarity System. This system grants Basic Solidarity Pensions (PBS) to those who are not entitled to a contributory pension, and Solidarity Pension Contributions (APS) to those who cannot finance pension amounts equal to or greater than a certain level defined by the Maximum Pension with Solidarity Contribution (PMAS). To receive these benefits, pensioners are required to meet age, residence and poverty requirements. The solidarity system replaced welfare pensions (PASIS), which were granted to people who lacked resources and were not covered by the social security system, and the minimum guaranteed pensions (GEPM), which were paid to members and beneficiaries of the individually-funded system who met the number of years of contribution requirements, but could not finance a pension equal to or greater than a certain minimum amount.

Both the PBS and the PMAS are adjusted in accordance with Consumer Price Index variations. In addition to adjustments for inflation, both of these benefits have had minimal adjustments since their inception. The most important adjustment occurred in December 2019, when a 50% increase was established for the PBS and the PMAS, which will come into effect within a maximum period of just over two years (Table 1).

Table 1: Cumulative increases in the PBS and PMAS

Years of the pensioner	Dec. 2019	January 2021	January 2022
65 - 74	25%	40%	50%
75 - 79	30%	50%	-
80 +	50%	-	-

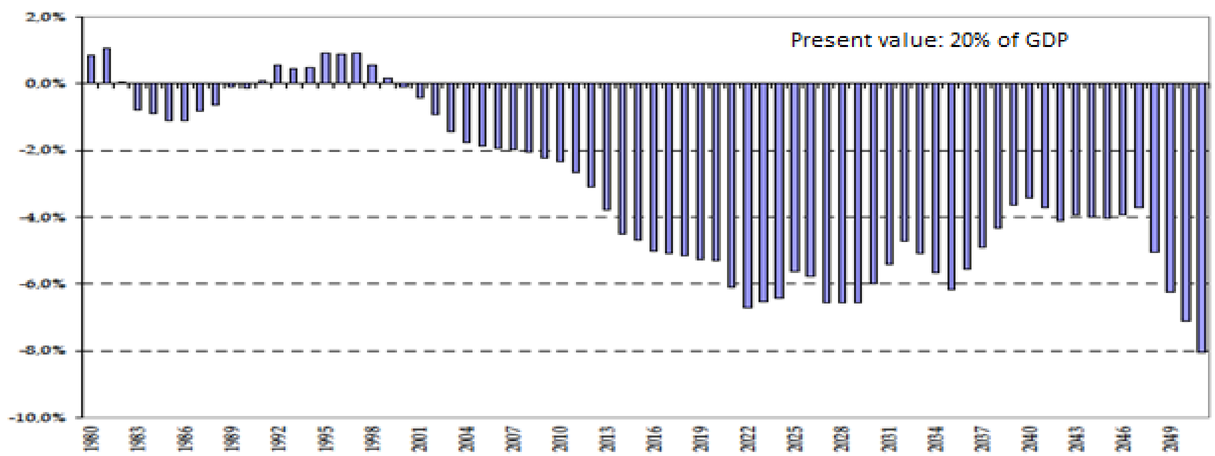
In addition to the PBS and the APS, the 2008 pension reform introduced the Bonus per Child-Born-Live for women, which is granted from the age of 65, and the contribution subsidy for young workers receiving low wages. The benefits that involve greater fiscal resources are the PBS and the APS. That is why the analysis that will be presented further on will focus on the two latter benefits.

What would have happened without the 1981 pension system reform?

Since the answer to this question cannot be based on observable data, because the reform that introduced the individually-funded system was implemented, Cerda (2006) simulated the evolution of the economy and the pension systems using information and projections of the demographic and economic conditions prevailing during the 20th century and the first 50 years of the 21st century. He assumed that the pension systems would continue to be PAYGO, with no changes after 1980 in terms of contribution rates and the design of benefits. Given the above, pensions are granted on average at age 63 and are calculated as 70% of the average salary in the last 5 years, when 10 or more years of contributions are recorded. Moreover, pension contribution rates are approximately 19%.

Based on these assumptions, Cerda first estimates the projected evolution of the deficit of the former pension systems without the parametric reforms carried out in 1979. The evolution of the projected fiscal income and expenses implies, under this scenario, the generation of increasing fiscal deficits as of the year 2000, reaching levels of 8.0% of GDP towards the end of the projection period (Graph 1).

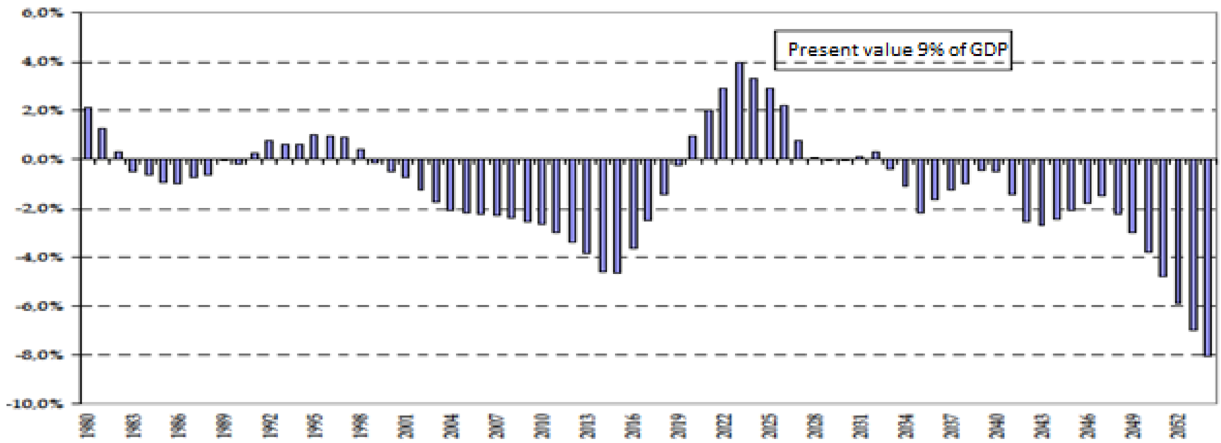
Graph 1: Fiscal surplus (deficit) of the former pension system without parametric reforms and without the 1981 pension reform



Source: Cerda (2006).

Cerda also prepares projections considering the parametric reforms carried out in 1979, which basically consisted in the abolition of pensions for years of service and the increase of the minimum retirement age to 65 for men and 60 for women. Parametric adjustments delay the emergence of fiscal deficits, but they also arise as of 2025, reaching magnitudes of 8.0% of GDP in the 2050s (Figure Graph 2).

Graph 2: Fiscal surplus (deficit) of the former pension system with parametric reforms and without the 1981 pension reform



Source: Cerda (2006).

It is important to note that the significant fiscal deficits that were projected for the former pension systems, were generated despite the existence of contribution rates close to 20%, and that approximately 50% of members who reached the legal retirement age required, did not obtain pensions because they did not meet the minimum number of years of contributions required[4], fully or partially losing the contributions made to the respective programs. The latter contributed, in turn, to financing part of the benefits that members who met the existing requirements did obtain.

The effects of the 1981 pension reform and their fiscal implications

The 1981 reform entailed the reassignment of the contributions of members who chose to transfer to the new system and new workers entering the labor market as of January 1983, from the former contribution systems to the pension fund managers of the new individually-funded system. Furthermore, the reform also entailed the issuing and payment of bonds acknowledging contributions to the PAYGO systems by members who transferred to the new system and met certain requirements.

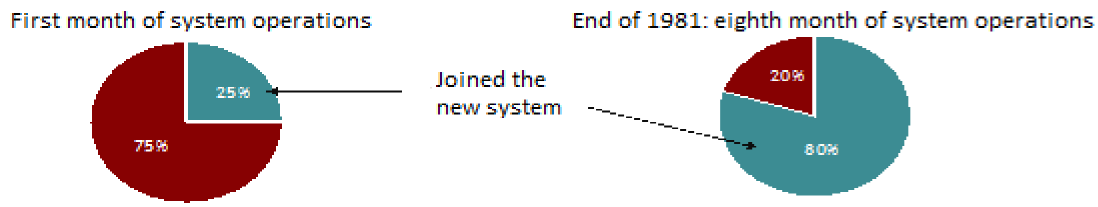
These bonds are state-guaranteed and accrue an interest rate equivalent to the variation of the Consumer Price Index, plus a real annual premium of 4.0%. They are paid when the transferred members meet the conditions for retiring in the new system.

[4] Association of AFPs (2014).

Certain aspects of the design of the transition contributed to lessening the impact of the reform on the fiscal situation, particularly the option given to members of choosing between the old and new systems, rather than forcing them to transfer, and the payment of the bonds issued in recognition of the contributions to the former systems only on the date on which the members retire in the new system, and not at the time of the transfer.

In practice, however, the effect of the freedom to transfer was less than expected, because 80% of the labor force with a transfer option decided to transfer to the individually-funded system, and did so within a year.

Graph 3: 80% of the workforce with a transfer option opted for enrolling in the new system within one year



Source: Piñera (2010).

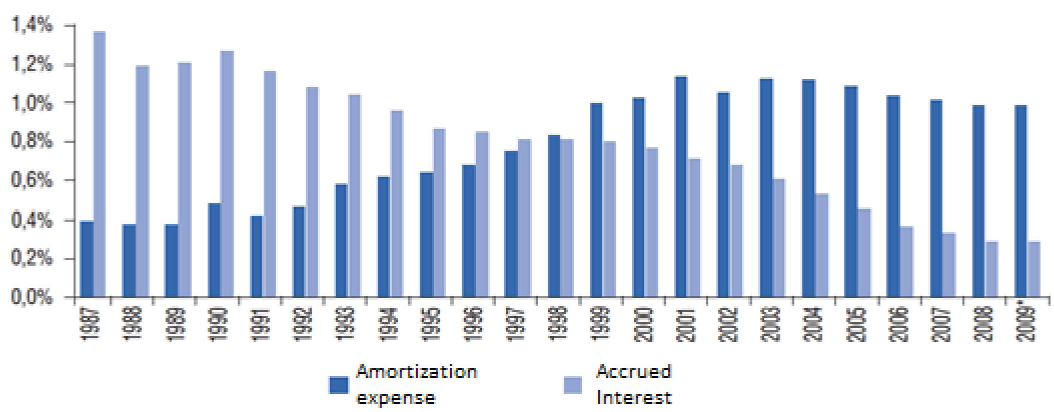
Arenas de Mesa et. al (2009) projected the fiscal commitments generated by the transition from the PAYGO systems to the individually funded system, separating the operational deficit that occurs in these systems from the payment of the Recognition Bonds (RB). The operational deficit is defined as the difference between the revenue from pension contributions by the members of the former pension funds, and the expenses for the payment of benefits to the pensioners of said funds. The purpose of the work of Arenas de Mesa et. al was to provide updated projections, using microdata, of the fiscal commitments derived from the operational deficit and the payment of Recognition Bonds.

The operational deficit and the payments of the RBsare transitory components of the fiscal expenditure associated with the reform. There were also permanent components of fiscal expenditure until 2008, such as welfare pensions and the state minimum pension guarantee. The latter covered members and beneficiaries of the new contributory pension system (individually-funded system) who met the number of years of contribution requirements but could not self a minimum pension amount. With the 2008 reform, these benefits were replaced by those of the Pension Solidarity System, explained above.

It is worth mentioning that fiscal accounting is kept on an accrual basis, which means that the issuance, accrual of interests and liquidation of the RBs are reflected in said accounting. The value of the RBs issued during the year for new members transferred from the former PAYGO systems to the individually-funded system during the period is recorded annually in the fiscal accounting, increasing the State's liabilities. Interest accrued on the current RB stock (4% real annual) is also recorded as an expense that reduces the fiscal surplus. Finally, when the RB is liquidated, a liability that is recorded under the line is written off as a use of the surplus/deficit. The amount recorded is the updated value of the RB until its payment.

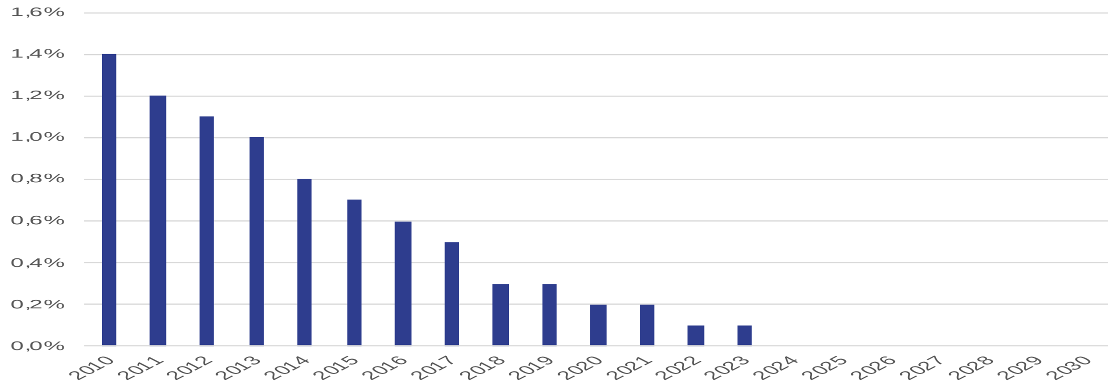
The RB amortization expense figures presented by Arenas de Mesa et. al reached their maximum value of 1.12% of GDP in 2003, dropping to 0.98% of GDP in 2008 and a similar figure in 2009. On the other hand, the interest accrued by the RBs, information only available as of 1987, recorded a downward trend, starting at just under 1.4% of GDP in that year, to reach about 0.3% of the GDP in 2008-2009. The sum of amortizations and interests reaches maximum levels of around 1.8% of GDP in this period (Graph 4). The projections of Arenas de Mesa et al regarding the sum of Recognition Bond amortizations and interests al as of 2010, show a steady decreasing trend from 1.4% of GDP in 2010 to 0% of GDP in 2024 (Graph 5).

Graph 4: Expenses on amortization and accrued interest of Recognition Bonds % of GDP



Source: Arenas et. al (2009).

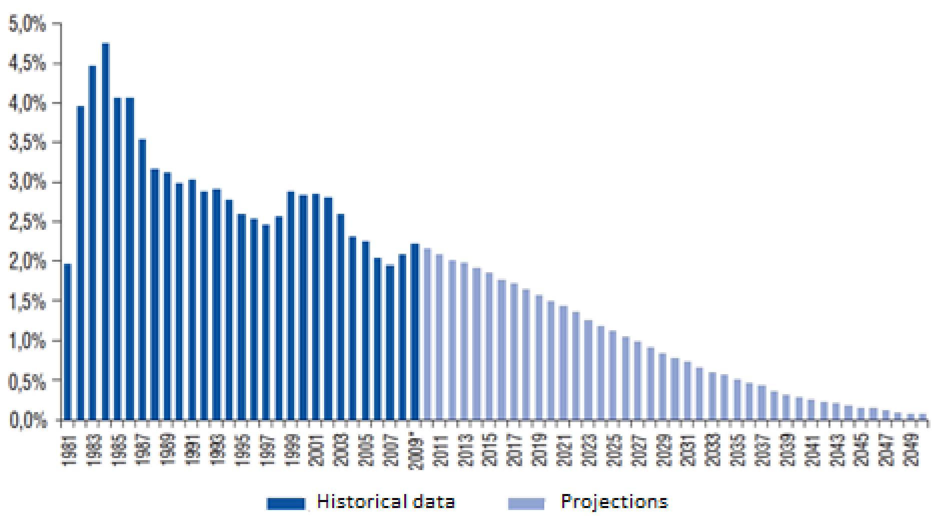
Graph 5: Projections of Recognition Bond amortization expenses and accrued interest (% of GDP)



Source: Arenas et. al (2009).

The same authors point out that the operational deficit of the PAYGO systems reached its maximum level of 4.7% of GDP in 1984, subsequently dropping to 2.0% of GDP in 2009. As of 2010, the projections show a steadily decreasing trend of the deficit (Graph 6).

Graph 6: Operational deficit of the former PAYGO pension systems



Source: Arenas de Mesa et. al (2009)

From the data presented, it was concluded that the replacement of the PAYGO systems by the individually-funded system entailed an increase in the operational deficits of the pension systems during the first two and a half decades of the transition stage, approximately. The maximum operational deficit of 4.7% of GDP was recorded in 1984, with reform, whereas without reform it is estimated that it would have been somewhat less than 1.0% of GDP.

This deficit was financed mainly in three ways: greater indebtedness, through the issuing of state securities that were partially acquired by the pension funds of the new individually-funded system; the sale of shares of public companies, which were privatized and bought by the pension funds, among others, and the reduction of other fiscal expenses.

However, the reform is translating into a significant long-term saving of fiscal resources that would not have been available had it not been implemented, as such resources would have been used for covering the deficits of the contributory pension systems.

Cerda projected that without reform, but with parametric adjustments, significant fiscal deficits would be generated in the PAYGO systems starting in the late 1990s, reaching levels above 2.0% and 4.0% of GDP in 2010 and 2015, respectively, producing a period of "financial respite" (surplus) between 2020 and 2032, with growing deficits resuming as of 2033 and reaching percentages close to 4.0% of GDP in 2050, and 8.0% of GDP in 2054.

With reform, on the other hand, operational deficits record a downward trend as of 1984, dropping to 2.1% and 1.8% of GDP in 2010 and 2015, respectively, to 0.8% in 2030, 0.3% in 2040 and practically disappearing in 2050 when there is a deficit of only 0.1% of GDP. Recognition Bond amortization and interest had already dropped to 0.2% of GDP by 2020 and will drop to 0.0% of GDP by 2024.

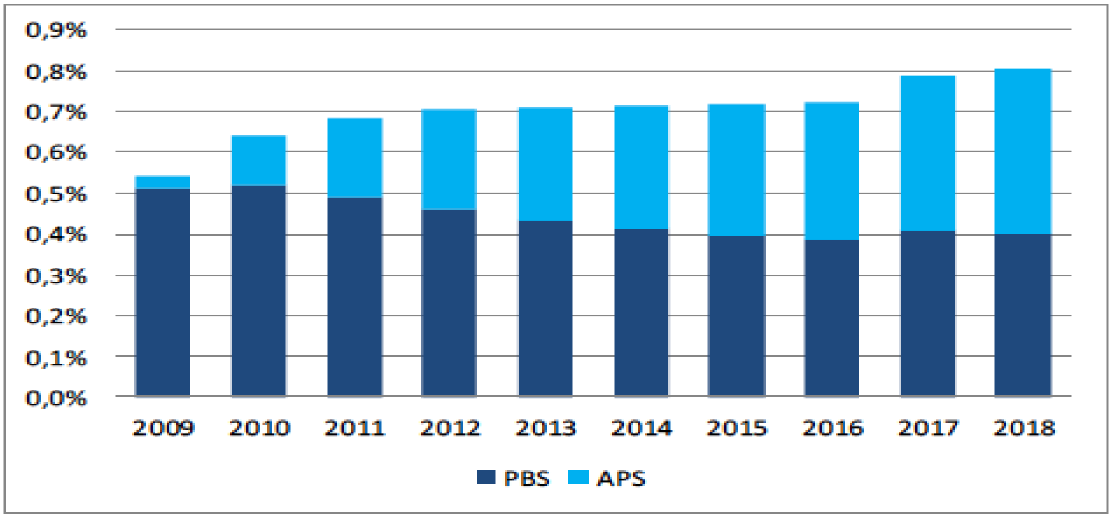
Due to the permanent release of public funds generated by the reform, financial resources have been allocated for other purposes, especially the financing of the benefits provided by the non-contributory programs. In fact, the presidential message on the occasion of the 2008 reform, whose fiscal effects are discussed in the following section, highlights the fact that the benefits of the solidarity system could be partially financed by the release of resources that were previously destined to the former PAYGO systems.

The fiscal effects of the 2008 pension reform

The granting of the PBS and the APS to the beneficiaries of the Pension Solidarity System required increasing fiscal resources

in the first ten years of its operation. In 2009, these resources were equivalent to just over 0.5% of GDP, rising to 0.8% of GDP in 2008 (Graph 7). Based on the preliminary figures to September, it is estimated that the 2019 percentage will be similar to the previous year.

Graph 7: Fiscal cost of the Basic Solidarity Pension and the Solidarity Pension Contribution % of GDP



Source: Chilean Pensions Commission (2019).

The reform also entailed a reduction in fiscal spending for welfare pensions and the state minimum pension guarantee. These benefits were replaced by those of the solidarity system. The fiscal projections prepared by Arenas et. al (2008) estimated that fiscal savings on these two items would fluctuate between 0.3% and 0.4% of GDP between 2009 and 2018, so that the net effect of the creation of the Pension Solidarity System was lower than previously indicated.

In December 2019, the PBS and PMAS increased by 50%, which will also entail increases in the APS. This will have significant additional fiscal effects. It is projected that by 2022, when the benefits of the solidarity system will have increased by the percentage indicated for all pensioners, the total fiscal expenditure in the PBS and the APS will be 1.2% of GDP, i.e., 0.4 percentage points higher than in 2018-2019. If no further adjustments are made to the benefits and/or coverage of the solidarity system, the expenditure on PBS and APS will be 1.2% -1.3% of GDP between 2023 and 2046, dropping slightly by 2050[5].

Conclusions of the Chilean case

In the long term, the replacement of the contributory PAYGO pension systems by the individually-funded system implies a substantial saving of public resources destined to financing the pension system. The demographic trends seen in 2006 indicated that the deficits of these regimes would be around 8% of GDP in the 2050s. These figures would probably be aggravated if more up-to-date demographic indicators are considered. On the other hand, although the pension reform that created the individually-funded system implied an increase in operational fiscal deficits during

[5] Assumes a GDP growth of 1% in 2019 and 2020 and 3% as of 2021

part of the transition, such deficits recorded a downward trend as of 1984, finally disappearing in 2050. The fiscal resources that have been released have been partly allocated to the financing of other public expenditures, including the benefits of the Pension Solidarity System, which currently account for 0.8% of GDP, but will rise to between 1.2% and 1.3% of GDP in the next three decades.

B. Colombia and Peru

The fiscal consequences of the reforms created by the individually-funded systems in these two countries are different from the Chilean case. This is basically due to the fact that in Colombia and Peru, the contributory PAYGO systems were not replaced by the individually-funded system, as happened in Chile; instead, both systems continue to operate in competition with one another.

In the short and mid-term, the design of the Colombian and Peruvian reforms entails lower fiscal effects, because, unlike Chile, not only workers who are already enrolled in the system can choose to remain in the PAYGO programs, but also new workers entering the labor market may choose to enroll in such programs or the private individually funded system. The ongoing operation of the former system means that it continues receiving a significant part of the contributions of workers, but will in turn have to pay the pensions of these workers when they retire.

Thus, the long-term pressure on fiscal financing will be greater in the cases of Colombia and Peru, aggravated by the financial problems faced by the PAYGO programs due to demographic trends.

In Chile, 27 years after the launching of the individually funded system, only 2.4% of contributors continued to contribute to the PAYGO systems (112,719 people in July 2008), while in the case of Peru, the mandatory and optional contributors to the National Pension System in May 2019, after 26 years of operation of the private pension system, accounted for 36% of all contributors (1,598,320 people). In Colombia, 25 years after the launching of the individual savings system (April 2019), contributors to the Average Premium Plan accounted for 28% of all contributors to the general pension system.

The demographic situation of the three countries, although not their trend, is another important difference between Chile and the Colombian and Peruvian cases. Chile is an "older" country, which can be observed in the aging indicator that measures the relationship between the population aged 15 to 59 compared to the population aged 60 and over. It is estimated that this ratio will be 3.6 in Chile in 2020, while in Colombia and Peru it will be 4.9 and 5.0, respectively. Nonetheless, by 2050 this indicator will drop to 1.7 in Chile, 2.1 in Colombia and 2.3 in Peru[6].

Financial situation of PAYGO and non-contributory pension systems in Colombia

According to ASOFONDOS, given the fact that the pension reserves of the Average Premium Plan (RPM) in Colombia are depleted, the contributions of current workers must pay the benefits that pensioners receive. The resources lacking

[6] "Long Term Population Estimates and Projections 1950-2100." 2019 Review, CELADE.

for the payment of benefits are financed with general taxes.

As of April 2019, the number of contributors in the RPM was 2,430,420, compared to 1,349,108 pensioners, i.e., 1.8 contributors per pensioner. However, the figure is distorted by the fact that 9 out of 10 workers enrolled in the RPM cannot access a pension, receiving a reimbursement of their contributions, only adjusted for inflation, which also contributes to the financing of the benefits of members who do receive a pension.

According to the general budget of the nation prepared by the Ministry of Finance and Public Credit in 2019, the deficit between the expenditure for paying the pensioners of the RPM and special regimes ($ 57.2 billion) and revenue from contributions and transfers ($ 17.8 billion), is 39.4 billion Colombian pesos. Transfers from the public budget, necessary to cover pension deficits, are the most expensive item in the national budget, higher than in other programs, such as education and health.

In 2017, pension transfers accounted for approximately 3.7% of GDP[7]. Pension liability, on the other hand, was almost 110% of GDP in 2017. After the creation of the individually-funded system, denominated the Individual Savings with Solidarity System (RAIS), pension liability dropped by more than 130% of GDP, compared to the situation that existed prior to Law 100 with the situation in 2017 (Graph 8).

There is a non-contributory pension program denominated Colombia Mayor, aimed at the elderly, with the fundamental purpose of protecting those who are destitute or living in extreme poverty. It is an economic subsidy given to the elderly population. In 2018, the total value of the program was $ 1.217 billion8, equivalent to approximately 0.1% of GDP in 2017.

Financial situation of the PAYGO and non-contributory pension systems in Peru

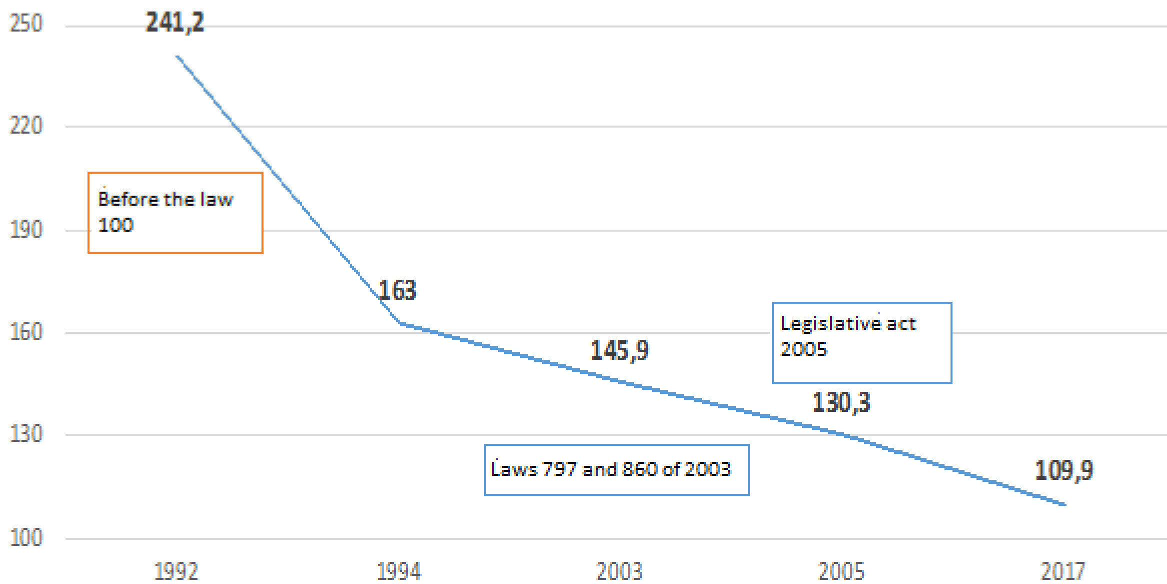
The figures available from the Peruvian Pensions Standardization Office (ONP) show a pension program deficit fluctuating between 0.1% and 0.3% of GDP between 2011 and 2018 (Graph 9). The financial problem will likely be aggravated by demographic trends in the future.

An extremely important source of financing for pension programs managed by the ONP, apart from transfers from the Public Treasury, are the contributions of members who will not be receiving their pensions because they failed to meet the minimum number of years of contribution required. Under the existing rules, approximately two-thirds of their contributing members (generally lower income) will not receive any pension (Palomino, 2015).

On the other hand, according to the figures of the executed budgets, the historical disbursement in the granting of non-contributory pensions under the Pension 65 program, grew from 0.00% of GDP to between 0.12% and 0.13% of GDP between 2014 and 2018.

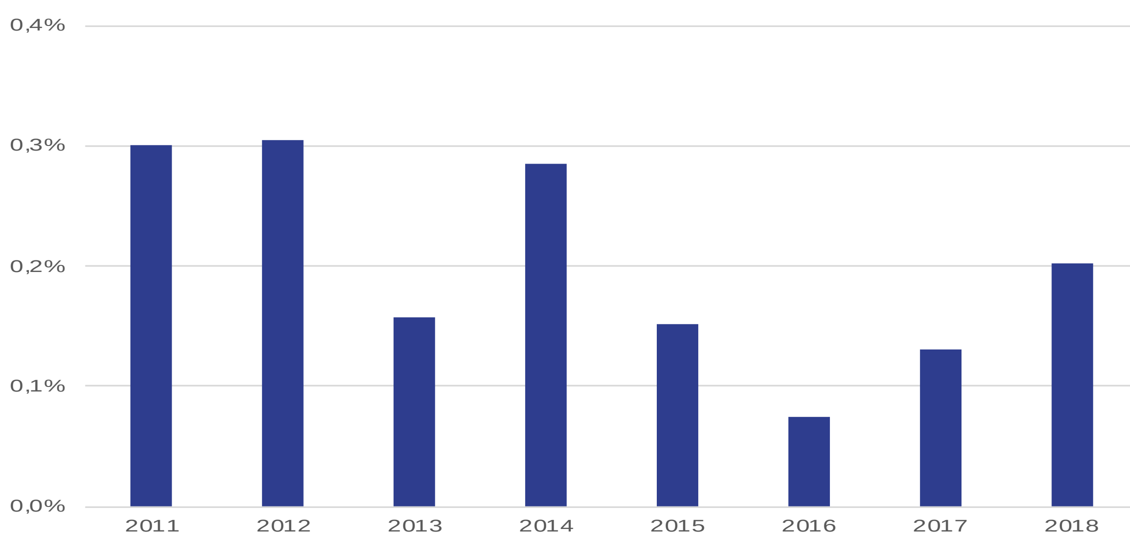
[7] López et. al (2019).

Graph 8: Colombian pension liabilities (% of GDP)



Source: Asofondos (2019).

Graph 9: Deficit of the Pension Standardization Office (ONP) in Peru (% of GDP)



Source: Pension Standardization Office.

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