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Reversing Pension Privatization in Bolivia

Carmelo Mesa-Lago

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Isabel Ortiz, Director Social Protection Department

International Labour Organization

4 Route des Morillons

CH-1211 Geneva 22 Switzerland

Tel. +41.22.799.6226 • Fax: +41.22.799.79.62

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Abstract

This paper documents the reversal of pension privatization and the reforms that took place in the 1990s and 2000s in Bolivia. The report analyses the political economy of different reform proposals, and the characteristics of the new pension system, including laws enacted, coverage, benefit adequacy, financing and contribution rates, governance and social security administration, social dialogue, positive impacts and other key issues of Bolivia's pension system.

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The author

Carmelo Mesa-Lago is a Distinguished Service Professor Emeritus of Economics and Latin American Studies at the University of Pittsburgh.

Acronyms

AFP	Pension Fund Administrator
APS	Autoridad de Fiscalizacion y Control de Pensiones y Seguros (Pension and Insurance Oversight and Control Authority)
BBVA	Banco Bilbao Vizcaya Argentaria
BCB	Banco Central de Bolivia
CC	Certificate for compensation of previous contributions/Compensation for contributions
COB	Central Obrera Boliviana (Workers' Federation)
COSSMIL	Corporacion del seguro social militar (Military social security agency)
DB	Defined benefits
DC	Defined contributions
ID	Identification document
ILO	International Labour Organization
IMF	International Monetary Fund
LAC	Latin America and the Caribbean
MEFP	Ministry of the Economy and Public Finance
OLG	Long-run, overlapping generations model
PAYG	Pay-as-you-go
RD	Renta Dignidad (Dignity pension)
SIP	Sistema Integral de Pensiones (Comprehensive Pension System)
SPVS	Pension, Securities and Insurance Regulatory Agency
TGN	Transportadora de Gas del Norte
UDAPE	Unidad de Análisis de Políticas Sociales y Económicas (Analysis Unit for Social and Economic Policies)
UFV	Unidad de Fomento de Vivienda (Housing Development Unit, a unit for readjusting for inflation)
VMPSF	Vice Ministerio de Pensiones y Servicios Financieros (Vice-ministry of Pensions and Financial Services)

Summary of Reforms related to Pension Privatization and its Reversal

1996	**The pension system following the 1996 privatization:** – Non-contributory pension for individuals ages 65 and over. – Mandatory defined contribution (DC) private pillar.
2006-2010	President Morales launches four years of discussions and consultations to reverse the pension privatization. The Workers' Federation, COB, plays a key role in this effort.
2008	Call for re-reform proposals, explicitly rejecting advice from international financial organizations. The non-contributory pension (*Bonosol/Bonavida*) becomes *Renta Dignidad* (RD), a universal benefit for all older persons aged 60 and over. RD is reduced by 25 per cent for those receiving a pension from the contributory scheme.
2009	Constitutional ban on private administration of social security schemes. Creation of a public administrator (*Gestora Pública*, not yet operational). In the meantime, the two pension funds (AFP) continued to manage the reformed scheme. Introduction of strict sanctions for evasion or fraud with respect to social security system and benefits.
Dec. 2010	**Reversal of the privatization and rebuilding a public pension system:** Law Nº 065 replaced the private system with a new public PAYG system: *Sistema Integral de Pensiones* (SIP). **The new model:** The new three-tier mixed system consists of a public non-contributory universal pension for all individuals ages 60 and over, a contributory, PAYG DB providing old-age pensions, and a semi-contributory (solidarity) scheme financed by contributions and a solidarity fund. The shares of the private system are transferred to the solidarity fund. **Entitlements:** PAYG DB pension from the age of 55 and 50 for men and women, respectively with guaranteed replacement rate of 70 per cent assuming 30 years or more of contributions. Universal non-contributory pension is granted from the age of 60 with a benefit up to approximately US$ 47 per month. **Administration:** A new public pension administrator (*Gestora Pública*), created (Supreme Decree 2248) in 2015, is expected to begin operations in March 2019. **Transfer of Entitlements**: All affiliates and funds were transferred to the public system. Individual accounts continue to operate temporarily, under the management of the AFPs until the new *Gestora Pública* starts its operation. **Supervision:** Pension and Insurance Supervisory Authority replaced the Superintendency, with the mandate to oversee both pensions and insurances. **Contributions:** Workers contribute 12.71 percent and employers, 3 per cent. High-income individuals pay an additional contribution to the Solidary Fund. **Solidarity, gender and social impacts:** Projections indicate substantial benefit increases for lower-income groups and women. Additionally, the maternal solidarity pension led to improved gender equity. **Fiscal impact:** US$ 5.41 billion were transferred from the private to the public system, decreasing public debt from 38.5 to 33.9 per cent of GDP between 2010 and 2011.

Executive summary

The following chapter analyses the reversal of pension privatization in Bolivia in 2010, with a focus on the political economy surrounding the privatization and its reversal, as well as the impact on the social security system and its principles.

Following the 1996 structural reform, all workers insured in the public system were moved to a new defined contribution (DC, fully-funded) private system whereas new labour-force entrants entitled to coverage were obligated to join the new system. Despite the reformers' promises, the reform had mostly negative effects: coverage of the labour force stagnated at 12 per cent (the lowest rate among privatized systems in the region); the self-employed were not covered; a sharp decrease in the number of contributors; the replacement rate averaged 20 per cent of the average wage during working life; competition did not increase due to the duopoly (administrative fees remained low given the lack of competition); social solidarity virtually disappeared; gender equity eroded; social participation in management ended; the privileged scheme for the armed forces remained separate and heavily subsidized by the government; and, the employers' contribution was eliminated and employees paid a larger share. Many of these developments were in violation of the ILO Social Security (Minimum Standards) Convention (No. 102). Eighty-one per cent of pension fund investments were in government bonds, and transition costs were 2.5 times higher than originally estimated. Some positive effects included the creation of a flat pension provided to part of the elderly population regardless of income; pension indexation to inflation; and high capital accumulation and real returns. In a 2008 survey, 61 per cent of the insured and pensioners favoured the system changes.

The 2009 Constitution banned the private administration of social security and stipulated that the government was responsible for managing it. The 2010 re-reform resulted from an agreement between the government and the major workers' federation (COB) but excluded other groups. It transformed the previous private system into a three-pillar mixed system. The contributory old-age pension scheme retains the individual accounts and is still managed by the two AFP (a public administrator stipulated by the re-reform has yet to be established but was expected to begin operations in mid-2016). These AFP also administer disability-survivors' pensions. A new semi-contributory PAYG scheme, which covers the same risks as the contributory scheme, is financed by contributions and a new government-managed solidarity fund. The previous non-contributory pension was changed in 2008 (before the re-reform) to Renta Dignidad (RD) and became truly universal (granted for life to all citizens ages 60 and over, regardless of income). The RD is PAYG-financed by a solidarity fund and temporarily managed by a private corporation, in coordination with a new oversight authority (APS).

Re-reform achievements include: (a) consolidated and expanded RD to all elderly citizens, the only one of its kind in Latin America, which reduced old-age poverty by 14 per cent, and increased consumption and per capita income in that group. The benefit is reduced by 20 per cent for the elderly receiving a pension from contributory pillars; (b) creation of a semi-contributory pillar and a solidarity pension, financed by a solidarity contribution partly paid by employers (who previously only contributed the work-injury compensation premium) and by the insured (particularly those with higher incomes), which strengthened social solidarity and should progressively improve distribution; (c) mandatory coverage of the self-employed and slightly higher enrolment rates of the self-employed; (d) improved gender equity with the reduction of mothers' retirement age for each child born alive, and a greater share of women in the non-contributory pension; (e) an RD that is only 8 per cent of the average contributory pension, for which reason it will most likely not create disincentives for enrolment in the contributory programme;

(f) tougher sanctions enacted to collect employers' debt and to reduce evasion of contributions and other violations; (g) an increase in accumulated capital both in absolute terms and as a percentage of GDP; and (h) reduced concentration of the public debt portfolio.

Re-reform challenges include: (a) contributory coverage remains stagnant (the lowest in the region) due to a large informal sector (60 per cent of the labour force) and formal-sector evasion; (b) total population coverage is only 15 per cent; (c) generous conditions and benefits in the armed-forces scheme continue and should be financed by the insured and the government employer without fiscal subsidies; (d) the total contribution rate is higher than the previous one and, in the contributory system, workers contribute 2.7 to 4.8 times more than employers, in violation of ILO minimum standards; (e) administrative costs are still relatively low but the adequacy of the administration for a PAYG system should be assessed; (f) workers and employers do not participate in system administration. They should become involved through advisory committees; (g) the APS and the public administrator's autonomy should be ensured; (h) forty-three per cent of the portfolio is concentrated in bank deposits that pay low or negative real interest rates and the average real rate of return continues to decline, thus there is a need to diversify the portfolio; and (i) the system's financial-actuarial sustainability is questionable. Actuarial studies should have been conducted prior to the re-reform and in 2015 should be released to assess pension system sustainability.

1. Introduction

In many senses, Bolivia is a unique case in Latin America and the Caribbean (LAC). The Human Development Index ranks Bolivia as the sixth least socio-economically developed nation among 35 countries in Latin America (UNDP, 2014). Most of the labour force is in the informal sector (a total of 60 per cent, 67 per cent among women [1], and steady wage employment is low, which makes the expansion of contributory pension coverage difficult. Bolivia's poverty and extreme poverty rates were the second highest in the region in 2005 (rural poverty is double the urban rate) but improved to fourth place in 2013 (ECLAC, 2014a, 2014b). The decline in poverty mainly resulted from virtually universal coverage of the elderly population by a non-contributory flat pension scheme, the only one of its kind in LAC, and one of just 27 out of 178 countries worldwide (ILO, 2014/15; ECLAC-ILO, 2015). By contrast, Bolivia has the lowest contributory coverage of its labour force. The re-reform created new institutions and benefits but kept individual member accounts, which are still managed by the AFP given that the public administrative body (Gestora Pública de Seguridad Social de Largo Plazo, henceforth Gestora) has not yet been established (as stipulated by the re-reform law). A serious concern is the long-run financial-actuarial ability of the system to deliver on the promise of adequate income security for all workers and their families. This chapter examines the reversal of pension privatization in Bolivia through the 2010 pension re-reform, with an emphasis on its political economy and impacts on social security principles.

2. Why the government re-reformed pensions and abandoned privatization

2.1. Privatization model

Three major types of pension structural reforms have been implemented in LAC: (a) substitutive reforms, which entirely replaced the PAYG, defined benefit (DB) and publicly-managed system with a fully-funded (individual-account), defined contribution (DC) and privately-managed (AFP) system; (b) mixed reforms that maintained the public system and added a mandatory private tier; and (c) parallel reforms that maintained the public system and created a private system competing with the public one (Mesa-Lago, 2008). Bolivia followed the substitutive model pioneered by Chile without adequately consulting workers and employers, as mandated by ILO Conventions and Recommendations. All insured in the public system were forced to enrol in the new private system. In Chile, those insured at the time of the reform were given a short period to decide either to stay in the public system or to shift to the private one. As in Chile, enrolment in the private system was mandatory for new entrants in the labour force entitled to coverage. Bolivia's labour force and socioeconomic features, however, were quite different to Chile's, hence making it difficult to replicate the latter's reform model. Bolivia's scheme also had important design flaws and introduced post-reform changes that generated significant problems.

[1] Seventy-five per cent of non-agricultural employment in Bolivia is informal, a percentage that increases to 78.5 per cent for women. Both figures are the highest in Latin America (ILO-WIEGO, 2013).

2.2. The main justifications/arguments for the 1996 pension privatization did not occur

Several flaws of the public pension system were used to justify the privatization law in 1996: (a) a high level of fragmentation, with a single basic programme but 38 supplementary funds with significant differences among them; (b) low coverage of the labour force and the elderly, especially women; (c) low retirement ages (50 women/55 men) and high replacement rates (70-100 per cent); (d) high administrative costs (17-20 per cent of contributions, on average); (e) substantial evasion, payment delays and under-declaration of wages; (f) depletion of the pension fund (partly due to hyperinflation in the 1980s) and low or negative rates of return; and (g) financial imbalances that steadily increased fiscal transfers to finance a growing deficit (US$ 780 million in 2012 alone), a severe actuarial imbalance and an active/passive ratio averaging 2.7 to 1 in the basic programme but below 1 in several supplementary funds (Gersdorff, 1997; Picado and Durán Valverde, 2009; Mesa-Lago and Ossio, 2012; MEFP, 2013b).

The structural reform had the support of international financial organizations but strong opposition from the ministries of labour and health, as well as trade unions. The draft legislation linked the reform with the privatization of half of all public enterprises, made politically feasible by assigning 50 per cent of the stocks to finance an annual non-contributory flat benefit for the elderly (Bonosol). This garnered support from the major workers' federation. The draft legislation also established a pension authority to oversee the private system and remove power from social ministries. A public relations campaign launched in 1995 led to a limited social dialogue but did not prevent opposition forces from organizing public protests. Despite the opposition, the government coalition, which had a strong majority in Congress, passed the reform law in 1996. It was implemented on 1 May 1997 (Mesa-Lago and Müller, 2003).

Several expected outcomes of the privatization did not materialize, and insufficient evidence was provided to support the arguments in favour of the reform (Escobar, 2014). Among the promises made were: increased labour force coverage; improved benefits; reduced government role through the private system; introduction of competition to reduce management costs; higher capital accumulation and returns; and, elimination of the pension deficit in the long run. An assessment of those promises appears below, including the elimination of some previous gains and the few positive effects achieved.

Coverage. The labour force contributory coverage failed to increase as promised and was stagnant: 12 per cent in both 1997 and 2010, the lowest among privatized systems in the region. Old-age contributory coverage was just 0.7 per cent and 4.2 per cent in 1997 and 2010, respectively, but non-contributory coverage by Bonosol rose from virtually zero to 77 per cent in 2007 when it was made universal through RD. The retirement age was raised to 65 for both genders [2], an increase of 15 years for women and 10 years for men, both of which were quite high for Bolivia given the country's relatively short life expectancy at retirement.

Benefits declined. Unlike other structural reforms, Bolivia's did not guarantee a minimum pension to the insured in the contributory system in the event that they did not accumulate enough in their individual accounts. The certificate for compensation of previous contributions (CC) paid to the public system until 30 April 1997, before the reform law was enacted, began to be awarded in 2003 but was restricted by ceilings of 20 times the minimum wage and US$ 1,137. Just 17 percent of contributors received a CC in

[2] The law allowed for earlier retirement based on the amount accumulated in the individual account.

1998, a percentage that rose to just24 per cent in 2010, hence only a fraction of the eligible population received the CC (Mesa-Lago and Ossio, 2012).

The role of government increased. The private system reform intended to modify the government's role from a central to a «subsidiary» one. However, reformers underestimated the public financial implications and related fiscal transition costs. Consequently, the government's role increased as it had to step in to: (a) cover the transitional deficit resulting from the rapid closure of the public system, which left it without contributors (a much more critical situation than in other countries, where part of the insured remained in the public system/tier) but was entrusted with all current and future obligations; (b) finance the CC from the basic and supplementary pension funds beginning in 2003; (c) manage and partly finance Bonosol through the Ministry of Finance; and (d) finance the Pension, Securities and Insurance Regulatory Agency (SPVS) [3].

Competition did not occur. The low number of insured in Bolivia led to a virtual duopoly of two AFP (BBVA Previsión AFP S.A. and Futuro de Bolivia AFP S.A.) [4]. The government distributed the insured population between the two AFP based on geographic areas. It also and banned changes for five years, for which reason competition did not exist, and marketing costs were insignificant. Nevertheless, these costs accounted for 20 per cent of the total deduction on taxable wages, including the 10 per cent deposited in the individual account. Since 2003, when changes were approved until 2010, only 0.3 per cent to 0.4 per cent of members switched to a different AFP. There is no competition among commercial insurance firms, which for a period covered disability-survivors' risks since bidding was eliminated in 2006. Due to the lack of competition, private-system administrative costs were the lowest in the region.

Financial troubles and transition costs were higher than expected. The percentage of members who regularly contributed fell from 92 per cent in 1998 to 30 per cent in 2010. The lack of compliance and evasion of contributions remained an issue despite legal obligations. The investment portfolio was heavily concentrated in two instruments. First, the funds were invested in public debt, peaking at 81 per cent in 2007 and decreasing to 62 per cent in 2010. The investment in public debt covered the high fiscal costs of the transition. Second, the funds were invested in bank deposits, increasing from 11 per cent to 25 per cent, with low rates of return. Investment in domestic private issuances and stocks were limited and practically non-existent in foreign issuances.

Transition costs were 2.5 times higher than the initial estimate – excluding CC and additional pensions granted following the reform (Gamboa, 2005) [5]. Relative to GDP, these costs were initially estimated at 0.2 per cent for the first year of the reform, to peak

[3] The autonomous Agency regulated and oversaw the private system whereas the Ministry of Finance supervised the remainder of the public system.

[4] Banco de Bilbao y Vizcaya Argentaria (BBVA S.A.) and Zurich Group were and are the major two investors in AFP. In 2014, BBVA held 75 per cent of total stocks, and the remaining shareholders held from 3 per cent to 5 per cent: BBVA Pensiones S.A., Vistaur Inc. S.A., Ferpac Holding Co., Parezco Enterprises Inc., Stocel Corp. and Gisborne Enterprises. In 2013, Zurich South America Invest A.B. held 72 per cent of total stocks and the remaining shareholders held from 3.5 per cent to 13 per cent: SIDESA, Zurich Boliviana Seguros Personales S.A., Alianza Vida de Seguros y Reaseguros S.A., and Fortaleza Investment (Mendizábal, 2015, based on Memorias Institucionales).

[5] Costs were first projected in 1996 at US$ 2.36 billion for 1997-2060, but in 2004 were raised to US$ 5.79 billion for 2004-2060.

at 2.2 per cent in 2000 and decline thereafter (Gersdoff, 1997). However, the World Bank increased the cost estimate to 3.5 per cent in 2001. Reasons for the difference were flaws in the initial projections that overestimated GDP growth; added benefits in the public and private systems; the government's failure to recover assets from the supplementary funds of the armed forces [6], the police and the judiciary; and, unabated non-compliance (Picado and Durán Valverde, 2009). The number of Bonosol beneficiaries was much larger than expected and a steady deficit resulted in the collective fund. A 2005 projection revealed that financing the non-contributory pension at the legal level would require a two-fold increase of the collective fund or a reduction in benefits (Mesa-Lago and Ossio, 2012).

The employer contribution was abolished. The employer contribution of 5.8 per cent of the payroll was eliminated whereas the employee contribution was increased from 8.9 per cent to 12 per cent. This was an infringement of the fundamental principle of ILO Convention 102 that the worker should not pay more than 50 per cent of the total contribution and that social security coverage is part of the remuneration package of employees.

Social solidarity vanished. Ownership of the individual accounts precludes any transfer between generations, sexes or income groups that is typical of a public system. Consequently, the only solidarity was outside of the private system, through government financing of the non-contributory pension, the minimum pension and the CC.

Gender inequality worsened. The percentage of female workers covered in the labour force was significantly lower than that of men, declining from 11.6 per cent to 10.6 per cent, the lowest in the region. The average monthly income gap between women and men rose by 91 per cent. Depending on the type of pension, average pensions for female workers ranged from 39 per cent to 86 per cent of the average pension for male workers. The lower wages and longer life expectancy of women, as well as differentiated mortality tables by sex contributed to that difference. The proportion of elderly women receiving any type of pension fell from 23.7 per cent to 12.8 per cent, but women accounted for 54 per cent of the total receiving the non-contributory pension in 2008 (Picado and Durán Valverde, 2009; Mesa-Lago and Ossio, 2012).

Constituent participation in pension administration was eliminated. The public system had tripartite representation: workers, employers and the government. The reform eliminated this participation in the AFP, including the collective fund for the non-contributory pension.

Some positive effects of the reform. Bonosol was a unique social-solidarity component of the reform: an old-age annual flat transfer for life to the resident population aged 65 and over who were at least 21 years old by the end of 1995, regardless of income [7]. Nevertheless, the benefit was not universal because it was limited to a specific population cohort. Neither did it target the poor given that it was granted to contributory pensioners. The structural reform also integrated all prior pension schemes (including that of the military, but with a special regime that offers more flexible entitlement conditions and more generous pensions). It also indexed pensions to a unit related to inflation (the Housing Development Unit, UFV). The pension fund as a percentage of GDP rose from 4 per cent

[6] All active members with 35 years of service receive a pension of no less than 100 per cent of the average salary of the last five years of service, indexed with the US dollar.

[7] In 1998-2001, Bonosol was replaced by Bolivida, which reduced the benefit but increased the eligible age (established in 1995) from 21 to 50 years. In 2002, Bonosol was restored at its original amount.

to 26 per cent during the period 1998-2009 while the real gross rate of return (without deducting management costs) averaged 9.7 per cent.

In summary, Bolivia's structural reform mimicked the Chilean model yet there was no adequate prior assessment of socioeconomic pre-conditions. Consequently, it did not fulfil most of the promises made, as discussed in the previous sections.

In a perception survey of pension members, contributors, non-members and pensioners conducted in 2008 before the re-reform, only 38 per cent wanted to keep the private system (because of individual savings) while 61 per cent were in favour of a new system (Arze, 2008). The average replacement rate in the individual accounts was estimated at 20 per cent of the average wage during active employment life, 23.9 per cent for men and 19.7 per cent for women (Durán Valverde and Pena, 2011). Finally, there was widespread discontent with the AFP due to the low pension paid, the substantial investment in enterprises that later went bankrupt, triggering heavy losses in the capital fund, and high evasion and retaining of contributions by employers, which prompted thousands of legal claims.

3. Policies of the pension re-reform

Bolivia's 2009 Constitution banned social security privatization or delegation of its management and guaranteed the universal right to a non-contributory pension. Re-reform Law No. 065 of 10 December 2010 reinforced the role of the government, replacing the previous private system with a new public PAYG system: The Comprehensive Pension System (Sistema Integral de Pensiones, SIP) [8].

3.1. A new model

The re-reform transformed Bolivia's substitutive system of a fully-funded, privately-managed DC into a three-tier mixed system [9]. The existing contributory scheme for old-age pensions retains the individual accounts (for those already enrolled but not for new entrants) and is still managed by the two AFP. The AFP also manage disability-survivors' pensions. The key innovation of the re-reform – the semi-contributory scheme – covers the same risks as the contributory system. It is financed by contributions and a new solidarity fund and is publicly managed. In 2008, 11 years after the structural reform and prior to the re-reform, the Morales administration changed the non-contributory pension Bonosol/Bonavida to Renta Dignidad (RD) and made it truly universal. All Bolivian residents ages 60 and over (five years less than before) receive it, regardless of income. Recipients of a contributory pension also receive the pension, but with a 20 per cent reduction [10]. The RD is financed by the Solidarity Fund and temporarily managed by Unión Safi S.A., an investment fund

[8] Additional regulations were enacted on contributions and collections (Decree 778, 26 January 2011); on benefits (Decree 822, 16 March 2011); and increasing the RD amount (Law 37, 16 May 2013). Investment regulations were still pending in mid-July 2015 given that the public administrative entity had yet to be established.

[9] Officially, there is no mixed system because the private component is banned by the Constitution (MEFP, 2010b).

[10] Reasons for the universal benefit were: widespread poverty, especially in rural areas, high administrative costs of targeting recipients and the stigma associated with the means test, particularly among indigenous peoples.

administrator, in coordination with the APS. In addition, the minimum pension was finally established in 2008 (Mesa-Lago and Ossio, 2012; Ossio, 2013).

When the initial proposal for the re-reform was being prepared, both public and private administrations were initially considered; however, the 2009 Constitution banned any type of private administration of social security and stipulated that the government would manage the funds (Ferrufino, 2015; Mendizábal, 2015a). The re-reform stipulated that, 18 months after its enactment, a public administrative entity (Gestora pública) would be established to manage the entire SIP and make improvements such as using a national, centralized system of member registration, citizen information, collection of contributions and payments of benefits to simplify collection and delivery processes; the application of more efficient measures for detecting evasion and recovering late payments, including the inclusion in the Penal Code of new crimes such as retention of contributions by employers and false declaration of payrolls; elimination of future excessive profits by AFP by requiring them to invest in the national economy and eventually in the Solidarity Fund (MEFP, 2008; Villareal, n/d; Ferrufino, 2015). The regulations of the administrative entity were not enacted until early 2015 and were postponed for another 15 months in mid-2016, six years after the re-reform. In the meantime, the two original AFPs continue to manage individual accounts and investments and to pay contributory pensions.

3.2. Institutional arrangements

The 2009 Constitution stipulates that the government is responsible for the social security administration, with social control and participation. The current system is quite complex, as new institutions and benefits were created while some previous institutions remain. The re-reform law and the regulations of the public administrative entity enacted in 2015 (Supreme Decree, 2015) stipulate that the entity is an autonomous national public body but that it reports to the MEFP. The MEFP establishes pension policies and evaluates the performance of the public administrative entity, which is also regulated and supervised by the APS, for which reason its autonomy is unclear. Once the entity begins operations, it will manage five funds.

In the contributory branch, capital transferred from individual accounts finances the Insurance Savings Fund. The Old-Age Fund is financed by the accumulated balance from contributions and capital returns. The Collective Risks Fund receives contributions for disability and survivors' risks, both common and occupational. In the semi-contributory branch, the Solidarity Fund is financed with 20 per cent of the employment injury insurance premium, a solidarity contribution of 0.5 per cent of all insured taxable income, with a ceiling of 60 minimum wages plus an additional insured solidarity contribution, a miner/metallurgic workers' contribution of 2 per cent, an employers' solidarity contribution of 3 per cent, capital returns and 20 per cent of the interest accrued for payment delays.

In the non-contributory branch, the RD Fund has been financed with 30 per cent of the revenue from the tax on hydrocarbons (this sector was nationalized in 2006 and 82 per cent of profits go to the government) since 2008, as well as the stocks and dividends of capitalized enterprises that were in the Collective Capitalization Fund at the end of 2010. The insurance savings fund is based on individual capitalization and the four other funds are PAYG.

During the transition, the two AFP will manage all of these funds and the RD will be administered by the current insurance company. The Old-Age Fund guarantees the private ownership of individual accounts, which continue under the SIP. The latter is also responsible for paying ongoing pensions from the closed private system. Payments for RD are made as follows: 51 per cent by banks, 24 per cent by cooperatives, 22 per cent by financing entities and 2.4 per cent by mobile units of the armed forces (UDAPE et al, 2013a). The public administrative entity will also collect contributions and manage individual accounts and investment funds. Additionally, it will assume the functions of the private companies responsible for RD and disability/survivors' risks.

Table 1. Overview of the five funds to be managed by the public administrative entity

Insurance Savings Fund	Old Age Fund	Collective Risk Fund (Disability and Survivors benefits)	Solidarity Fund (Employment Injury)	Renta Dignidad
Transferred funds from private system (individual accounts) – closed for new entrants	Individual accounts PAYG financed through contributions and capital returns	Financed through contributions	Financed through contributions Solidarity contributions (0.5 per cent tax on income)	Universal old-age pension financed through a tax on hydrocarbons

The RD faced challenges due to significant differences between urban and rural zones. Rural areas are home to indigenous peoples, who face language barriers, lack of or irregular identity documents and limited access to banking services. In addition, there were irregularities in the reception of the RD (Müller, 2009). The RD database was supposed to be updated by the public administrative entity, but it has yet to be established. To address these problems, data in the registry of RD beneficiaries were updated [11]. In 2003, better controls identified beneficiaries fraudulently collecting RD. Twenty per cent of the identity cards were forged. A total of Bs. 445,800 (US$ 64,608) was paid in fraudulent benefits. The 2009 Constitution called for the punishment of individuals who falsify social security documents, and the Penal Code established prison terms from one to eight years (Ferrufino, 2015). Regulations enacted in 2007 stipulated that RD benefits would be terminated if the pension was collected more than once or before the age of 60 (Law No. 3791, 2007). In addition, the implementation of the biometric register in 2009 introduced more controls through finger-print identification and facial recognition (Ticona, 2015). In 2011, 79 per cent of RD beneficiaries were fingerprinted and fraud was reduced by 26 per cent (VMPSF, January 2012). A household survey of the elderly conducted that year found that 7.5 per cent had never collected RD (8.2 per cent in rural areas) while 1.5 per cent had collected it only once. Reasons for not collecting RD included administrative problems (45 per cent), lack of identity documents (16 per cent), payment location too far away (14 per cent) and either was unaware of the existence of RD or where to register for it (2 per cent) (UDAPE et al, 2013a) [12]. No data on fraud were found for 2013 and 2014. By 2014, all but 3 per cent of the elderly population was receiving RD.

In 2009, the SPVS ceased to oversee SIP and the APS assumed all its functions, along with RD and the public administrative entity. This action resulted from the re-structuring of the executive branch, replacing all superintendence offices with «authorities» (Mendizábal, 2015a) to better guarantee the interests and rights of users (Ferrufino, 2015). The APS could play a more active role in informing self-employed workers on the advantages of enrolling in SIP and could more effectively recover employers' debts by cross referencing data from government agencies that handle tax, labour and health information. Currently, the AFP cannot do this directly, but only through APS. When the public administrative entity (Gestora) is created, it may better be able to address this

[11] The distribution of RD beneficiaries in 2014 was 85 per cent without a pension and 15 per cent with a pension. The number receiving a pension had risen two percentage points since 2011.

[12] Transportation costs to collect RD are 13 per cent higher in rural than in urban areas.

problem (Ticona, 2015). The autonomy of APS with respect to the executive branch could not be assessed.

Employment injury or common disability/survivors' pensions were initially managed and paid by the two AFP. From November 2001 to October 2006, these functions were assumed by two life insurance companies (Seguros Provida S.A. and Vitalicia de Seguros y Reaseguros de Visa S.A.). In November 2006, the two AFP began making new payments of these pensions so there are currently four operators. Reasons for these changes are unclear.

The re-reform maintained the special regime for the armed forces [13]. Workers in mining, metallurgy and other industries with unhealthy working conditions that contributed to the closed public system can retire at age 56. One year of contribution is reduced (up to five years) for each year of employment, allowing retirement at 51. The re-reform also harmonized the previously different ceilings of pensioners of the closed public system (14 minimum wages) and those of the private system (60 minimum wages).

3.3. Entitlements and rights

The re-reform created a right to the non-contributory pension (RD), maintained individual accounts for current members, made previous entitlement conditions more flexible and added new benefits. It also changed eligibility criteria, setting a lower retirement age and reducing the years of contribution required for old-age pensions; introduced the semi-contributory system and solidarity pensions; added a minimum pension for the self-employed; continued pension indexation with some modifications; improved disability and survivors' pensions; and set a lower RD benefit amount for those who already have a pension. There is a high concentration of pensioners in the lowest brackets (57 per cent to 66 per cent of pensions are below average) and the reduction of the retirement age may reduce replacement rates.

3.4. Mechanisms to improve solidarity

The re-reform improved solidarity as follows: the universalization and age reduction of the non-contributory pension, the creation of the semi-contributory branch, the Solidarity Fund (which redistributes its assets favouring lower-income contributors, who are expected to receive a low pension), the solidarity pension and the solidarity contribution charged to the employer, as well as to the insured after a certain threshold is reached and which increases with rising income (with progressive effects on distribution) [14]. Conversely, elements against solidarity include the continuous low contributory coverage of the labour force, the maintenance of a special liberal regime for the military and the excessive contribution burden on workers compared with employers (especially in the contributory system).

[13] The re-reform law of 2010 did not mention this special regime hence it continues.

[14] The amendment to the re-reform law mandates the payment of the solidarity contribution to all those who have income in addition to wages from: rental properties, fees for consultancy work or membership on corporate boards, profits from enterprises owned, interests and dividends on bank accounts or stocks, and income exceeding US$ 1,853 monthly.

3.5. Fund and new investment framework

The re-reform law set limits on several instruments but excluded government bonds [15]. A legal draft regulating SIP investments stipulated that the public administrative entity must continue investing with no limits in government bonds of the Treasury and Bolivia's Central Bank. In the first six years of the structural reform, the MEFP imposed an annual obligation on the two AFP to increasingly invest in public debt (used to finance the fiscal deficit in those years), which peaked in 2007. Since 2008, the government has not emitted new domestic bonds (replaced by international bonds) and has eliminated the mandatory investment of AFP in government bonds. This modification led to important changes in the portfolio composition and capital returns. The investment regulations have not yet been enacted at the time of this writing because the public administrative entity has yet to be established.

3.6. Governance, instruments for social dialogue and tripartite participation

The Constitution stipulates that the government oversees and administers the social security system, with social control and participation. Nevertheless, the re-reform law did not mention any type of representation of workers, nor did the public entity regulations enacted in 2015. Enabling direct workers' representation is difficult due to the technical nature of the functions of the public entity. Nevertheless, workers' advisory councils could be organized such as those introduced by the Chilean re-reform of 2008. The President of the Republic will select the five members of the public administrative entity (its president and four directors) from candidates approved by two-thirds of the Chamber of Deputies [16]. The Constitution mandates that public agencies defend legal rights to all benefits, and enforce «social control» through public hearings with representatives of social organizations, for example, to follow up court procedures to recover unpaid contributions. In 2013, pensioners organized protests to demand the holiday bonus (double benefits in December), which was granted by the government after negotiations (MEFP, 2013a). The Ombudsman's Office hears citizens' claims, including for pensions, but is not listed among the public institutions that had most claims. The military scheme (COSSMIL) is administered by a five-member board with representatives from the active military, pensioners, widows/widowers, orphans and the Ministry of Defence. The board's chairperson is appointed by the defence minister (Mesa-Lago and Ossio, 2012).

4. The political economy of the re-reform

In 2006, Evo Morales was elected President of Bolivia with his party Movement to Socialism and the support of the sole workers' federation, Central Obrera Boliviana (COB). Four years of discussions ensued, including workers' protests to demand the replacement of the private system with a PAYG system (MEFP, 2010d). Reasons given for the re-reform were: (a) entitlement conditions to access the old-age pension were too stringent: the retirement age of 65 for both sexes was very high given the life expectancy at retirement and the difficulty in contributing for a full 20 years; (b) members could retire

[15] The law also mandated specialized entities to conduct risk assessments but excluded investment in small and medium-sized enterprises.

[16] Workers demonstrated in 2013 to demand that three COB delegates be appointed to the Public Administrator Board and that roundtable discussions be held with workers on future investment regulations (CEDLA, 2013). It is not clear what the outcome of this effort was.

before that age if they had enough accumulated in their individual accounts, but few insured attained the required sum; (c) many insured lacked the needed contributions in the PAYG required to receive the CC; (d) among those who met the entitlement conditions, most received a very low pension; (e) the PAYG system arguably paid better pensions; (f) women had lower coverage and received much lower benefits than men, homemakers were excluded and women's time devoted to child raising was not taken into account; (g) there was a need to extend coverage to excluded groups, particularly the self-employed; (h) employers did not contribute to old-age pensions; (i) miners' dangerous and strenuous work was not taken into account when establishing the retirement age; (j) there was a need to diversify investment in the capital market and increase rates of return; and (k) AFP misused the workers' funds and there was a call to eliminate commissions (Jornadanet, 2008; MEFP, 2010e; Ferrufino, 2015; Mendizábal, 2015a).

At the request of the Ministry of Labour, in 2008 the ILO submitted a proposal for a comprehensive pension re-reform with a mixed system (ILO, 2008) [17]. Attempts to explain to the COB the difficulties involved in returning to a PAYG system and the advantages of the mixed system were unsuccessful (Durán Valverde, 2015). As mentioned, Bolivia's 2009 Constitution banned the private administration of social security schemes. Three days before the ILO document was submitted, the government opened bidding for re-reform proposals, rejecting all advise from international financial organizations, particularly the IMF (MEFP, 2010d). The government purportedly carried out a study prior to the re-reform that confirmed the financial sustainability of SIP, including a seven-year reduction in the retirement age (MEFP, 2010b) but this study was never published.

Since 2006, the government has proposed that COB prepare a draft to re-reform the existing law on pensions and begin negotiations. The MEFP circulated the draft legislation throughout the country through the Internet, publications and presentations in public fairs and with civil society organizations. COB also asked workers throughout the country to give their opinions and approval of the bill. There was a debate in the National Assembly, public hearings and amendments were incorporated (Tufiño, 2009; MEFP 2010a; Ferrufino, 2015; Mendizábal, 2015a; Ticona, 2015).

Some workers apparently criticized the bill because they believed it continued the individualistic, financially-oriented previous system. The COB wanted a PAYG system, more flexible entitlement conditions and increased benefits, and in 2008 submitted a proposal, including a replacement rate of 70 per cent of the last two years of salary and the annual adjustment of benefits based on salary increases (Escobar, 2014) [18]. A consensus was reached with the government and an agreement incorporating key demands from both sides was signed: lower retirement ages, a new semi-contributory PAYG scheme, the temporary administration of the funds by the AFP, to later be replaced with the public administrative entity, a review every three years of the workers' 0.5 per cent commission to be paid to the entity, and the joint reception of old-age and disability pensions (*La Razón*, 2010). Only a few trade unions and associations (manufacturing, physicians) were not consulted (Quintanilla, 2010b).

[17] The proposal created a unified mixed-pension system with two schemes of mandatory coverage for all workers: contributory and non-contributory (RD); the contributory had two mandatory tiers: a solidary one that paid a basic pension and a supplementary one of individual accounts, The RD guaranteed a minimum pension for all resident citizens ages 60 and over, except for those who received pensions or income above two minimum wages.

[18] The re-reform set lower replacement rates and indexed pensions to inflation (UFV).

The Confederation of Private Employers was not consulted on the payroll contribution to finance the Solidarity Fund, which it opposed (Tufiño, 2012). Executives of the AFP argued that they had indefinite contracts signed with the government and that if they were shut down and their assets were seized by the public administrator, the foreign stakeholders BBVA and Zurich Group could press legal charges.. The president of the Finance Commission in the National Assembly responded that a law could annul those contracts retroactively. The government offered to purchase AFP assets but there were significant overdue payments that had to be recovered through the judicial system and the public administrative entity would inherit them, for which reason the offer was withdrawn [19]. Representatives of the Bolivian Stock Exchange expressed their concern about the creation of a public entity that would invest the funds (Jornadanet, 2008).

The bill was approved by the government with a two-thirds majority. On 10 December 2010, the new law was signed at COB headquarters by Executive Secretary Pedro Montes and President Morales, who hailed the «burial of the neoliberal individualist private system and the birth of a new public system with solidarity and redistribution.» Official projections indicated substantial pension increases under SIP for teachers, police officers, factory workers and others (MEFP, 2011). The law complied with ILO social security principles of universal coverage, comprehensive benefits, solidarity, gender equality, unified management, administrative efficiency and financial sustainability. It also included an intercultural approach. Section 5 discusses the impact of the re-reform on these principles.

5. Follow-up and potential replication in other countries

Unlike in other countries, Bolivia has no institutional mechanisms to follow up the implementation of the re-reform through commissions of users, pensioners or Congress. The public administrative entity will report annually on the status of SIP to the President and the National Assembly, and will publish performance reports and six-month bulletins with information and statistics.

In 2013, the COB prepared a legal bill amending the re-reform law to raise the solidarity pension. The COB declared a national strike and settled with the government to increase the minimum and the maximum pension, the latter from Bs. 2,600 to Bs. 3,200, and even higher for miners (MEFP, 2013d, 2013e) [20]. In addition, the government agreed to raise the replacement rate on the salary from 60 per cent to 70 per cent, as it had been before 2010. Responding to COB concerns on SIP financial/actuarial sustainability, it also offered to contract the ILO to conduct an actuarial study but eventually decided to call for bids to hire an «internationally-known» actuarial firm to implement the study (Fundación Milenio,» 2013)

The re-reform has had positive components, such as the universalization of the non-contributory pension, which is unique in the region and which could be adapted for replication in other countries. However, it is not feasible at this point to determine whether Bolivia's entire re-reform is replicable in other countries, for the following reasons: the model is quite complex and would have to be simplified and adapted; key elements are not

[19] The regulations stipulate that the AFP will be responsible for the pending legal cases and any resulting obligations.

[20] Nevertheless, maximum levels were less than half of the average wage increase in 2010-2013 (CEDLA, 2013).

yet operational, such as the public administrative entity and the regulation of investment; a technical actuarial risk assessment is needed to evaluate the model's financial sustainability.

6. Major impacts of the re-reform

The impact of the re-reform on social security principles is assessed in this section. This evaluation is limited by the lack of an integrated, comprehensive and systematic statistical data series. MEFP and VMPSF publish monthly bulletins with selected data and graphs, for example, the number of beneficiaries and payments for some but not all benefits, the distribution of some beneficiaries and payments by departments, collection of the capitalized fund by departments, the evolution of the capitalized fund and its nominal rates of return. These data are not always comparable given that some series are eliminated and others are added, and thus there are contradictions. The UDAPE releases data on the number of pensioners and average pensions. The APS also publishes a statistical bulletin, which includes the number of insured registered, annual collections, distribution of investment by instrument and so forth. What is missing is an integrated statistical series on SIP income, expenditures (the latter is provided only sporadically, and some key schemes are not included) and global balance, expenditures of the former capitalization system, benefits by gender (except for disability and survivors') and average pensions disaggregated by scheme and type. All agencies publishing statistics should be integrated and an annual report should be published to systematically report the results of the re-reform, supported by a complete statistical series on all key components.

6.1. Coverage of the labour force and the elderly

The MEFP (2010b) predicted that the creation of the semi-contributory pension would expand the contributory coverage of the labour force to all workers, including the self-employed, because it would provide an incentive for enrolment. However, the main obstacles to the contributory coverage remain: 89 per cent of the labour force is not covered, a minority is covered in the public sector and large urban formal enterprises, and evasion occurs in the formal private sector.

Labour force coverage is estimated based on members and contributors. The former greatly overestimates coverage, increasing from 30.7 per cent to 35.4 per cent in 2011-2014. Based more accurately on contributors, it fell from 13.3 per cent to 11.1 per cent in 2011-2013. This percentage has been declining since 2008. In 2013, contributory coverage continued to be the lowest in Latin America (ECLAC, 2013; Bosch et al, 2013). The percentage of members that made regular contributions declined from 42.2 per cent in 2010 to 32.8 per cent in 2013, when it was 49 percentage points below the 1997 level (Table 2).

Table 2. Coverage of the labour force by social insurance pensions, 1997-2013

Years	Labour force (thousands)	Members (thousands)	Contributors (thousands)	Contributors/ Members (per cent)	Coverage of labour force (per cent)	
					Members	Contributors
1997	3,291	329	400	82.0	10.0	12.2
1998	3,371	461	423	91.8	13.6	12.6
1999	3,451	527	423	80.3	15.2	12.2
2000	3,529	633	414	65.4	17.9	11.7
2001	3,626	676	421	62.2	18.6	11.6
2002	3,721	763	425	55.7	20.5	11.4
2003	3,815	846	433	51.1	22.2	11.4
2004	3,913	878	446	50.8	22.4	11.4
2005	4,015	934	468	50.1	23.3	11.7
2006	4,118	989	505	51.0	24.8	12.3
2007	4,236	1,078	552	51.2	25.4	13.0
2008	4,349	1,167	563	48.1	26.9	13.0
2009	4,468	1,262	538	42.5	28.3	12.0
2010	4,585	1,361	572	42.2	29.5	12.5
2011	4,703	1,450	627	43.4	30.7	13.3
2012	4,819 [a]	1,552	514	33.2	32.0	10.7
2013	4,936	1,670	548	32.8	33.8	11.1
2014	5,055	1,794			35.4	

[a] The 2012 population census reported a slightly smaller labour force (4,739,203), thereby increasing contributory coverage by 0.1 points.

Sources: ILO STAT, 2015, Labour force; members, contributors and coverage based on contributors from MEFP, 2013b; UDAPE, 2014a; APS, 2015a; other percentages estimated by the author.

The share of self-employed workers in the total of enrolled workers was the same in 2007 and 2010: 4.3 per cent compared with a rate of 95.7 per cent for salaried employees. However, the self-employed comprise 36 per cent of the labour force. Additionally, the self-employed as a share of total contributors was about half of the members' share (Mesa-Lago and Ossio, 2012). In 2010, the re-reform mandated that self-employed consultants must pay all pension contributions and their employers must obtain a payment certificate before disbursing their fees. No figures were available on the number of these consultants but they probably account for only a small proportion of the total self-employed. Consequently, although positive, this measure probably has little impact on overall coverage. The re-reform also stipulated that seasonal agricultural workers can decide whether they want to enrol as self-employed or wages earners. Drivers, bread makers, artisans and others self-employed individuals also should be included with special provisions (Ferrufino, 2015). MEFP predicted that in 2011, the first year of SIP, 100,000 self-employed would voluntarily enrol. Enrolment increased from 59,000 in 2010 to 80,000 in 2011, and finally reached 108,000 in 2013, or 6.7 per cent of total members, an increase of 2.4 percentage points compared with 2010 (MEFP, 2010d, 2013b). The voluntary enrolment of the self-employed (except for consultants) and other informal workers is discouraged by a total contribution rate of 14.42 per cent of their base income [21], including the premium for occupational risks. The public administrative entity will open

[21] The law allowed the self-employed to select the base salary, which is the minimum wage for those with low income (MEFP, 2010b).

offices in mid-size cities and small towns to help the self-employed enrol in the SIP. They will be able to pay a full year of contributions at one time (MEFP, 2010d).

Table 3 shows that coverage of the population ages 60 and over by the contributory scheme rose from 4.2 per cent in 2010 to 8.8 per cent in 2014, which is still very low, and which results from the poor contributory coverage of the labour force. However, coverage of the non-contributory RD, based on an adjusted population age of 60 and over, rose from 68 per cent in 2005 (before becoming universal) to 97 per cent in 2014 [22], the highest in LAC.

Table 3. Coverage of the elderly population by contributory and non-contributory pensions, 2005-2014

Years	In thousands			Coverage by pensions of Population >60 years (per cent)	
	Population >60 years [a]	Contributory Pensioners	Assistance Pensioners[b]	Contributory	Assistance [c]
2005	687	4.5	467	0.7	68
2006	714	8.7	456	1.4	64
2007	741	12.9	493	2.0	**77**
2008	768	20.2	753	3.0	98
2009	795	24.9	780	3.6	98
2010	823	29.7	802	4.2	98
2011	850	40.2	824	5.6	97
2012	878	51.0	849	6.8	97
2013	905	60.1	834	7.8	92
2014	932	70.4	903	8.8	97

[a] Own adjusted series based on data from the 2012 population census and projections for 2001-2012. [b] *RD*. [c] Own calculations based on the projected population **<**60.

Sources: Own based on the adjusted population **>**60 from INE, 2012; assistance pensioners from UDAPE, 2014a, 2014b; beneficiaries of contributory pensions from VMPSF, *Boletín Mensual del Sistema de Pensiones,* 9:101, August, 2014.

Table 4 estimates that 15.1 per cent of the total population was covered by all pensions (beneficiaries) and contributors (active) in 2013. Therefore, even if virtually all the elderly are covered by RD, the low contributory coverage of the labour force (with a higher weight than the elderly segment) reduces the average. The media have confused non-contributory with total population coverage, misinterpreting a report of the Inter-American Development Bank (Bosch et al, 2013) [23].

[22] RD coverage was around 114 per cent in 2014 due to the underestimation of the population ages 60 and over in the 2001 census, which was corrected in the 2012 census (Table 3).

[23] BBC Mundo reported that “according to the IADB, Bolivia’s social security pension coverage embraces 97 per cent of its *population*, above countries like Argentina, Brazil and Chile, all with a much higher GDP… The IADB cites Bolivia as an example for Latin America.” Bosch, co-author of the IADB study, clarified the difference between contributory and non-contributory coverage (BBC Mundo, 2013).

Table 4. Coverage of the total population by pension beneficiaries and contributors, 2013 (thousands)

Beneficiaries	
PAYG	114.4
COSSMIL	5.7
Disability/survivors'	16.0
Minimum and solidarity pensions	26.8
Old-age pensions	27.1
Renta Dignidad	834.0
Active	
Contributors	548.0
Total covered	1,572.1
Total population	10,410.0
Covered (per cent)	15.1 [a]

[a] In May 2015, combined coverage by old-age pensions, solidarity pensions and RD had risen by 58,777, that would have increased coverage by 0.6 points.

Sources: Beneficiaries from VMPSF, 2013; UDAPE, 2014b, 2014b; contributors from Table 1; total population from INE, 2013; percentage by author.

6.2. Gender equality

The share of women receiving a pension has increased only slightly or remains stagnant, except for RD [24]. In 2013, the share of women receiving an old-age pension was 45.6 per cent; in individual accounts, it was 17.5 per cent; and in pensions overall (except for RD), the share was 24.5 per cent. About 60 per cent of women received a pension below the average (Escobar, 2014; VMPSF, 9: 101, August 2014). By contrast, women represented 55 per cent of RD pensioners in 2011 (the same as in 2008). Among those who received a contributory pension, the percentage declined to 29 per cent (due to lower female enrolment) whereas among those who did not have a contributory pension, the proportion rose to 59 per cent (APS, 2012). No data were available on all average pension amounts by gender. To compensate for the time women devoted to raising their children, mothers with old-age pension coverage with 10 years of contributions (to either the old public system, the former private system or the re-reform system) were allowed to deduct one year from the retirement age for each child born alive, for a maximum of three years. The number of women receiving these pensions jumped 12-fold in 2010-2013 (APS, 2013). Additionally, widows/widowers could continue to receive pensions even if they remarried or had a common-law partner.

[24] In 2012, women represented 35.9 per cent of total contributors and men 64.1 per cent.

6.3. Benefit adequacy and replacement rates

As in the previous system, the re-reform provides contributory pensions for old age, disability/survivors' and employment injury. It also added the solidarity pension and made some prior entitlement conditions more flexible [25]. The general minimum age for retirement is 58 years for men and women, a reduction of seven years for both genders compared with the previous retirement age of 65, plus 10 years of contributions as opposed to the previous requirement of 15 years [26]. The old-age contributory pension is determined by two figures: the balance in the individual account and the compensation for contributions (CC) – only for those who had made 60 contributions to the PAYG system in 1997 [27]. This pension finances the survivors' pension and funeral expenses. The pension is granted regardless of age if the balance finances at least 60 per cent of the average salary in the last two years. However, if the insured have a CC, retirement age declines to age 50 for women and age 55 for men, providing they reach the 60 per cent minimum. The semi-contributory (solidarity) pension has three components: contributions, CC (when eligible) and the solidarity pension. The latter is granted only if the established amount of that pension exceeds the amount of the contributory old-age pension. The RD is provided to all residents at age 60 regardless of income. Self-employed workers receive a minimum monthly pension if they have 10 years of contributions. They may also withdraw the accumulated funds plus the returns in five years (MEFP, 2010d) [28]. All pensioners are entitled to funeral expenses. Contributory pensioners have health care coverage and receive a double pension in December.

Table 5 compares average monthly pensions in US dollars in 2013 and ratios among them, based first on the solidarity pension and second on the COSSMIL pension. All contributory pensions are much higher than PAYG pensions (contradicting one of the justifications for the re-reform) and even more so in the case of the solidarity pension. The COSSMIL pension is almost four times more than the solidarity pension and 57 per cent higher than the contributory pension, reflecting the privileged nature of the military scheme. The RD monthly average is 18 per cent of the solidarity pension, 10 per cent of the PAYG pension and 8 per cent of the contributory pension, which suggests that RD does not generate significant disincentives to contribute. Although low, the RD significantly helps the poor and is the only source of income for 50 per cent of the target population. The self-employed pension is also quite low, about twice that of the RD.

[25] Law 3285 of 2007 improved some benefits through a parametric reform negotiated by Morales with COB.

[26] MEFP (2013a) praised the reduction in Bolivia's retirement age, comparing it with much higher ages in developed countries such as Belgium, the Czech Republic, France, Italy, Portugal, South Korea, Spain and United States, some of which have recently increased the retirement age.

[27] For those with less than 60 contributions, a lump sum is calculated and deposited in the individual account.

[28] Employees may also withdraw from their account based on additional contributions, but this withdrawal may negatively affect the fund (Gamboa, 2014).

Table 5. Average monthly pensions in US dollars and ratios based on solidarity and COSSMIL pensions, 2013

Type of Pension	Average monthly pension (US$)	Ratios Solidarity=1	Ratios COSSMIL=1
RD	40	0.18	0.05
Self-employed minimum	70	0.32	0.09
Minimum AFP or Ins. Co.	114	0.53	0.14
Solidarity	213	1.00	0.27
PAYG	401	1.88	0.52
Contributory [a]	492	2.31	0.64
COSSMIL	775	3.63	1.00

[a] Average of three pensions: variable annuity with AFP, programmed pension with AFP, and annuity with insurance company.

Sources: Own calculation based on UDAPE, 2014b, 2014c; MEFP, 2015b; ratios by author.

The RD pays Bs. 3,250 annually (US$ 467) to a beneficiary who lacks another pension and Bs. 2,600 (US$ 374) to a beneficiary who receives another pension, 20 per cent less (Ferrufino, 2015) [29]. The pension may be paid monthly, bi-monthly, quarterly or annually [30]. Contributory-system pensioners protested that they only received 80 per cent of the RD while those without another pension received 100 per cent (Quintanilla, 2010a), but the difference was maintained. This was appropriate because scarce fiscal resources should target individuals without pensions to ameliorate regressive effects. Despite the low RD pension, the fact that it is universal reduced poverty from 54 per cent in 2007 (the year before it was implemented) to 36.3 per cent in 2011, and extreme poverty from 37.1 per cent to 18.7 per cent (ECLAC, 2011, 2014a). More recent data are unavailable.

With respect to replacement rates, a minimum rate of 60 per cent of the average salary was established for the contributory system. This rate increases with the amount in the individual account. In the semi-contributory system (solidarity pension), replacement rates are calculated in a table of contributions between 10 and 35 years and above, setting minimum and maximum rates after 15 years, with the rate increasing from 56 per cent with 15 years of contributions to 70 per cent with 35 or more years [31]. The seven-year reduction in the retirement age (men and women) affects the replacement rate and financial sustainability. Projections of average replacement rates are contradictory [32].

It is difficult to assess the distribution of pensioners by pension to determine the proportion that is below average due to the lack of disaggregated data by type of pension.

[29] A law in May 2013 increased RD to the level cited in the text.

[30] In 2011, 68 per cent collected monthly, 20 per cent every two months and only 12 per cent the other periods mentioned (UDAPE et al, 2013a).

[31] The minimums and maximums increase with years of contribution: Bs. 950 and B. 1,660 (US$ 137 and US$ 240) with 20 years, respectively, up to Bs. 1,400 and Bs. 3,200 (US$ 203 and US$ 464) with 35 years.

[32] Bosch et al (2013) projects replacement rates of the contributory system at about 30 per cent of the last salary by 2050; CEDLA (2013) estimates a rate of 22 per cent under optimistic assumptions or 40 per cent of the last salary when receiving CC; IADB (2014) gives an average replacement rate of 44 per cent.

Two pensioner groups are combined: (a) in all types of contributory pensions, including CC by itself, 66 per cent of all pensioners were below average in 2013; (b) in the solidarity pension combined with the minimum pension, 65 per cent of pensioners were below average in 2012, a figure that declined to 57 per cent in 2013 (APS, 2012, 2013) [33]. In the contributory pension, 84 per cent originated from the CC, and only 16 per cent from the individual account. Accordingly, when the CC declines and disappears in the future, the pension based only on individual accounts will diminish. More than 40 per cent of SIP pensioners received the solidarity pension. This percentage will continue to increase, as will costs, thus affecting the sustainability of the Solidarity Fund (Escobar, 2014).

There have been several improvements in disability and survivors' pensions: (a) a common partial disability pension with 50 per cent incapacity; (b) in the case of dismissal, 60 periods counted as covered toward common disability-survivors' pensions; (c) an increase from six to 12 additional months for employment injury after the beneficiary no longer contributes; (d) an additional payment in the case of 80 per cent disability; (e) accumulation of old-age and disability pensions; and (f) widows/widowers continue to receive a pension even if they remarry or have a common-law partner.

Pension indexation, as before the re-reform, is based mainly on inflation (UFV) set by the Central Bank using the Consumer Price Index, but with the following differences: (a) the fraction of the contributory old-age pension from individual accounts is indexed by the variation in the UFV, the pensioners mortality rate and capital returns of the Old-Age Fund; (b) the CC and the solidarity contribution for the semi-contributory pension are indexed by the UFV annually; (c) the minimum pension is equal to the minimum wage annually adjusted to the UFV; and (d) the RD non-contributory pension is set by the government.

6.4. Administrative costs and contributions

The re-reform mandated the creation of the public administrative entity to collect contributions, recover late payments, manage individual accounts, invest the pension fund and pay benefits. Nevertheless, six years after the re-reform, the entity had not yet been established although its regulations were enacted in early 2015. Reasons for the delay were: pending debt recovery by AFP, numerous norms that the APS had to define and implement, technical complexities, training of personnel and delays in the creation of a centrally computerized system to perform all AFP functions. Until the entity begins operations, the two AFP manage the system [34]. In 2012, the two AFP earned profits of US$ 6.7 million from workers' commissions and had administrative expenses of US$ 21 million (CEDLA, 2013). Commissions have not increased; the 0.5 per cent for AFP administrative expenses is the lowest among private systems in the region (FIAP, 2014). This should be shifted to the administrative entity, which would allegedly reduce commissions since the entity would not be for-profit and any surpluses must be transferred to the Treasury. The entity will have its own funds: Bs. 80 million from the government as initial capital and Bs. 120 million from the 2015 budget for operations, a total of US$ 28 million (Supreme Decree 2248, 2015).

[33] Escobar (2014) estimated in 2013 that 80 per cent of pensioners in the PAYG scheme received a pension below the average, whereas the proportion declined to 60 per cent in the former private system, and 62 per cent in the solidarity pension scheme.

[34] Both AFP had similar membership percentages: 46 per cent and 54 per cent, whereas the distribution of the Fund was 52.8 per cent and 47.2 per cent (MEFP, 2013b).

The absolute value of collected contributions rose 2.4 times between 2010 and 2014 but evasion and payment delays increased (APS, 2015a). The re-reform law made employers' payment delays (*mora*) a crime. The AFP should identify employers who fail to pay their contributions and initiate the collecting process either via administrative or judicial proceedings. Payment delays increased 288 per cent in 2002-2012 whereas recovery rates rose 142 per cent. The percentage of late payments recovered fell by 37.7 per cent over that period. In 2011, the recovery rate rose, only to decline again in 2012 back to the 2006 level (Table 6).

Table 6. Payment delays and recovery in SIP, 2002-2012

Years	Thousand Bs.		Recovered (per cent)
	Payment delays	Recovery	
2002	188	170	90.4
2003	237	217	91.7
2004	215	208	88.4
2005	295	169	59.2
2006	304	171	56.2
2007	318	176	55.3
2008	330	181	54.8
2009	377	215	57.0
2010	531	235	44.3
2011	630	346	59.9
2012	728	411	56.3
Change (per cent)[a]	288	142	-37.7

[a] Change in 2012/2002.

Sources: Own calculations based on MEFP, 2013b.

In the individual accounts system, contributions are the same as before the re-reform except for the additional solidarity contributions. The total contribution rate in Bolivia is 17.42 per cent but could reach 18.42 per cent, 22.42 per cent and 27.42 per cent, higher than in the old public and private systems and about equal to the rate in Latin American countries at a similar level of development. The worker pays 12.71 per cent: 10 per cent is deposited in the account, 0.5 per cent is for administration of old-age pensions, a 1.71 per cent premium for common disability-survivors' insurance and a 0.5 per cent solidarity contribution, plus the additional solidarity contribution of the high-income insured (1 per cent, 5 per cent and 10 per cent, depending on income). The employer pays 4.71 per cent: the new 3 per cent solidarity contribution and the previous 1.71 per cent occupational-risk premium. The worker pays from 73 per cent (basic) of the total contribution to 83 per cent (top solidarity contribution), which is still in violation of the ILO minimum standard on this issue (Table 7). The self-employed that opt to enrol in the system pay 13.21 per cent (old-age, occupational risks and solidarity contribution) and may voluntarily raise the contribution to 14.92 per cent. Both of these percentages are quite high [35]. The government makes no contribution and can establish other sources of revenue without using Treasury resources.

[35] Since 2012, contributions of the self-employed contributions are based on the national minimum wage.

Table 7. Contributions to pensions (contributory and semi-contributory) as a percentage of taxable income by employers, workers and total, 2015

Type of scheme	Employer	Worker [b]	Total	Worker's share (per cent)
Contributory [a] (individual accounts)	4.71	12.71	17.42	73
	4.71	13.71	18.42	74
	4.71	17.71	22.42	79
	4.71	22.71	27.42	83
Semi-contributory (solidarity fund)	3.00	0.50	3.50	14
	3.00	1.50	4.50	33
	3.00	5.50	8.50	64
	3.00	10.50	13.50	78

[a] For old-age, disability/survivors' and solidarity.

[b] The contribution rises in tandem with income levels that exceed the threshold (Bs. 13,000, 25,000 and 35,000: US$ 1,897, US$ 3,623 and US$ 5,072), with 1 per cent, 5 per cent and 10 per cent paid over the difference.

Sources: Own calculations based on Law 065, 2010.

In the semi-contributory system (for the Solidarity Fund), the employer pays 3 per cent and the worker pays a minimum of 0.5 per cent, incremental increases (1 per cent, 5 per cent and 10 per cent) when incomes exceed the threshold, up to 10.5 per cent. Thus, in the basic and first level, the worker's contribution share is 14 per cent and 33 per cent of the total whereas in the top two levels it is 64 per cent and 78 per cent. These last two cases violate the ILO minimum standard. Nevertheless, the percentage of insured in high-income brackets is small, for which reason most contribution revenues originate from employers in the semi-contributory scheme.

6.5. Fund, capital return and portfolio composition

The individual account Old-Age Fund almost doubled, from US$ 5.37 to US$ 10.09 billion in 2010-2014. Relative to GDP, it increased from 27.5 per cent to 30.2 per cent in 2010-2013 but declined to 29.7 per cent in 2014. It and has continued to rise since the re-reform. MEFP (2010b) stated that the re-reform would have adequate capital returns because the projections had been conservative and based on the worst-case scenario (3 per cent nominal return). The goal was to exceed the 7 to 8 per cent nominal return generated at the time. However, based on real rates of return (adjusted for inflation), following the re-reform, the rate fell -1.4 per cent in 2012, was stagnant in 2013 and rose to 2.3 per cent in 2014. The arithmetic average annual real return was 6.8 per cent in 2000-2010 whereas it declined to 0.45 per cent in 2010-2014 (Table 8). The real rate of return from the inception of the individual accounts in 1997 to 2013 was 5.4 per cent, the second-lowest among private systems and below the average of 7.7 per cent (SIAP, 2014).

Table 8. Accumulated Capitalization Fund (in Bs and US$) in individual accounts and rates of return in nominal and real terms, 1998-2014

Years	Accumulated Fund (millions)		GDP (million Bs)	Fund/GDP (per cent)	Rates of return (per cent)		
	Bs[a]	US$[b]			Nominal	Inflation	Real [c]
1998	1,876	358.7	46,822	4.0	13.6	4.4	9.2
1999	3,358	578.0	48,156	7.0	16.7	3.1	13.6
2000	5,295	856.4	51,928	10.2	14.9	3.4	11.5
2001	6,372	966.2	53,790	11.8	17.0	0.9	10.6
2002	8,556	1,193.3	56,682	15.1	18.6	2.4	16.1
2003	11,677	1,524.4	61,904	18.9	12.1	3.9	8.2
2004	13,798	1,737.7	69,626	19.8	10.2	4.6	5.6
2005	16,476	2,034.0	77,024	21.4	8.6	4.9	3.7
2006	18,228	2,261.5	91,748	19.9	7.9	3.0	4.9
2007	22,031	2,771.2	103,009	21.3	8.5	11.7	-3.2
2008	27,081	3,750.8	120,694	22.4	9.7	11.8	-2.1
2009	32,246	4,561.8	121,727	26.4	10.0	0.3	9.7
2010	37,946	5,367.2	137,876	27.5	8.0	7.2	0.8
2011	45,666	6,542.4	166,131	27.4	7.6	6.9	0.7
2012	54,025	7,854.3	187,035	28.9	5.9	4.5	-1.4
2013	64,069	9,205.3	211,454	30.2	6.7	6.5	0.2
2014	70,204	10,086.7	236,155	29.7	7.5	5.2	2.3

[a] In 1998-2010, accumulated capital rose at an average annual rate adjusted for inflation of 25.8 per cent whereas in 2010-2014, the average annual rate was 10.4 per cent.

[b] An MEFP series shows lower sums but does not specify the exchange rates.

[c] A divergent series published in the same first six-month *Boletín* (2013) gave much lower real returns.

Sources: Own calculations based on accumulated capital fund and nominal returns for 2013-2014 from VMPSF, *Boletín Mensual*, 9: 101 (August, 2015); exchange rates Bs to US$ from BCB, 2015; GDP in current prices from INE, 2015; nominal rates for 1998-2012 from MEFP, 2013b and for 2013-2014 from VMPSF, 2013, 2014; inflation rates from INE, 2015; conversions and percentages by the author.

The high rates of return in the first six years of the structural reform were due to the annual obligation of the two AFP to invest in public debt (helping to cover the fiscal deficit during the economic crisis), which paid interest rates ranging from 6 per cent to 18 per cent. This investment peaked in 2007 with 81 per cent of the portfolio. Private issuances fell from 13 per cent to 1 per cent and bank deposits were stagnant (Table 9). In 2008, the government lifted the AFP obligation to invest in public debt and interest sharply declined (3 per cent nominal, -3.5 per cent real), for which reason the public-debt share steadily diminished, from 81 per cent to 34 per cent in 2007-2014.

Table 9. Percentage distribution of SIP portfolio by instruments, 2001-2013

Distribution (per cent)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Public debt [a]	73	70	65	68	71	75	81	79	68	62	54	40	34
Bank deposits [b]	11	15	7	6	7	11	15	16	20	25	28	38	43
Private issuances [c]	13	13	16	16	13	9	1	2	9	12	17	19	19
Domestic stocks [d]	0	0	9	7	6	0	0	0	0	0	0	0	0
Foreign issuances	0	1	2	1	3	3	2	0	0	0	0	2	3
High liquid funds	3	2	2	1	1	2	1	4	4	1	1	2	2
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

[a] TGN bonds and coupons, Treasury notes, BCB bonds, securitized bonds, municipal bonds.[b] Banking and non-banking deposits, BCB deposit certificates. [c] Bank bonds, market promissory notes, shares of closed funds and long-term bonds.[d] Shares of privatized enterprises and of commercial corporations.

Source: Own calculation based on UDAPE, 2014a.

Bolivia's capital market is not developed and few instruments are traded, for which reason the share of domestic stock fell to zero after stocks of capitalized enterprises were exhausted. By contrast, private issuances (bank bonds, market promissory notes, shares of closed funds and long-term bonds) rose from 1 per cent to 19 per cent. Lacking other alternatives, the AFP concentrated investments in bank deposits, which increased from 15 per cent to 43 per cent during the period. Certificates of deposit pay low interest (mostly negative when adjusted for inflation), however. Investment in foreign issuances is again permitted, but the share of these investments in the portfolio was only 3 per cent in 2014. The decrease in real rates of return will seriously affect pension values because these values are mainly determined by returns rather than contributions. The public administrative entity will have broader investment margins (a more diversified portfolio) than the AFP to provide higher rates of return and improve pensions.

6.6. Financial-actuarial sustainability

The Solidarity Fund has had annual surpluses since it was created. Accumulated capital rose 11-fold, from US$ 96 million in 2010 to US$ 1.09 billion in 2014 [36]. The real rate of return was negative throughout 2008-2012, except in 2009. During the period, the real rate averaged -0.38 per cent annually (Table 10).

Table 10. Solidarity Fund: financial balance and capital returns, 2008-2012

Years	Financial balance (million Bs)				Capital million US$	Returns Million Bs	Capital returns (per cent)		
	Income	Expenses	Balance	Capital[a]			Nominal	Inflation	Real
2008	206	0	206	206	29.1	10.6	5.2	11.8	-6.6
2009	237	4	233	439	62.1	38.3	8.7	0.3	8.4
2010	235	7	228	667	95.5	43.1	6.4	7.2	-0.8
2011	1,412	44	1,368	2,035	292.4	83.1	4.1	6.9	-2.8
2012	1,722	121	1,600	3,635	522.3	158.8	4.4	4.5	-0.1
2013 [b]				5,512	791.9			6.5	
2014				7,606	1,092.8			5.2	

[a] Cumulative. [b] No further data have been published in the *Boletín*.

Sources: Own calculation. Financial balance from VMPSF, *Boletín Mensual del Sistema de Pensiones*, 7:82 (January 2013); inflation from INE, 2015; capital nominal and real returns are own calculations. Data for 2013-2014 are unavailable.

[36] Financing sources of the RD as a percentage of GDP decreased from 2.1 per cent to 1.9 per cent in 2009-2012 while payments also declined, from 1.4 per cent to 1 per cent (UDAPE et el, 2003a).

The author could not find an official consolidated table of all SIP revenue and expenses for obligations of the former PAYG, structural reform and re-reform systems. Table 11 estimates the annual fiscal deficit from the following obligations: PAYG [37], military (COSSMIL), early retirement (PRA), minimum pension (PMM), sole payment (PU), compensation for contributions (CC), non-contributory pension (RD), premium for employment injury (PRP) and the government solidarity contribution as an employer. Excluded are solidarity pensions (paid by the Solidarity Fund) and contributory pensions for old age, disability and survivors' benefits (paid by AFP and insurance companies). As a percentage of GDP, the fiscal cost rose from 3.9 per cent in 2004 to 5.1 per cent in 2009 and then fell again to 4 per cent in 2013. These estimates exclude the revenue side due to the difficulties in separating fiscal income from income that is paid into separate funds, such as the Solidarity Fund. An adequate assessment should include those data, but they could not be found. A major concern is that in 2020, the government will have to start paying the capital from public debt bonds. The total cumulative debt is unknown.

Table 11. Fiscal cost of government obligations from previous systems, 2004-2013 (in million Bs. and per cent of GDP)

Years	Fiscal Cost[a]	GDP	(per cent)
2004	2,773	69,626	3.9
2005	2,875	77,024	3.7
2006	3,425	91,748	3.7
2007	3,656	103,009	3.5
2008	5,301	120,694	4.4
2009	6,243	121,727	5.1
2010	6,551	137,876	4.8
2011	7,033	166,131	4.2
2012	7,723	187,035	4.1
2013	8,353	211,454	4.0
2014		236,155	

[a] Government payment obligations from PAYG, structural reform and re-reform systems (see text).

Sources: Own calculation based on fiscal costs from MEFP, 2013b, 2013c, 2014a, UDAPE, 2014a; GDP from INE, 2015. Data on 2014 fiscal costs are unavailable.

According to MEFP (2010b), the government conducted a study prior to the re-reform that guaranteed SIP financial sustainability (including a seven-year reduction in the retirement age) for at least 40 years. However, the study was never published, making it impossible to assess sustainability. The re-reform law did not include an obligation to conduct periodic actuarial valuations. In September 2014, MEFP (2014b) issued a press release reporting that as a result of an agreement with COB, Vice-Minister of Pension and Financial Services Mario Guillén had issued a tender to seven international companies to conduct an actuarial study. The winner was Melinsky, Pellegrinelli and Associates. Minister Luis Arce stated that the study should include transparent projections of SIP sustainability, including the Solidarity Fund, the PAYG scheme, the disability/survivors' premium, the CC and the RD. Melinsky promised that the study would be closely coordinated with COB. The contract, signed on 17 September 2014, stipulated that the study should be completed and delivered on 17 March 2015. At the time of the writing of this chapter (31 May 2015), it had not yet been made public.

[37] The PAYG system following privatization demonstrated growing negative balances in 2004-2010 because all contributions were shifted to the private system. The cumulative deficit in the period was Bs. 12.57 billion (nearly $ 1.8billion).

Private projections of the fiscal cost show that it increased 3.8 times from the initial US$ 2.36 billion for 1997-2060 to US$ 8.93 billion for 2007-2060 due to the reduction in the retirement age, fewer years of contribution required, increase of benefits in COSSMIL and underestimation of CC value. A new study done for 2013-2060 of the total fiscal cost of all components estimates an increase from US$ 846 million in 2013 to a peak of US$ 1.11 billion in 2024, followed by a decline to US$ 215 million in 2060. With respect to GDP, the cost is expected to peak at 3 per cent in 2016 and fall to 0.1 per cent in 2060. The current value of all obligations in PAYG in 2013-2060, under two scenarios, is US$ 8.8 billion and US$ 9.03 billion, the equivalent of 4.2 per cent and 4.3 per cent of GDP, respectively, raising serious concerns about current and future threats to fiscal equilibrium, particularly over the next nine years (Gamboa, 2014).

The re-reform law established an active/passive ratio of 10 to 1. A cumulative total of all SIP pensioners is unavailable. The author calculated a series for 2010-2013 combining PAYG, COSSMIL, disability-survivors', solidarity and old-age pensions that includes the individual account scheme. Only the RD is excluded given that it is a non-contributory scheme. Contributors rather than members were used for the calculation. Table 12 shows that the ratio decreased from 3.4:1 in 2010 to 2.8:1 in 2013, similar to the rate in the old PAYG, and one-third of the 10:1 established by law, which may lead to a potential financial/actuarial imbalance in the long term.

Table 12. Active/passive ratio in SIP, 2010-2013

	2010	2011	2012	2013
Contributors	571,693	626,755	514,421	548,292
Pension beneficiaries	170,282	178,999	188,420	197,287
Active/passive ratio	3.4	3.5	2.7	2.8

Sources: MEFP, 2014c, 2015a; VMPSF, *Boletín Mensual*, 5: 59, 2010, 6: 69, 2012, 7: 82, 2012, 8: 94, 2013; APS, 2014, 2015a; UDAPE, 2014c; contributors from Table 1.

6.7. Macroeconomic impact

Mamani and Vasquez (2013) have assessed the impact of the re-reform on macroeconomic variables based on the long-run, overlapping generations model (OLG) developed by Paul Samuelson in 1958 and Peter Diamond in 1965 and adapted to Bolivia. It is assumed that individuals have two lifecycles: During the first, the young are expected to reduce consumption to save for old age (consumption smoothing). They found that there is excessive consumption in the first stage that leads to lower consumption in old age, resulting in lower savings and capital stock, contributions insufficient to pay expenses, financial imbalances that cannot sustain the pension system and economic contraction (decline in GDP and wages). Alternatives to reverse these effects in the long run would be a higher rate of population growth, greater capital accumulation and increased technological progress.

Macroeconomic statistics for 2011-2014 in Bolivia demonstrate mixed results: GDP grew at an annual average of 5.7 per cent higher than the 2.8 per cent average in LAC. Gross fixed capital formation averaged 19.6 per cent, slightly less than the 20.2 per cent for the region, and real wages decreased slightly in the period. These statistics are for only five years after the re-reform, whose effects should be measured over a longer period. Moreover, Bolivia's macroeconomic results may reflect variables other than the re-reform. Data on employment and income distribution (Gini coefficient) are only available for 2011 (ECLAC, 2014a, 2014c). No econometric study on the impact of the re-reform on the capital market has been carried out. Bosch et al (2013) argue that solidarity and RD pensions are potential disincentives for enrolment in contributory schemes, but there is no evidence to support this claim.

The impact of the RD on the elderly and those approaching age 60 was measured in a 2011 household survey with three variables using several models (only the most significant models and results are reported here): (a) per capita income rose 16.4 per cent over the average income and 20.7 per cent in urban areas; (b) household consumption augmented 15.4 per cent in total and 22.7 per cent in urban areas; and (c) monetary poverty decreased 13.5 percentage points overall and 18.7 per cent in urban areas [38]. All effects in rural areas were insignificant (UDAPE et al, 2013b).

6.8. Summary of progress and challenges of the re-reform

Achievements of the re-reform are: (a) consolidation and expansion of the RD to all elderly residents, unique in Latin America, reducing poverty among the elderly by 14 per cent and increasing consumption and per capita income of that group; the benefit is reduced by 20 per cent for those who receive another pension; (b) creation of a semi-contributory tier and a solidarity pension, financed by a solidarity contribution partly paid by employers (who previously only contributed the employment-injury premium) and partly by the insured (particularly those with higher incomes), which strengthened social solidarity and should have progressive effects on distribution; (c) mandatory coverage of self-employed consultants and a slight increase in enrolment of the self-employed; (d) improved gender equity with a reduction (of up to three years) in mothers' retirement age for each child born alive, and a larger female share in the non-contributory pension; (e) since the RD is only 8 per cent of the average contributory pension, it is unlikely to create disincentives for enrolment in the contributory programme; (f) tougher sanctions to collect employers' debts, evasion of contributions and other violations; (g) increase of accumulated capital both in absolute terms and as percentage of GDP; and (h) reduced concentration of the portfolio in public debt.

Challenges of the re-reform are: (a) contributory coverage remains low and stagnant (the lowest in the region) due to a large informal sector and formal-sector evasion; (b) total population coverage is estimated at 15 per cent, also very low; (c) generous conditions and benefits for the armed forces continue, which should be financed by the insured and the government employer without fiscal subsidies; (d) the total contribution is higher than the previous one and, in the contributory system, workers pay from 2.7 to 4.8 times the employers' contribution, in violation of the ILO minimum standard (in the semi-contributory system, the workers' share in the two lowest levels is lower than the employers' share, while the opposite is true in the top two levels); (e) administrative cost is still relatively low but its adequacy for a PAYG system should be assessed; (f) workers and employers do not participate in SIP administration. They should participate through advisory committees; (g) APS' and the public administrative entity's autonomy should be ensured; (h) Forty-three per cent of the portfolio is still concentrated in bank deposits that pay low or negative real interest and the average real rate of return continues to fall, which necessitates portfolio diversification; and (i) SIP financial-actuarial sustainability is questionable (its active/passive ratio declined from 3.4 to 2.8 in three years).Actuarial studies reportedly conducted prior to the re-reform and in 2015 should be released to assess sustainability.

[38] In 2011, the overall poverty rate among the elderly averaged 52.2 per cent (higher than the rate for the total population) and 59.2 per cent in rural areas (UDAPE et al, 2013a).

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