

The Latin American experience in pension system reform: Coverage, fiscal issues and possible implications for China

Daniel Titelman, Cecilia Vera and Esteban Pérez Caldentey¹

Abstract

In the past two decades, Latin American countries reformed their pension systems focusing mainly on addressing the weaknesses of the contributory schemes - fiscal unsustainability, low coverage levels and a high degree of segmentation- and barely addressed the non-contributory element. The reform experiences show however that the intended reforms did not manage to meet their objectives. Firstly, to this day, a large proportion of the population remains inadequately covered by the contributory system. Secondly, the fiscal performance and outcome of the reform was worse than originally planned. The possibilities for the success of these reforms faced several constraints of a structural nature that are independent of the pension system itself and that as a result can not be overcome by a pension reform including mainly the limited savings capacity of some population groups and the instability and precariousness of the labor markets in the region. The Latin American experience shares similarities with that of China in terms of coverage, labor market informality. Both cases attest to the importance of combining contributory and non-contributory components in pension reform design.

¹ The authors are Chief and Economic Affairs Officers of the Development Studies Section (ECLAC, Santiago, Chile), respectively. The opinions here expressed are the authors' own and may not coincide with those of ECLAC. Comments can be sent to daniel.titelman@cepal.org, cecilia.vera@cepal.org, esteban.perez@cepal.org

Introduction

The main function of a country's pension system is to guarantee the adequate insurance of the population against old age poverty. To this end, pension systems generally combine a contributory scheme with a non-contributory component (a solidarity component) by which basic benefits are delivered to individuals who have reached old age and are unable to finance their basic expenses regardless of past contributions (ECLAC, 2006).

Pension systems in Latin America have tended, however, to rely mainly on contributory schemes. Non-contributory programs have been sparse and of very limited scope and application. Non-contributory programs have been applied in a few countries but even so have lacked substantially in terms of coverage as they have been able to attend only a small fraction of the elderly. In addition, these have provided in general uncertain welfare protection since benefits have been known to be granted under an unclear set of rules and mostly through the discretionary power of the authorities (ECLAC, 2006).

Since their inception, contributory pension schemes in Latin America were organized in the form of pay-as-you-go (PAYGO) intergenerational contract systems. Over time the PAYGO systems faced insurmountable difficulties as these had become characterized by fiscal unsustainability, low coverage levels and a high degree of (inequitable) segmentation. As a result, Latin American countries were forced to reform their pension systems. The non-reform of the pension system was not an available option.

To this end, –starting with Chile in the 1980's and continuing with several other countries in the 1990's- Latin American countries undertook structural pension reforms focused mainly on addressing the weaknesses of the contributory schemes and barely addressing the non-contributory element. These reforms replaced or combined the existing PAYGO systems with fully funded models of individual capitalization.

The underlying rationale for this particular mode of reform was that by establishing a fully funded component of individual capitalization, the tighter linkage between the contributions made and the pension received would reduce (in the long term) the fiscal requirements stemming from the reformed system by shifting the economic and financial risks of pension provision –totally or in part- from the State to the workers themselves. At the same time, the close linkage between contributions and benefits would reduce the “tax connotation” of the pension-fund contributions paid by affiliates and in that way provide an incentive for the formalization of the labor force and the expansion of contributory coverage (ECLAC, 2006).

The pension reform experience of the Latin American countries in the past two decades shows however that the intended reforms did not manage to meet their objectives. Firstly, to this day, a large proportion of the population remains inadequately covered by the contributory system. Secondly, the fiscal performance and outcome of the reform was worse than originally planned.

In spite of the closer correlation between contributions and benefits in countries that have undertaken structural reforms, no significant or systematic increases in pension coverage

rates can be observed. In fact, the ratio between the number of workers actually making contributions in a given period and the economically active population (EAP) of the economy does not exhibit a clear trend after the reforms. While in some countries coverage expanded in others it decreased even further. Moreover the evidence shows that existing contributory social protection systems cover only a fraction of male and female workers with the situation being more complex in rural areas and among workers in the informal sector. Finally, the inequalities in coverage -that had been a pervasive element of pension systems in Latin America since their inception- remained unchanged after the reforms.

On the fiscal front, the analysis shows that the transition costs of the pension reform are by no means negligible and in fact can represent, in the cases analyzed in this paper, up to 1.5% of GDP. Transition costs can also be protracted over time. Furthermore, governments have had to rely on non-contributory fiscal expenditures and subsidies to partially compensate for the failure of the reforms to substantially expand their coverage, thereby increasing the fiscal burden of the reform.

The possibilities for the success of these reforms faced several constraints of a structural nature that are independent of the pension system itself and that as a result can not be overcome by a pension reform. These constraints include mainly the limited savings capacity of some population groups and the instability and precariousness of the labor markets in the region (ECLAC, 2006).

As a result, given the unlikely alteration in these structural characteristics, the prospects for a reversal in the coverage situation of the pension system in the short to medium term are not encouraging. It is therefore urgent to work towards the development of social protection systems that are not uniquely employment-based. In addition to seeking ways to build the capacity of national economies for creating decent work, progress must be made in adopting measures to guarantee adequate and stable financing in order to supplement employment-based protection with non-contributory solidarity based mechanisms (ECLAC, 2006).

The Latin American experience and history in pension reform is not unique to the region. Countries of other regions of the developing world, affected by the same problems and prompted by the same concerns (fiscal unsustainability and low coverage) as those pertaining to Latin America, have opted to undertake a similar path in pension reform. Such is the case of China, which following several unsuccessful attempts, replaced its PAYGO system in 1997, with a mixed pension system. In spite of more than one decade since the reform was implemented, many of the problems that plagued the PAYGO system remain unresolved.

The analysis of the pension reform outcomes in Latin America in terms of coverage, fiscal performance can provide useful insights for the Chinese case since both cases share important similarities.

For one thing, as with Latin America, the existence of structural constraints in China, such as its high degree of labor market informality, represent a significant obstacle to the success of the pension reform in terms of coverage. In both cases, the formalization of the labor market is a prerequisite for pension reform success. In the case of China, labor market

precariousness is magnified by the sheer size of its rural population and the growing migration flows from rural to urban areas.

Also, both cases point to the importance of combining in pension reform design market incentives, through a contributory component, with a strong and operational solidarity component (non-contributory component) clearly defined, and delimited.

This paper analyses the pension system reforms implemented by Latin American countries with a view to assess the outcomes in terms of fiscal performance and of contributory coverage. The paper also builds on the Latin American experiences analyzed, to draw general implications that may be of use when analyzing the Chinese current experience with pension reform.

The paper is divided into six sections. The first and second sections provide a description of the motives and strategies for pension reforms in Latin America. The third section analyses the outcomes of the reforms in terms of the fiscal requirements of the pension system during and after the reform. The fourth section examines the outcomes of reforms in terms of (quality) contributory coverage. The fifth section centers on the lessons of the Latin American experiences for the Chinese case. The final reflections are found in the conclusion.

1. Motivation and strategies of pension reform in Latin America

1.1. Motivation for reforms

At the time of the reform initiatives, which started with Chile in the 1980's and intensified in the 1990's with many other countries, pension systems in Latin America were experiencing serious difficulties both at the non-contributory and contributory levels.² Non-contributory programs were very limited, existing only in a few countries. Even in these countries the benefits were sometimes granted with unclear rules responding to discretionary initiatives. Furthermore, they covered a small proportion of the elderly and in general provided limited and uncertain welfare protection (ECLAC, 2006).

Pension systems were thus relying mainly on the contributory schemes, traditionally organized in the form of pay-as-you-go (PAYGO) intergenerational contract systems- These contributory PAYGO pension schemes had become characterized by fiscal unsustainability, low coverage levels and a high degree of (inequitable) segmentation. Structural pension reforms focused mainly on addressing these weaknesses of the contributory schemes and barely addressed the non-contributory element.

1.2. Fiscal unsustainability

PAYGO systems in various Latin American countries were facing severe disequilibria both in terms of their current balances as in terms of their long run sustainability which put a lot of pressure on fiscal budget and deficit.

Contribution revenue had been decreasing as a result of rising dependency ratios and increased evasion together with macroeconomic crises which caused a rise in unemployment and the informalisation of part of the labor force.

At the same time, pension expenditures had been growing rapidly as a result of larger numbers of pensioners -in line with population ageing- together with repeated benefit increases. As a result contribution revenue had become insufficient to cover current benefit expenditures and pension systems exhibited increasing deficits.

The fiscal situation was projected to worsen in the long-term as population ageing would put even further pressures on the systems' balances. In all the Latin American countries that undertook structural reforms, the present value of the stream of benefits to be paid by the PAYGO system to contributors, beneficiaries, and their survivors (generally called the Implicit Pension Debt) was projected to increase monotonically across time, in line with the systems' maturity and population ageing.

² Non-contributory programs are a solidarity element of the pension system consisting in providing benefits to the elderly in need regardless of past contributions history.

For example, Implicit Public Debt levels projected for 2050 by Zviniene and Packard (2004) were at 211% without reform for Chile, 121% without reform for Argentina and 313% without reform for Uruguay.

1.3. Low coverage levels

More than half of pension system structural reformers exhibited unsatisfactory coverage levels of their PAYGO schemes. Only four out of eleven reforming countries, Argentina, Chile, Costa Rica and Uruguay, reached contributory coverage ratios equal to or above 50% of their labor force in the pre-reform years. A second group of countries including Colombia, Mexico, Dominican Republic and Peru reached contributory coverage levels comprised between 30% and 40% of the labor force. Finally, the group of poorer countries among pension reformers – Bolivia, Ecuador, El Salvador and Nicaragua-, exhibited contributory coverage levels ranging between 10% and 20% of the labor force (Mesa-Lago, 2002a; Mesa-Lago, 2004a).

Although the causes behind this low coverage levels for the majority of Latin America pension reformers responded to structural problems of the labor market together with low savings capacity of the population, the reform was based on the logic that the causes were basically lack of positive incentives to contribute and limited trust in the public system. Specifically, one set of hypothesis argued that PAYGO systems established weak linkages between contributions and retirement benefits. This led agents to perceive social security contributions as a tax on income and, as a result, provided a disincentive to contribute. Another type of explanation hypothesized that the main issue was not the perception of social security contributions as a tax on income, but rather the perception that the benefits were not sufficient to 'induce workers to contribute to the pension system.

With this logic in mind, the assumption behind the reforms was that a tighter link between benefits and contributions -brought about by the introduction of a defined contribution component through individual accounts- would affect positively the incentives of workers to contribute (Arza, 2008). This, together with greater transparency and efficiency of the system, would bring about the "formalization" of the labor force and thus raise contributory coverage.

1.4. High degree of (inequitable) fragmentation

In general pension systems tended to be highly fragmented; multiple schemes existed at the same time with very different conditions for participation and benefits. Besides, systems were in many cases subject to abuse by political groups since benefits were decided by lobbying and political power, leaving vast groups of population in a disadvantaged position or even excluded from the system (Queisser, 1998).

2. Strategies of reform

In view of the above shortcomings of traditional PAYGO schemes, since the 1980's several of the region's countries made structural reforms totally or partially replacing them with systems containing a fully funded component of individually capitalized accounts.

The reforms introduced can be classified in three broad types: (i) the substitutive type, where a PAYGO regime is totally replaced by a fully funded system of individually capitalized accounts; (ii) those that entail the introduction of parallel regimes which maintain the PAYGO component, but also incorporate a fully-funded individual-account component as an alternative; (iii) those that establish mixed models that include an individual-account component as a complement to the PAYGO regime (ECLAC, 2006). Table 1 shows the eleven structural reforming countries according to the type of model introduced by the reforms.

Table 1: Structural Reforms in Latin American Countries

Reform model, country and starting date	Financial regime	Benefits calculation
Fully funded substitutive model	Individually capitalized accounts	Defined contribution
Chile: May 1981		
Bolivia: May 1997		
Mexico: September 1997		
El Salvador: May 1998		
Dominican Republic: 2003-2005		
Fully funded parallel model (workers can choose the system of their preference)	PAYGO	Defined benefit
Peru: June 1993	Individually capitalized accounts	Defined contribution
Colombia: April 1994		
Fully funded mixed model (workers pay into both systems simultaneously)	PAYGO	Defined benefit
Argentina: July 1994		
Uruguay: April 1996		
Costa Rica: May 2001	Individually capitalized accounts	Defined contribution
Ecuador: 2001		

Source: ECLAC (2006); Mesa-Lago (2004a)

In these three types of reformed systems, benefits paid by the individual account components are not defined. Rather, they depend directly on the actuarial result of capitalizing individual contributions on financial markets. They are therefore a function of the worker's lifetime earnings, contribution history and investment decisions made by the administrators of such accounts (ECLAC, 2006; Arenas de Mesa et al., 2006).

This stronger link between the contributions made by each individual and the pensions paid to him/her was intended to (i) counteract the long-term financial sustainability problems of traditional PAYGO models by shifting the economic and financial risks of pension provision –

totally or in part- from the State to the workers themselves and (ii) reduce the “tax connotation” of the pension-fund contributions paid by affiliates and in that way provide an incentive for the formalization of the labor force and the expansion of contributory coverage (ECLAC, 2006).

3. Fiscal requirements of the pension system during and after the reform

The structural reform of a pension system from a PAYGO regime to a system containing individually capitalized accounts entails transition costs. The transition costs are expected to decline over time and disappear, once the transition *phase* from one system to the next is complete. However as experiences show, transition phases can be long and protracted. Depending on the demographic characteristics of the country and the specificities regarding the pension system, transition phases can last from 40 to 60 years (Mesa-Lago, 2002b).

Also, other fiscal requirements stemming from the operation requirements of the pension system will be present not only during but also after the completion of the transition phase. These include:

- ✓ Non-contributory assistance pensions (pillar zero) to poor non-insured workers.³
- ✓ Subsidies to top-up contributory pillar pensions (generally called *Minimum Pension Guarantees*).
- ✓ Subsidies to independent “special” pension schemes in cases where some of these where not consolidated by the reform and/or subsidies to the PAYGO public pillar remaining in place (in cases of mixed or parallel type reforms).

3.1 Transition cost

A structural reform that implies a change in the financial regime of the contributory pension system from an intergenerational contract pay-as-you-go (PAYGO) system –where active workers finance current pensions- to individual capitalization–where each person’s pension is financed by his/her own savings in an individual account- may imply incurring costs of transition which, as shown by some country experiences analyzed below, are high and long lasting.

These transition costs are usually divided in two basic parts: (i) the *operating deficit* of the public PAYGO system and (ii) the *recognition* of past contributions into the old system made by workers who move to the new system (often called "recognition bond") (ECLAC, 2006; Mesa Lago, 2002a).

³ The expenditure on assistance pensions is not actually a consequence of the reforms but rather it exists independently of the latter, in the old and new systems.

Table 2: Fiscal Requirements of the pension system during and after reform

Country	Chile	Argentina	Costa Rica
Type of Reform	Substitutive PAYGO system is closed to new affiliates. It is substituted by fully funded model of Individually Capitalized Accounts (IA).	Mixed combines a reformed public PAYGO first pillar with a second pillar that offers workers the choice between: a PAYGO scheme paying a defined benefit or a fully funded individually capitalized account (IA).	Mixed combines a public PCF first pillar with a second pillar of fully funded individually capitalized accounts (IA).
Year	1980	1993	2000
Treatment given to individuals	"Old men" stay in the PAYGO system "New men" compulsorily to IA system "Middle men" given short time to choose between switching to IA system or stay in PAYGO	"Old men" stay in PAYGO system "New men" can choose between mixed system or reformed PAYGO system "Middle men" can choose between mixed system or reformed PAYGO system	"Old men" stay in PAYGO system "New men" compulsorily to mixed system "Middle men" compulsorily to mixed system
Fiscal Requirements			
Transition Cost			
(I) Operating deficit of PAYGO	Yes , the PAYGO system loses most of its revenues because contributions are diverted to the IA's and still has to pay its obligations with old men and middle men that chose not to switch.	Yes , the PAYGO system loses contributions of those that choose IA option for second pillar. It still has to pay pensions to "old men", first pillar benefits to all retirees in mixed system, and second pillar benefits to workers those that choose PAYGO option for their second pillar.	No , the public system does not lose part of its contributions because the IA are funded by contributions diverted from other purposes and NOT from the public system.
(II) Recognition of past contributions to old PAYGO	Yes , to all "middle men" that switch to IA system. Value of contributions made is recognized through public debt instruments ("Recognition Bonds)". They have no ceiling, are adjustable to inflation and earn 4% real interest annually.	Yes , but only to individuals fulfilling retirement conditions (i.e 30 years of contributions in total). Value of contributions made is recognized through the Compensatory Benefit ("Prestación Compensatoria"). It is adjustable but has a ceiling, and earns no interest.	No , because the public pillar remains open and pays a pension under the same conditions that before the reform
Minimum Pension Guarantees	Yes , the Government gives MPG's to all those affiliates of IA system that do not accumulate enough funds to retire with a pension higher than the statutory minimum (provided they comply with required minimum years of contributions)	The minimum pension is given by the one paid by the first public PAYGO pillar (the Basic Universal Benefit or "Prestación Básica Universal") to those complying with the required 30 years of contributions. The Government does not guarantee a minimum pension in the IA pillar.	The minimum pension is given by the one paid by the first public pillar to those complying with the required 25 years of contributions. The Government does not guarantee a minimum pension in the IA pillar.
Assistance Pensions	Yes , assistance pensions ("PASIS") are in place for indigent elderly not covered by the contributory system. But Government limited the amount of PASIS given out in order to control fiscal costs and therefore many people did not receive this coverage although qualifying for it.	Yes , assistance pensions are in place for poor individuals who are not covered by the contributory system and not receiving any other type of pension.	Yes , assistance pensions are in place for poor individuals not covered by the contributory system.
Subsidies to independent "special" pension schemes not consolidated by the reform (if needed)	Yes , for example the armed forces' pension scheme was not consolidated by the reform	Yes , for example the armed forces' pension scheme was not consolidated by the reform. Pension schemes of some provinces (together with their deficits) have been transferred to the national system.	Yes , for example for example the Judiciary Power and Teachers pension schemes was not consolidated by the reform.

Source: Own elaboration using AIOS; Mesa Lago (2002b); Mesa Lago (2004) and ILO (2005).

3.1.1. Operating deficit

The operating deficit of the public system occurs because, after the reform, the public PAYGO pillar is left without contributors or with a minority of them, but with the burden of all current pensions plus those that will be eventually granted to the insured that chose to stay in the old system (Mesa-Lago, 2002a).

The degree to which the PAYGO regime is replaced by the individual capitalization component is the key determinant of the changes in contribution revenue received by the public system and therefore of the size of the operating deficit that this one will incur.

In the extreme case of a substitutive reform, in which the PAYGO scheme is closed to new affiliates and a majority of the existing affiliates move (generally voluntarily) to the funded scheme, the transition immediately generates the loss of a majority of contribution revenue for the public system. This, together with payments of pensions that must continue, gives rise to an immediate increase in the operating deficit (an example of this is Chile as it will be discussed below).

In the less extreme where the new system is mixed -and therefore includes a compulsory PAYGO first pillar- part of the contributions may also be diverted to the funded pillar, but a certain amount of them will still be going towards the public system (ECLAC, 2006). In this case the operating deficit need not be as large as in the substitutive case (an example discussed below is that of Argentina). It may even be the case that *new* contributions are put in place to fund the individual accounts in the mixed system so that none at all have to be diverted away from the public first pillar. In this case, the public pillar will experience no change in its contribution revenues as a consequence of the reform (an example of this is Costa Rica).

3.1.2 Recognition of past contributions

A key institutional design issue of the reforms from an intergeneration contract (PAYGO) to a system containing individual accounts is to determine what will be the Government's obligations towards current workers who have accrued benefits under the old PAYGO system and decide to switch to the new system.

If the reform is substitutive and completely eliminates the PAYGO pillar, workers that change to the new system should be recognized in some way for the contributions already made to the system that ceased to exist, but the generosity of this recognition is the issue that has to be decided. In this sense countries face a trade-off because a less generous recognition (capped, not adjusted, no interest earned, previous contributions required) in order to reduce fiscal costs goes in detriment to the general welfare of the insured (Mesa-Lago, 2002b). An example of this trade-off is given by Chile whose reform was the most generous of all, -the Government recognized the whole value of contributions with no upper ceiling, adjusted them for inflation and paid an interest on the value- but also the most onerous from a fiscal standpoint (Mesa-Lago, 2002b). Other reforming countries opted for less generous and less expensive options (to recognize contributions only to some workers complying with a minimum number of contributions, not adjust the contribution

value for inflation, not to pay interest). In Mexico for example, the reform only recognized the years of contributions but not the value of contributions made.⁴

If the system emerging after the reform is mixed and maintains a public PAYGO pillar, working basically with the same conditions as before the reforms, countries need not make an explicit recognition of contributions because individuals will end up receiving a pension from that pillar anyway. An example of the latter is the Costa Rican mixed reform.⁵

Lastly, if the new system is mixed but the new PAYGO pillar works with benefits and conditions completely different to the ones prevailing before the reform countries may choose to recognize explicitly rights accrued by individuals in the old PAYGO (an example is Argentina).

Next we examine the experience with transition costs of three Latin American countries that underwent structural reforms in the direction of substituting (Chile) or complementing (Argentina, Costa Rica) their public PAYGO systems with individually capitalized fully funded components. The analysis will offer some insights of how the above factors affected the transition costs.

3.1.3 The extreme case of Chile: the largest transition costs

In 1980, Chile implemented a substitutive reform of its pension system through which the existing public PAYGO system was closed to new affiliates and replaced by a private, defined contributions, fully funded system of individually capitalized accounts. Individuals already retired as of the reform date (“*old men*”) continued to receive their pension from the PAYGO regime but individuals entering the work force after the reform date (“*new men*”) had to compulsorily enroll in the new system.

On the other hand, individuals already working as of the reform date (“*middle men*”) had the choice of remaining in the old PAYG system or switching to the new individual account system. A majority of them chose to switch because they were given incentives to do so; their contribution rates were set much lower in the new system, and the Government made a compromise to recognize the value of their past contributions to the PAYGO system (Uthoff, 2001).

The reform brought about a large immediate increase in the *operating deficit* of the public PAYGO system that saw its contributions almost completely diverted to the individual accounts and still had to pay pensions to all the “*old men*” and to the few “*middle men*” who

⁴ Instead, in Mexico all workers who changed to the new system were given the option of a “life time switch” this is, to choose at retirement between a pension calculated according to the rules of the old system and a pension from their individual account balance (Queisser, 1998; Mesa-Lago, 2000).

⁵ If the conditions of the post-reform PAYGO are stricter and/or its benefits lower, countries have in general generated an age division of workers in such a way that the reform does not apply (or applies gradually) to older generations of workers and no abrupt decrease in benefits occurs to them. Older generations of workers are the most affected by the reforms; they have already made many years of contributions to the old more generous system and if the new system and rules were applied to them they would have lower first pillar benefits and not enough years left to generate a benefit equivalent to this loss in the second pillar.

chose to stay in that system. The operating deficit was the main factor explaining the transition cost throughout the whole period; it increased from 1.8% of GDP in 1980, before the reform, to a peak of 4.7% of GDP in 1984 and only then started to decline. It is projected to stand at 1.5% of GDP by 2010 (*Informe de Diagnóstico para el Consejo Asesor para la Reforma Previsional*, 2006). Nevertheless it should be borne in mind that the increase in the operating deficit of the system was not only a consequence of the reform but of other factors that affected it at the same time. In particular, immediately after the reform the decrease in revenues of the public system was accentuated by the economic crisis of the beginning of the 1980's which caused a decrease in real wages and an increase in unemployment. Early estimates indicate that only 20% of the operating deficit during the first years after the reform was caused exclusively by the loss of contributory revenue diverted into individual accounts.⁶

In terms of the second component of the transition cost, the recognition of accrued benefits under the old PAYGO system, the Government decided to recognize the value of all past contributions made to the old system by “*middle men*” who switched to the new one. This was done by transforming them into public-debt instruments (the “*Recognition Bonds*”) that mature upon retirement of the worker. It is at this moment that the sum is deposited in his individual account.⁷ The expenditure on such bonds is therefore deferred in time in line with “*middle men*” retirements (ECLAC, 2006). It started at levels of 0.1% of GDP in 1982 and has been increasing steadily since then reaching 1.3% of GDP in 2004 (*Informe de Diagnóstico para el Consejo Asesor para la Reforma Previsional*, 2006).

3.1.4 The other extreme: no transition costs in Costa Rica

In 2000 Costa Rica reformed its pension system into a mixed model that combined the existing public pillar (functioning under Partial Collective Funding) with a fully funded compulsory second pillar through individually capitalized accounts.⁸ The new mixed system was made compulsory for all “*new men*” and “*middle men*”. The reform did not bring about an *operating deficit* of the public pillar because this one did not lose contributory revenue. The contributions to fund the individual accounts were *not* diverted from it but instead represented a reallocation of employer contributions that were originally assigned to other purposes.⁹

⁶ These estimates are found in Larrain and Vergara (2000) are based on earlier figures for the operational deficit which do not coincide with the ones used here.

⁷ These bonds are inflation indexed and earn a fixed interest of 4% per annum.

⁸ In contrast to most Latin American pension systems, the existing public pension system in Costa Rica was, instead of a purely PAYGO system, a partially funded defined benefit system working under what is known as Partial Collective Funding (PCF) (Martinez Franzoni, 2008). This is the system that remained in place as the first pillar after the structural reform. In the PCF (Partial Collective Funding) a fund is created with part of the contributions received by the public pillar and it is invested so that interest earnings from it together with future contributions are used to fund the pensions of a certain period. Periodically it is evaluated whether the funds accumulated and the interest earnings are enough to pay obligations and if not, the contribution rates of the system are adjusted.

⁹

In Costa Rica, there was no *recognition of past contributions* to the PAYGO pillar because this one remained open and paying first pillar benefits to all retirees under basically the same conditions as prior to the reform.¹⁰ Therefore in Costa Rica transition costs did not exist as such.

3.1.5. An intermediate case: Argentina

In 1993 Argentina reformed its pension system from a PAYGO system to a mixed one that was compulsory to all “*middle men*” and “*new men*”. The new mixed system combines a reformed public PAYGO first pillar with a second pillar that offers workers the choice between: a PAYGO scheme paying a defined benefit or a fully funded individually capitalized account. The revenues of the public PAYGO system were reduced in a magnitude corresponding to the contributions of all the workers that choose the individual account option for their second pillar. An increase in the *operating deficit* of the public system arises as a consequence of these lower revenues and this is a first part of the transition cost of the mixed reform.

But here, as in the Chilean case, there is a second part arising from recognition of contributions made to the pre-reform PAYGO system. This is because in the Argentine case, the reformed PAYGO system does not pay benefits under the same conditions as before the reform. Instead, it pays a flat first pillar benefit equivalent to around 28% of the economy’s average wage at the time of the reform) to all workers and second pillar benefits only to those who chose the PAYGO option.¹¹ Therefore as the *new* PAYGO system was conceived so differently to the *old* one, the government implemented a transitional *compensatory benefit* in order to compensate “*middle men*” for their rights accrued in the pre-reform PAYGO system. The objective was to maintain their benefits similar to what they would have been under the pre-reform rules.¹² This compensatory benefit is paid in the form of a monthly pension to all “*middle men*” upon their retirement. By choosing this type of payment instead of redeeming the whole recognition bond at the moment of retirement the cost is stretched out over a longer period in time.

With the reform in place, the deficit of the public pension system rose from 1.8% of GDP in 1993 to a maximum of 3.5% in 2001. Then it started to decrease standing at 1.6% in 2006.¹³ Nevertheless, as in the case of Chile, the increase in the deficit in the Argentine case cannot all be associated with the effect of the pension reform. Other factors have been strongly influencing the expenditure and revenue of the system and it is not obvious how to isolate their

¹⁰ In 2005, the public system was parametrically reformed and stricter conditions and benefits were put in place. Nevertheless, these new conditions did not apply –or applied very modestly– for the older generations of “*middle men*”, the ones that had a larger number of contributions already made to the old more generous system.

¹¹ The uniform benefit for all workers whatever their wage is paid provided they satisfy the required minimum conditions and it implies an important redistributive element. Nowadays the benefit is much lower than the original 28% since in the year following the reform its calculation underwent changes and it was not adjusted for inflation.

¹² The compensatory benefit is equivalent to 1.5% of base salary for every year contributed to the old PAYGO system so for example, a median wager “*middle man*” that at the time of the reform had already contributed 30 years to the old PAYGO, will have a replacement rate starting at 73% from the new mixed system (28% from the flat benefit and 45% from the compensatory benefit), a level very similar to the one he would have gotten without the reform.

¹³ The deficit considered here is the “*pure*” deficit, i.e. the one that considers expenditures only in benefit payments and revenues only from contributions (excluding earmarked tax revenue).

effect (Cetrángolo and Grushka, 2004). In the first place, the system's revenues decreased strongly as a result of reductions in contribution rates beginning in the mid nineties. This "fiscal devaluation" was part of a policy to enhance the competitiveness of the economy (ECLAC, 2006). In the second place, beginning at about the same time, there was a gradual transfer of most of the provincial pension funds (along with their deficits) to the central government (Cetrángolo and Grushka, 2004; ECLAC, 2006). Estimates by Cetrángolo and Grushka (2004), indicate that less than half of the pension deficit as of 2000 -which stood at 3.3% of GDP- can actually be explained by the loss of contributions diverted to the individual accounts.¹⁴

Leaving aside the case of Costa Rica, which is an atypical case due to the absence of transition costs, the experiences of Chile and Argentina, which are representative of that of Latin America in general, show that transition costs are high and long lasting. In these cases, available estimates show that transition costs can come up to represent up to 1.5% of GDP.

This highlights the importance of estimating the magnitude and possible duration of the transition costs that will be experienced and planning ahead how to finance them. Large and long lasting fiscal deficits induced by the pension reform may in fact generate a perverse cycle of increased credit risk perception and explosive debt dynamics as markets may react negatively to them (Gill, Packard and Yermo, 2005).

In the case of Chile, the option taken by the authorities was to deliberately strengthen the fiscal stance before undertaking the reform so that the transition costs could be more easily absorbed in the short-term. Fiscal surpluses of around 5% in the two years prior to the reform, nevertheless, came at the expense of cuts in public expenditure on other very relevant social areas. Argentina, by contrast, did not strengthen its fiscal situation previously to the reform and the large fiscal deficits it endured during the years following it are normally cited as an important factor contributing to the economic collapse of the late 2001 (Gill, Packard and Yermo 2005 and ECLAC, 2006).

3.1.6 Other fiscal requirements

As it was mentioned at the beginning of this section, the fiscal requirements of the pension system entail, besides transition costs due to the reform, other fiscal requirements that may persist even after the transition phase is over. These include expenditure on non-contributory assistance pensions and minimum pension guarantees, subsidies to independent "special" pension schemes and/or to the PAYGO public pillar remaining in place (in cases of mixed or parallel type reforms).

3.1.6.1. Non-contributory assistance pensions

The decrease of public expenditure on non-contributory pensions after a structural reform depends critically on the success of expanding coverage levels of the *contributory* scheme. If this is not achieved, expenditure on non-contributory pensions need not decrease and

¹⁴ Estimates by Rofman (2004) coincide with this magnitude; he estimates the loss of revenues of the public system as a consequence of the reform at 1.5% of GDP in 2000. In relation to expenditures on compensatory benefits, this part of the transition cost cannot be isolated from the overall balance of the public system due to lack of information.

it may even be the case that after reforms, more (rather than less) individuals have to resort to the non-contributory pillar. This could happen if –as it was the case in some Latin American experiences- parametric reforms accompanying the structural reforms turn the conditions of the contributory pillar too strict and some of the elderly who would have received a contributory pension under the previous rules end up with no pension under the new conditions (Ferreira Coimbra and Forteza, 2005).

In Chile, expenditure on the “assistance pensions” (PASIS) for indigent elderly who did not qualify for a contributory pension was projected at 0.44% of GDP in 2010 up from 0.20% in 1981 (*Informe de Diagnóstico para el Consejo Asesor para la Reforma Previsional*, 2006). Nevertheless, as the Government limited the amount given out in order to control fiscal costs this may indeed underestimate the true value of what the level of assistance pensions would be in the absence of such restrictions.

In Argentina, expenditure on non-contributory pensions increased from 0.16% of GDP in 1994 to 0.28% of GDP in 2006 (ILO, 2005; *Cuenta de Inversión, Contaduría General de la Nación Argentina*). In this case it is argued that the new stricter requisites for acquiring a pension after the parametric reform implied a decrease in coverage of the contributory system and, hand in hand with it, pressures on the non-contributory system (Cetrángolo and Grushka 2008). Lastly, in Costa Rica, expenditure on non-contributory pensions stood at 0.4% of GDP in 2006, up from 0.3% of GDP in 2000, the year of the reform.

3.1.6.2. Minimum Pension Guarantees

Minimum pension guarantees (MPG’s) are in place only in some countries and they consist of State subsidies to “top-up” contributory pensions of all those insured in the new system whose accumulated sum in the individual account is insufficient to finance at least a pension equal to a statutory minimum –provided they comply with required minimum years of contributions-.

The expenditure on minimum pension guarantees can become quite relevant after the reforms if an important proportion of the population that was believed to be adequately covered by the contributory scheme ends up requiring these “top ups”.

In Chile, where MPG’s existed provided the worker complies with a required minimum of 20 years of contributions, the expenditure on these guarantees increased from 0.01% of GDP in 1989 to 0.07% of GDP in 2004. (*Informe de Diagnóstico para el Consejo Asesor para la Reforma Previsional*, 2006). Estimates indicated that as the system matured, more than 30 % of retirees would seek recourse to the minimum pension guarantee, resulting in a fiscal burden of about 1% of GDP (Asher and Vasudevan, 2008).

In Argentina, the same as in Costa Rica, because the system is mixed all retirees from the contributory system receive at least the defined benefit paid by the PAYGO first pillar so in practice this constitutes the minimum pension. There exists no formal minimum pension

guarantee from the State for the individual account pillar.¹⁵ Nevertheless in the Argentine case, the Government recently had to incur relevant costs in order to provide a “bail out” to affiliates with insufficient funds accumulated in their individual accounts, just as if such a guarantee had been in place. This will be further discussed in section 3.3.1.

By supposedly inducing the formalization of the labor market and increasing contributory coverage, the Latin American structural reforms were intended to make the non-contributory pillar less relevant. Nevertheless this was not the case and the budgetary pressures arising from the transition costs were compounded by increasing demands for fiscal funding arising from the need to extend pension coverage through non-contributory means, both assistance pensions and minimum pension guarantees (ECLAC, 2006).

3.1.6.3. Subsidies to independent pension schemes and/or to the public PAYGO

In cases where some independent or “special” pension schemes remained outside the consolidation brought about by the reforms there may be substantial fiscal demands arising from them. This is generally the case because these schemes tend to suffer from the same mismatches between contribution revenues and benefit payments as the pre-reform PAYGO systems. In general countries have been successful to some extent in consolidating various schemes which were working under very different contribution and benefit conditions into a more unified system. As an example, in Costa Rica, there were 19 “special” regimes financed by the fiscal budget. Previous to the 2000 structural reform, 17 of them had already been consolidated leaving outside only the Judiciary Power and the National Teachers pension schemes. In Chile although most of the multiple schemes were consolidated, one that was left outside the reform, - the one for the Armed Forces- runs a deficit that adds 1.3% of GDP yearly to the fiscal budget.¹⁶

3.1.6.4. Subsidies to the remaining public PAYGO pillar in mature post reforms systems (in case of mixed or parallel reforms)

In the case of mixed or parallel type reforms -where a public PAYGO scheme remains in place as the first pillar of the new post-transition system- fiscal requirements may stem from the need to subsidize the latter if continues to run financial imbalances even after the transition phase is over.

If no adjustments are made to the parameters of the PAYGO system, or if the adjustments made are not sufficient to match up ongoing benefits with contributions such as to guarantee its sustainability in the long run, then these imbalances will be growing across time and putting ever tighter pressures on the fiscal budget.

¹⁵ In Argentina the Government does guarantee a minimum return from the investments of an Individual Account administrator only if this return is below the system’s average and the reserves of the administrator are not enough to cover the difference (Mesa-Lago, 2000).

¹⁶ This figure corresponds to the year 2004 (*Informe de Diagnóstico para el Consejo Asesor para la Reforma Previsional*, 2006).

In the Latin American experiences -independently of the type of the structural reform implemented- this one was accompanied by parametric changes to the public pillar in an attempt to establish the sustainability of the latter in the new models. This was so even in the case of Costa Rica, where the public PCF first pillar was exhibiting a current surplus but where sustainability projections showed that this one would turn into a deficit in the medium term (see Box 1).

The parametric changes implemented generally involved those intended to adjust the conditions for retirement to the new demographic reality by increasing the legal retirement age and/or demanding longer contribution periods. Other changes were aimed at increasing the revenues of the PAYGO pillar and/or limiting the generosity of the benefits granted by it. This was done either directly –with increases in contribution rates and/or decreases in replacement rates for example- or indirectly by providing incentives that rewarded more contributions with more benefits. Examples of the latter are the extension of the number of contributions considered in the calculation of benefits, (which eliminates incentives to under-contribute in the early years of working life) and the changes in the rules regarding replacement rates such that they penalize early retirement with lower benefits and reward later retirement with higher benefits (ECLAC, 2006).

Usually, parametric changes that affected the level and conditions for obtaining benefits in the public pillar were implemented in a gradual manner. This was achieved either by applying changes over a period of some years by applying them selectively according to age groups of the working population (such that the older generations of workers, that have more acquired rights under the old systems, are the least affected).

Virtually all reforming countries accompanied structural reforms with parametric changes in an attempt to guarantee the sustainability of the public first pillar in the new reformed systems as these matured.¹⁷ Two examples are discussed in Box 1 below.

¹⁷ Examples of parametric changes accompanying structural reforms are summarized in Mesa-Lago (1998) and Rodríguez and Duran (2000).

Box 1**Brief description of parametric changes implemented in Argentina and Costa Rica**

In Argentina parametric changes implemented at the time of the structural reform include a gradual 5 year increase in the minimum age of retirement (to 60 and 65 years for women and men respectively) and an increase in the number of years of contributions required to obtain retirement benefits (from 20 to 30 years) (Cetrángolo and Grushka, 2004). The wage replacement rate of the public pillar remains virtually the same (before the reform it ranged from 70% to 82%) but is calculated based on the last ten years of wages instead of the last three.

In Costa Rica, the parametric reform was implemented five years after the structural reform, in 2005. Contribution rates were left the same for the first five years and then increased gradually over a period of 30 years.¹ The retirement age was left the same (65 years) but the years of contributions required for pensioning were increased from 20 to 25. In terms of wage replacement rates from the first pillar, the reform implemented new formulas to calculate them so that the rates for higher income people became smaller while those of lower income people were left unaltered. The parametric reform had transition rules varying by age group. For workers older than 54 contributions and benefits were left unaltered. For those between 45 and 54 changes take place gradually and for those younger than 45 all changes apply (Martinez Franzoni, 2008).

In the case of Costa Rica, estimates are available of the positive effect that the parametric reform had on the sustainability of the public PCF system. Before the 2005 reform sustainability projections of the system's balances showed that a first critical moment would come in 2011 when contributions would not be enough to finance expenditures and interest earnings of the fund would have to be used for this purpose. By 2028 the public pillar fund reserves were projected to have run out. With the parametric reform these critical moments are estimated to have been postponed by 30 and 26 years respectively. Because the increase in contributions is gradual over time there are years in which contributions are insufficient but these balance out in the subsequent years. The reform achieved actuarial equilibrium of the public pillar for four decades after the reform.

Source: Based on Cetrángolo and Grushka (2004) and Martinez Franzoni (2008)¹.

3.1.7 An assessment of the fiscal requirements of the pension system during and after reform

The above analysis showed that structural reform of a pension system from a PAYGO regime to a system containing individually capitalized accounts entails fiscal requirements during and after the transition phase. These fiscal requirements comprise transition costs and other costs.

Regarding transition costs the analysis showed that, although a well designed structural pension reform may yield fiscal benefits in the long term, countries should carefully estimate the magnitude of the total *transition costs* that they will be experiencing and plan ahead how to finance them.

In relation to the other costs, there may be, in the first place, sizeable fiscal requirements arising from assistance pensions and minimum pension guarantees which may perpetuate across time. The new systems were believed to have transferred all or part of the risk of pension provision from the State to individuals themselves. Nevertheless, if the systems end up underperforming in the sense that guarantees for non-poverty in the old age are insufficient, the State is ultimately the one that ends up providing subsistence means for the elderly either through “top ups” to low contributory pensions or directly through non-contributory assistance pensions. Hence, ultimately the risk of old-age poverty is borne by the State, even when the system has been formally completely or partly privatized (Mueller, 2001).

In the second place significant fiscal burdens may arise from subsidies to the public pay go pillar, even after the structural reform is implemented. This could happen if parametric changes are not implemented within the latter or if they are implemented incompletely and fail to match the contribution revenues with the benefit payments in the long run.

Lastly, fiscal requirements may stem from subsidies to independent “special” schemes if some of these are left out of the consolidation brought about by the reforms.

Note: Period 0 = Reform period

Source: Rofman and Lucchetti (2006). For Chile: *Informe de Diagnóstico para el Consejo Asesor para la Reforma Previsional* (2006). For Costa Rica: official data.

Moreover, the inequalities in coverage -that had been a pervasive element of pension systems in Latin America since their inception- remained unchanged after the reforms (Arza, 2008). Members of high-income households exhibit systematically higher contribution and coverage rates than members of lower income families (Table 3) (ECLAC, 2006; Arza, 2008).

**Table 3: Contributory coverage by income quintiles¹⁸
(percentage of employed population who makes contributions to a pension scheme)**

	year	Quintile 1 (lowest)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (highest)
Argentina	2004	9.6	31	44.1	53.8	59.3
Bolivia	2002	0.5	2.6	7.5	13.2	30.9
Chile	2003	53.1	62.6	65.8	68.7	72.4
Colombia	1999	11.9	12.9	21.9	33.8	54.4
Costa Rica	2004	50.3	61	64.8	69.5	77.8
Mexico	2002	7.9	25.6	38.9	48.8	57.7
Peru	2003	1.3	4.7	11.6	21.5	37.7
El Salvador	2003	13.2	19.5	31.2	40.1	55.8
Uruguay	2004	25	50.3	62.8	73.2	75.6

Source: Arza (2008) based on Rofman and Lucchetti (2006).

The arguments that have been given to explain the above are mainly twofold and are based on the presumption that the possibilities for extending social coverage by means of contributory schemes faces relevant constraints whose removal go beyond the possibilities of pension reform itself. In particular these constraints may be posed by the limited savings capacity of some population groups together with the instability and precariousness of the labor markets in the region (ECLAC, 2006).

In relation to the first constraint, it is argued that contribution evasion may be a consequence, not of workers discouraged to contribute because of lack of incentives, but of “rational” ones who decide not to contribute because, being poor, they have a high discount rate for future consumption (Arza, 2008). In other words, given the basic consumption and liquidity needs of vast groups of population in these countries, the saving capacity is limited and hence contributory conduct does not react easily to incentives.

¹⁸ Only Contributory pensions included.

In relation to the second constraint, non-contributive behavior may be an inevitable result of volatile economic growth patterns together with labor market patterns. In countries that experience large business cycle fluctuations, the labor situation of affiliates to the pension system tends to be volatile. Fractions of workers may involuntarily move onto unemployment and therefore cease to contribute for some time until the situation reverts.

In addition to this cyclical effects, the *structure* of labor markets in the region tends to have a negative impact on contributory social protection through low rates of contribution and a close relationship between an individual's type of labor-market participation and his/her contribution (ECLAC, 2006). Contributory coverage clearly reflects labor market patterns given that more experienced or more educated workers who are in the working in sectors with greater job stability are more likely to pay contributions (Gill, Packard and Yermo, 2005). In particular, an analysis by ECLAC (2006) finds that wage-earning workers employed in larger enterprises and professionals or technicians are more likely to pay contributions than other self-employed workers, workers in micro-enterprises, unpaid family workers and domestic service workers. Therefore, in countries such as most of the Latin American ones, where the proportion of informal sector employment -as measured by these last four categories- is high (table 4), it is reasonable to find lower rates of contributory coverage of the EAP.¹⁹

Table 4: Labor Market conditions in Latin America
(2005 or latest year available)

	Informal Sector Employment as a % of Total Urban Employment
Latin America	48.5
Argentina	43.6
Bolivia	67.1
Brazil	49.1
Chile	31.9
Colombia	58.8
Costa Rica	39.9
Ecuador	57.8
El Salvador	56
Mexico	42.6
Nicaragua	58.8
Panama	37.6
Paraguay	61.3
Peru	54.9
Dominican Republic	49
Uruguay	44.6
Venezuela	50

Source: ILO (International Labour Organization) Labour Overview (2006)

Note: Informal sector employment is composed by workers in micro-enterprises (enterprises with up to 5 employees), self-employed workers (excluding administrative, professionals and technicians), unpaid independent workers and domestic service workers.

¹⁹ ILO (International Labor Organization) defines **informal sector employment** as that in the four categories mentioned.

4.2 Contribution Density

The formalization of the labor market is a necessary but not sufficient condition to guarantee the adequate insurance of the population against old-age poverty. To analyze this issue the concept of *density of contributions* must be brought into the discussion. This one is normally used to measure the frequency of a person's contribution throughout his/her working life and is calculated as the number of contributions made divided by the number of months in which the individual was of working age (ECLAC, 2006). The concept of density is useful since in the reformed systems, the probability of securing adequate retirement benefits depends critically on accumulating sufficient savings in the individual accounts and this is only achieved through *regular* contributions.²⁰ Since the pension received depends directly on the (indexed) sum of all contributions made into the individual account people with significant contribution gaps (periods in which they did not contribute) are likely to accumulate insufficient balances and receive pensions that are low or time-limited (ECLAC, 2006).²¹ The same is true for workers with a late start in their contribution history, since contributions at the first working ages are compounded for a longer period and are therefore the most relevant.

Average densities estimated for Argentina, Chile and Uruguay since the reform date onwards are 49%, 52.4% and 60,8% and respectively (Fajnzyblber and Repetto, 2008). Contribution densities allow estimating, for individuals reaching their retirement age, the probability of having complied with the regulatory minimum years of contributions and/or of having accumulated enough savings in their account.

For Argentina, estimates by ILO (2005), indicated that almost half the people over 50 years of age as of 2001 had densities so low that they would not be in a position to pension when reaching the minimum statutory age, even if from that year onwards they were to contribute in a continuous manner until the legal retirement age. For Chile, where there is no requirement in terms of minimum years of contributions, projections regarding the *level* of pensions to be earned by affiliates indicated that around half of the affiliates to the individual accounts system pensioning between 2005 and 2025 would have densities too low to finance a pension higher than the statutory minimum and also too low to qualify for the Minimum Guaranteed Pension (Bernstein et al., 2005).

For the Uruguayan case, projections in Bucheli et al. (2005) based on contribution history of workers for the period 1996-2004, indicated that only 13% of workers would achieve the 35 years of contributions required at 60 years of age and 28% would achieve them at 65 years of age.²²

²⁰ In a PAYGO system on the other hand, individuals complying with the required number of contributions receive a defined-benefit pension (ECLAC, 2006).

²¹ Whereas PAYGO systems pay benefits according to a defined benefit formula and pool the risk of worker's "blank periods" and periods of low earnings over the covered population, the reformed systems shift all or part of the burden of these risks onto the individual (Packard, 2001).

²² When considering only the pre-crisis period for the projections (1996-1998), the percentages increase to 24% and 42% respectively.

The main conclusion to be drawn from the above is that not only coverage has not increased, but also even in countries where it is highest as measured by the indicator of contributors in relation to the economically active population, a large proportion of such contributors are in effect under-insured. This means that their contribution densities are below the threshold needed to qualify for a retirement pension in defined-benefit models or result in lower quality pensions in funded systems (ECLAC, 2006).

It is not a casual fact that the three countries mentioned above have had recently to introduce changes to their systems (Argentina in 2005-2007; Chile and Uruguay in 2008) in order to palliate the above problems of insufficient and inadequate insurance against old age poverty. This is discussed below.

4.3 Recent Reforms to address insufficiency of adequate coverage

It was mentioned that country studies for Argentina, Chile and Uruguay indicated that, among the affiliates to the pension system, a large proportion of individuals were in effect under-insured as a result of their very low contribution densities. This meant that they would either not qualify for a pension when reaching retirement age (in the cases of Argentina and Uruguay) or not be able to finance a pension higher than the statutory minimum from their individual accounts (in the case of Chile). The three countries have recently had, to a certain extent, to acknowledge this reality and implement changes to alleviate the situation. Next we briefly discuss the measures they implemented.

4.3.1 Argentina

In 2005-2007, the Argentine Government implemented a number of measures to deal with the problems of inadequate coverage of the pension system. One of the main ones was the implementation of successive “*Moratorias Previsionales*” that basically implied giving the possibility of acquiring a pension to people with the regulatory age for pensioning but not complying with the minimum required number of contributions (Cetrángolo y Grushka 2008). Beneficiaries have to cancel the missing contributing years in a fixed amount of payments to be deducted from the pension benefits they acquire. “*Moratorias*” have benefited around 1.3 million people (3.2% of the total population) and increased the proportion of population over 65 receiving a pension to more than 80% in 2007 from a level of 70% in the decade of the 90’s (Castiñeira, 2007; Cetrángolo y Grushka 2008).²³

A second measure implemented was a “bail-out” of all affiliates near the pensioning age (less than 10 years away) that, having chosen the individual account option for their second pillar, had accumulated insufficient funds to obtain a pension at least equal to the one paid by the PAYGO sub-system. They were allowed to change onto the latter and will therefore be able to retire with the benefits from the public system (provided they have contributed the statutory 30 years). This measure benefited around 1.2 million workers and it is a demonstration of how, although in the Argentine case the State did not

²³ *Moratorias* have existed in Argentina for decades and although they have repeatedly provided a “solution” to coverage issues, they nevertheless provide an improvised solution and individuals do not have certainty on whether they will end up covered by a moratoria or not.

formally provide a Minimum Pension Guarantee for the individual account pillar, in practice it ended up having to “bail out” affiliates with insufficient funds accumulated just as if the guarantee had been in place.

The net fiscal cost of both these measures together has been estimated at about 0.84% of GDP in 2007 and 0.54% of GDP in 2008 (Castiñeira, 2007).²⁴

4.3.2 Chile

In Chile, before January 2008 there existed a non-contributory “assistance pension” (“PASIS”) for indigent elderly who did not qualify for a contributory pension (for example for not complying with the required number of years of contributions). Nevertheless, the Government limited the amount of PASIS given out in order to control fiscal costs and therefore many people did not receive this coverage although qualifying for it.

On the other hand, a Minimum Pension Guarantee (MPG) from the Government was in place for those retirees that had insufficient funds accumulated in their individual accounts to retire with a pension higher than the statutory minimum. But to qualify for this guarantee workers needed to have at least 20 years of contributions and, as it was mentioned, projections showed that this requisite would leave about half of the affiliates without the guarantee even when their projected pension level was below the statutory minimum pension.

In an attempt to solve these inadequate coverage issues, a reform was implemented in January 2008. It eliminated both the PASIS and MPG and substituted them for a non-contributory Basic Pension (BP) financed from general tax revenue and available to all pensioners with incomes in the lowest 60% of the population. Of these, *all* who do not have a self-financed pension will receive the whole value of the BP equivalent to around US\$ 140. Those who do have some amount of self-financed pension will nevertheless receive a supplement, but the amount of this benefit decreases inversely with the amount that they were capable to finance with their own means. The supplement reaches zero when the self-financed portion is at about US\$ 460 per month.²⁵ (BBVA Pensions Observatory, 2008; IADB news, 2008).

In addition to this, other measures were implemented to increase the density of contributions of the segments of workers among which it is lowest. For example, the reform intends to gradually integrate the self-employed workers into the contributory system. At first they will only contribute for a portion of their earnings but by 2015 contributions to the individual account system will be compulsory for them for their whole income. Also given the importance of contributions at early stages of working life some incentives were put in place for the hiring of young workers.

²⁴ The gross expenditure on pensions for beneficiaries of the measures is higher at 1.3% and 1.5% of GDP in 2007 and 2008 respectively but as the measures increase the contributions received by the PAYGO system the net fiscal cost is thus lower (Castiñeira, 2007).

²⁵ The exchange rate used for these figures was 1US\$=CH\$550.

With the measures proposed estimates are that the average contribution density could be increased by around ten percentage points in a period of five to ten years (Asher and Vasudevan, 2008).

The cost of fully implementing the 2008 reform has been estimated at 0.9% to 1% of GDP annually.

4.3.3 Uruguay

A law was recently sanctioned that reduces the required number of years of contributions to retire (to the pre-parametric reform level of 30 years) in view of the fact that a large proportion of affiliates did not comply with such minimum when reaching the legal retirement age.

4.4 An assessment of contributory coverage and contribution density

By supposedly increasing contributory coverage, the Latin American structural reforms were intended to make the non-contributory pillar less relevant. Not only coverage has not increased, but also, even in countries where it is highest, density estimations show that even the “covered” among the labor force are in fact underinsured in the sense that they are NOT accumulating rights towards adequate retirement benefits.

This reality has, to a certain extent, been acknowledged by the new changes that some reforming countries have recently implemented.

5. Issues in the Latin American experience in pension reform and their implications for the Chinese case

The Latin American experience and history in pension reform is not unique to the region. Countries of other regions of the developing world, affected by the same problems and prompted by the same concerns (fiscal unsustainability and low coverage) as those pertaining to Latin America, have opted to undertake a similar path in pension reform. Such is the case of China, which following several unsuccessful attempts, replaced its PAYGO system in 1997, with a mixed pension system consisting of three pillars.

Pillar I consists of a social pooling pillar (public benefit) and a fully funded individual account. The objective of the social pooling pillar is to ensure a minimum standard of living above the poverty line for all old people. It is financed on a pay-as-you-go-basis. Pillar II consists of a contribution which is voluntary and financed either by the employer and/or employee. Finally, Pillar III is an individual account financed from voluntary contributions by employees. (A more detailed description of the current system is provided in the Annex).

In spite of more than one decade since the reform was implemented, many of the problems that plagued the PAYGO system remain unresolved.

The analysis of the pension reform outcomes in Latin America in terms of coverage, fiscal performance can provide useful insights for the Chinese case since both cases share important similarities.

For one thing, as with Latin America, the existence of structural constraints in China, such as its high degree of labor market informality, represent a significant obstacle to the success of the pension reform in terms of coverage. In both cases, the formalization of the labor market is a prerequisite for pension reform success. In the case of China, labor market precariousness is magnified by the sheer size of its rural population and the growing migration flows from rural to urban areas.

5.1 Issues regarding the expansion of (quality) coverage

Achieving a larger coverage rate of the pension system is still a major challenge in China. In the first place, the voluntary pension insurance scheme in place for rural workers –which constitute the majority of employment at 63%- has a coverage rate of only 10.9%. The system in place for urban workers -the one on which the reform process concentrated- achieved a coverage rate of 50% in 2006, up from 41.7% in 1997.²⁶ Despite this increase, it is not clear that relying only on a reform strategy centered on the contributory scheme is enough in order to guarantee the adequate insurance of the old age population. The Latin American experiences have shown that there may be structural limits to the possibilities for extending old age insurance by means of contributory schemes and it is worth considering if these same limits might be present in China. Recall the logic behind the reforms introducing a fully funded component: a tighter link between benefits and contributions -introduced through an individual capitalization account - will affect positively the incentives of workers to contribute, thus inducing the “formalization” of the labor force and therefore raising contributory coverage (see section 1).

In the Chinese case, the lack of positive incentives seems to be still in place; the link between contributions and future benefits remains diffuse as a result of “empty accounts” (see Annex 1). But even if these problems are corrected and positive incentives on contributions indeed become important, there still may be structural barriers preventing contributions from reacting to these incentives.

The structure of labor markets and the close relationship between an individual’s type of labor-market participation and his/her contributory conduct proved to be a key constraint to the possibility of expanding contributory coverage in Latin America. In China, informal sector employment accounts for almost half of total urban employment and is the fastest growing segment of the urban labor market (Jütting and Xenogiani, 2007). With rural migration to cities on the rise –the annual increase in the number of rural migrants averaged 15% from 1998 to 2004- it is not difficult to speculate that pressures on the labor market may lead to even larger informality (Jütting and Xenogiani, 2007).

²⁶ Figures correspond to 2006 calculated from China Statistical Yearbook (2007). The coverage rate of 50% is calculated as the number of urban contributors to the pension system over the total urban employment.

Besides, even if a fraction of informal workers moves at some time to formal employment and becomes affiliate to the pension system, this might not guarantee their adequate insurance against old-age poverty. The Latin American experience showed that people that join the formal labor force lately, or intermittently, achieve low contribution densities. Moreover, since contributions at the early working ages are the most relevant (they are compounded for a longer period than late contributions) individuals with a late start in their contribution history will probably accumulate low levels of savings in their individual accounts. So in practice, as it happened in the Latin American experiences revised, even among affiliates to the contributory system, a proportion of them may end up inadequately insured in the old age.

Some of them are likely to either not be able to comply with the minimum number of contributions required to qualify for a contributory pension and/or accumulate insufficient funds in their individual accounts to guarantee them an adequate pension level.

In the Latin American experiences, another barrier to the expansion of contributory was the low savings capacity of the population. This however does not appear to be the case in the Chinese experience since Chinese families' savings rates are comparatively very high, even in relation to developed countries. Household savings in percent of GDP are at 16% in China, compared to 10.8% in France, 8.2% in Japan, 4.5% in Korea and 4.8% in the United States. In terms of households' disposable income, the saving rate has risen from about 5% before 1978 to around 25% in 2004 with the figure is slightly higher for rural households than for urban ones (Kuijs, 2006).

5.2. Issues regarding the fiscal requirements of the pension system during and after reform

5.2.1. Transition cost

In the Chinese mixed reform there was no recognition of past contributions to the old system because the public system ("social pool") is itself the first tier of the new mixed system and pays benefits to all retirees (see Annex). Therefore the transition cost in the Chinese case is given only by the operating deficit of the public system.

Here, the same as in Costa Rica, there was no actual deviation of contributions to fund the individual accounts because these are funded from employee contributions which were put in place with the reforms and not diverted from the social pool. The difference is that in Costa Rica revenues of the public system are enough to pay for its pension expenditures (and the parametric reform implemented ensured that this was the

case for a longer time). In China on the contrary, there is a transition period until the system matures, in which revenues fall well below expenditures.

The social pool continues paying pensions to the “old men” according to the old generous benefit rules (an average replacement rate of 80%) and it also has to pay *transition pensions* to “middle men” to make up for the years during which they were not contributing to the individual accounts (see Annex 1). As a consequence, the operating deficit that emerges has to be covered by fiscal transfers.²⁷ As the system matures, and no “old men” and “middle men” remain, these obligations will disappear and the social pool will only be paying first tier benefits to all retirees according to the *new* rules. Only then will the average replacement rate paid by the public tier have converged to the new lower target level set by the reforms.

The magnitude of the Chinese transition cost will basically depend on how long the transition period will be, this is for how long will the old and new system will coexist. Some estimates suggest that that the transition period will not be completed until 2030 and only by that time will the new program be completely built in (Chen, 2004).

5.2.2. Other fiscal costs

By supposedly inducing the formalization of the labor market and increasing contributory coverage, structural reforms introducing a funded component are intended to reduce the need for public expenditure on non-contributory assistance pensions and minimum pension guarantees. Nevertheless the Latin American experiences analyzed showed that this is not necessarily the case. Labor market issues leading to low contribution densities may leave a vast proportion of affiliates inadequately covered by the contributory pillar and therefore fiscal requirements from the non-contributory pillar will continue after the reform, compounding the budgetary pressures arising from transition costs.

For the reasons discussed in section 4.2 above, it could be a possibility that some affiliates to the contributory system end up with densities too low to comply with the regulatory minimum years of contributions. The fiscal requirements stemming from non-

²⁷ Although the gap is not evident when looking at the overall balance of the basic pension system -this one exhibits an overall surplus over the years as reported in Salditt et al (2007)- it has to be borne in mind that the revenue side of the figure not only includes contribution revenue but also income from Government budget allocations and subsidies as well as other sources (China Statistical Yearbook 2007 explanatory notes). The existence of a financial gap is therefore given implicitly by the need for these extra transfers to some local pension pools that run deficits and cannot cover their pension obligations. Government subsidies stood at 0.2% of GDP in 2000 while in 2007 they had increased to 0.5% of GDP (Ma and Zhai, 2001; National Bureau of Statistics). Moreover, the accumulation of empty individual accounts in a large number of provinces also reflected the insufficiency of contributions to cover expenditures of some social pools and hence the utilization of individual account balances to help close these gaps.

contributory social assistance pensions for all of them should be put into the fiscal equation.

For individuals managing to comply with the required number of contributions, it may be the case that a late contribution start or an intermittent contributory history causes the funds accumulated in their individual account to be too low to guarantee them the replacement rate expected by the reform (see Annex). The Chinese Government could end up having to “top-up” their pensions in order to guarantee them a minimum standard of living. Minimum pension guarantees for retirees of the contributory system, either explicit as in the Chilean case, or ex-post as in the Argentine one, should be acknowledged as another contingent Government liability under the Chinese reformed system.

6. Conclusions

Pension systems generally comprise contributory and non-contributory schemes. Pension reform in Latin America was centered mainly on the contributory system and incorporated a fully funded component of saving inside individual accounts. This was premised on the belief that positive incentives resulting from a tighter link between contributions and benefits would i) bring about the formalization of the labor market therefore increasing contributory coverage ii) reduce (in the long term) the fiscal requirements stemming from the reformed system by shifting the economic and financial risks of pension provision –totally or in part- from the State to the workers themselves.

Nevertheless the limited savings capacity of the population together with the precarious labor markets in the region severely limited the potential for success of this strategy.

In the first place, in spite of the reforms, to this day, a large proportion of the population remains inadequately covered by the contributory system. This showed that focusing the reform strategies solely on the contributory element is insufficient to guarantee the adequate coverage of the population in the old-age. In fact, the analysis leads to the conclusion that the non-contributory element is an essential part of any pension system and it must be contemplated in any reform strategy that seeks to provide universal coverage. In fact, the analysis shows that market driven incentives by themselves cannot solve the pension problem unless complemented by a non-market solidarity component.

In the second place, the performance in terms of fiscal requirements was worse than expected. Transition costs proved to be large and long lasting. These costs were in turn compounded by increasing budgetary pressures stemming from the solidarity component as a result of the failure of the reforms to increase coverage by means of the contributory scheme.

These conclusions are relevant for a country like China whose labor markets have an important share of informality, with a large rural population migrating to cities, and an absence of a history of clearly defined market incentive systems. These labor market issues leading to low contribution densities may leave a vast proportion of affiliates inadequately covered by the contributory pillar and therefore fiscal requirements from the non-contributory pillar will continue after the reform, compounding the budgetary pressures arising from transition costs.

Annex: Brief description of the Chinese pension reform

Broadly speaking, there are three types of government sponsored pension systems currently operating in China – a) The Enterprise Old Age Insurance program, a mandatory system applicable to all kinds of *urban* enterprises and their employees as well as individual workers in *urban* areas, b) a voluntary pension insurance system for rural workers and c) special occupational schemes for civil servants and employees of state organizations and institutions (Sin, 2005).

The Chinese pension reform process started in the mid 80's and it was centered in the system in place for urban workers.²⁸ It was in 1997 that the system was revised to what constitutes the basis of the current scheme: a mixed system comprising a compulsory first pillar and two voluntary pillars of saving in individual accounts (Salditt et al, 2007)²⁹.

The mixed character of the scheme is given by the mandatory first pillar since this one combines a public “*social pool*” designed to work on a PAYGO basis with a fully funded component of individually capitalized accounts.

The PAYGO social pool ensures a flat replacement rate of 20% of local average wage (provided the worker has at least 15 years of contributions) plus an extra 0.6% for each additional year contributed until 30% is reached (World Bank, 2006; Chen, 2004 and Sin 2005).³⁰ The individual account has a target replacement rate of 24.2% based on the assumption of 15 years of continuing contribution (Salditt et al, 2007).³¹ Employee contributions –which exist only since the reform process put them in place in 1991- fund these individual accounts (Chen, 2004).

In practice however, the funded nature of the individual accounts has not been respected in all cases and some individual accounts became “notional” in the sense of “empty”. This happened as a result of individual savings being applied to pay existing pensioners when contributions were insufficient for this purpose. Since contributions to the social pool and to the individual account were deposited in the same government bank accounts, local governments routinely “borrowed” individual account contributions to cover cash shortfalls in social pools (Wang, 2006). In 2000 a State Council document mandated the separate administration of accounts and moreover, since 2006, the Government has been making contributions to individual accounts in some provinces in

²⁸ Urban workers currently represent 37% of total employment.

²⁹ Underlying the pension system is the National Social Security Fund, established in 2000, as a long -term strategic reserve for future social security expenditures. This fund is managed by a public agency -the National Council for Social Security Funds- and is accumulated through budget allocations and sale of state-owned shares, among other sources (Salditt et al, 2007).

³⁰ A State Council document of 2006 has changed the factor of 0.6% to 1% of the ratio of own wage to average wage (Sin, 2006).

³¹ The factor of 120 is based on an assumed average post-retirement lifetime of 120 months but when a pensioner lives longer the benefits continue to be paid at the same rate out of the social pool. It has proved to be underestimated and therefore some pilot projects have had it adjusted in order to bring it in line with average local lifetime expectancies at retirement (Salditt et al 2008).

order to “backfill” them and give them back their fully funded attribute (OECD China country profile, 2007).

In the Chinese case, “*old men*” were not affected by the reform and remained entitled to benefits as determined by the old system (an average replacement rate of 80% paid by the public social pool). For “*new men*”, the new mixed system was compulsory and so their benefits are determined according to the new rules discussed above. Finally for “*middle men*” the new mixed system was also compulsory but their benefits will be a mixture of the new and old systems. They will receive the same two components as the “*new men*” and on top of that a “*transition pension*” paid by the social pool. As “*middle men*” have less years ahead of contributions into their individual accounts than “*new men*”, the transition pension makes up for the years during which they did not contribute to the individual account.³² In practice, the effective replacement rate for the “*middle men*” is estimated to be similar to that of “*new men*”, around 60 % or higher.³³

³² The transition pension is calculated as 1.72% of the average wage in the final working year for each year of service before the reform date (1997) (Chen, 2004).

³³ See studies reviewed in Dunaway and Arora (2007).

References

Acuña, R.R. & Iglesias, A.P. (2000) La Reforma a las Pensiones en Larraín, F. & Vergara, R. (2000) eds. La transformación Económica de Chile. Santiago: Centro de Estudios Públicos. Pp.431-490.

AIOS (International Association of Pension Funds' Supervisory Organisations), <http://www.aiosfp.org/>

Arenas de Mesa, Alberto, et al. (2006), "The Chilean Pension Reform Turns 25: Lessons from the Social Protection Survey", Pension Research Council Working Paper 2006-9, Wharton School, University of Pennsylvania.

Arza, Camila (2008), Pension reform in Latin America: Distributional principles, inequalities and alternative policy options. Journal of Latin American Studies, Volume 40, Issue 1, pp. 1–28.

Asher, Mukul and Deepa Vasudevan, (2008), "Rethinking Pension Reforms in Chile: Implications for Developing Asia", available in: <http://www.spp.nus.edu.sg/wp/2008/wp0807.pdf>

BBVA Pensions Observatory (2008), "Ajustes al sistema de pensiones chileno", available in: http://serviciodeestudios.bbva.com/TLBB/fbin/ETEND_080331_pensionsobservatory_02_tcm268-163171.pdf

Berstein Solange, Larrain Guillermo and Francisco Pino (2005), "Cobertura, densidad y pensiones en Chile: Proyecciones a 20 años plazo", Document No. 12 of Series Documentos de Trabajo, Superintendencia de Administradoras de Fondos de Pensiones de Chile.

Bucheli, Marisa, Forteza, Alvaro, Rossi, I. and Natalia Ferreira-Coimbra, (2005), "El acceso a la jubilación o pensión en Uruguay: ¿cuántos y quiénes lo lograrían?", ECLAC Montevideo and CEPAL/GTZ project "Desarrollo y equidad social en América Latina y el Caribe".

Castiñeira, Ramiro, (2007), "El Impacto Fiscal de la Reforma Previsional". Special Report No. 376, August 2007, Econométrica S.A. <http://www.econometrica.com.ar/>

Cetrángolo, O. and Carlos Grushka (2008), "Perspectivas previsionales en Argentina y su financiamiento tras la expansión de la cobertura", *Financiamiento del desarrollo series*, No. XX, Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC).

Cetrángolo, O. and Carlos Grushka (2004), “Sistema previsional argentino: crisis, reforma y crisis de la reforma”, *Financiamiento del desarrollo series*, No. 151 (LC/L.2219-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), December.

Chen, Vivian Y., (2004), “A Macro Analysis of China Pension Pooling System Incentive Issues and Financial Problem”, International Conference on Pensions in Asia: Incentives, Compliance and Their Role in Retirement. Available in:
<http://www.ier.hit-u.ac.jp/pie/Japanese/discussionpaper/dp2003/dp195/text.pdf>

China Statistical Yearbook (2007), data available in:
<http://www.stats.gov.cn/english/statisticaldata/yearlydata/>

Cuenta de Inversión, Contaduría General de la Nación, Argentina, Ministry of Economy and Production. (various years). Available in:
<http://www.mecon.gov.ar/hacienda/cgn/cuenta/>

Dunaway, Steve and Vivek Arora, (2007), “Pension Reform in China: The Need for a New Approach”, International Monetary Fund (IMF) Working Paper, WP/07/109. Washington DC.

ECLAC (Economic Commission for Latin America and the Caribbean), (2006), “Shaping the Future of Social Protection: Access, Financing and Solidarity”. Santiago, Chile. Available in: <http://www.eclac.org/publicaciones/xml/0/24080/lcg2294i.pdf>

Fajnzylber, Eduardo and Andrea Repetto, (2008), “Instrumentos Alternativos para la Protección Social”, mimeo.

Ferreira-Coimbra, Natalia and Alvaro Forteza, (2005). "Can Latin America Protect the Elderly with Non-Contributory Programmes? The Case of Uruguay," *Development Policy Review*, Overseas Development Institute, vol. 23(6), pages 683-702, November.

Gill, Indermit, Packard, Truman, and Juan Yermo, (2005), “ Keeping the promise of old age income security in Latin America”, World Bank, Washington DC.

IADB News (26th February 2008), available in:
<http://www.iadb.org/NEWS/detail.cfm?language=English&id=4433>

ILO (International Labour Organization) Labour Overview, (2006), available in:
http://www.oit.org.pe/WDMS/bib/publ/panorama/labour_overview_06.pdf

ILO (International Labor Organization) (2005), “*Protección social en Argentina: financiamiento, cobertura y desempeño, 1990-2003*”, Fabio M. Bertranou y Damián Bonari (coords.), ILO, Santiago, Chile.

Informe de Diagnóstico para el Consejo Asesor para la Reforma Previsional, (2006), available in: <http://www.consejoreformaprevisional.cl/documentos/tema-6-compromisos-fiscales.pdf>

Jütting, Johannes and Theodora Xenogiani (2007), “Informal Employment and Internal Migration: The case of China”, OECD Presentation, available in: <http://www.oecd.org/dataoecd/27/54/39883049.ppt>

Kuijs, Louis, (2006), “How Will China's Saving-Investment Balance Evolve?. World Bank Policy Research Working Paper No. 3958.

Larraín, F. & Vergara, R. (2000) eds. La transformación Económica de Chile. Santiago: Centro de Estudios Públicos.

Ma, Jun and Fan Zhai, (2001), “Financing China’s Pension Reform” presented at the Conference on Financial Sector Reform in China, September 11-13, 2001 available in: http://www.hks.harvard.edu/mrcbg/Conferences/financial_sector/FinancingChinasPensionReform.pdf

Martinez Franzoni, Juliana, (2008), “Costa Rica’s Pension Reform: A Decade of Negotiated Incremental Change”, in Lessons from Pension Reforms in the Americas, edited by Stephen J. Kay and Tapen Sinha, Oxford University Press.

Mesa-Lago, Carmelo (2004), “*Evaluación de un cuarto de siglo de reformas estructurales de pensiones en América Latina*”. ECLAC Review No. 84 (December), ECLAC, Santiago, Chile.

Mesa-Lago, Carmelo (2004a), “Las reformas de pensiones en América Latina y su impacto en los principios de la seguridad social”, *Financiamiento del desarrollo series*, No. 144 (LC/L.2090-P/E), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC).

Mesa-Lago, Carmelo (2002a), “Models of Development, Social Policy and Reform in Latin America”, document prepared for the United Nations Research Institute for Social Development (UNRISD) project on Social Policy in a Development Context, UNRISD, Geneva.

Mesa-Lago, Carmelo (2002b), “Reassessing Pension Reform in Chile and Other Countries in Latin America”, University of Pittsburgh, available in: http://www.adb.org/Documents/Events/2002/SocialProtection/lago_paper.pdf

Mesa-Lago, Carmelo (2000), “Estudio comparativo de los costos fiscales en la transición de ocho reformas de pensiones en América Latina”, *Financiamiento del desarrollo series*, No. 93 (LC/L.1344-P/E), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), March. United Nations publication, Sales No. S.00.II.G.29.

Mesa-Lago Carmelo, (1998): “La reforma estructural de pensiones en América Latina: tipología, comprobación de supuestos y enseñanzas”. In *Pensiones en América Latina: dos décadas de reformas*. ILO (International Labor Organization) , Lima, 1998.

Mueller, Katherine, (2001), Public-Private Interaction in the Structural Pension Reform in Eastern Europe and Latin America, report for the OECD Insurance and Private Pensions Compendium, available in: <http://www.oecd.org/dataoecd/62/6/1816289.doc>

National Bureau of Statistics (NBS), China, “Statistical Communiqué on Labor and Social Security Undertakings in 2007”,. <http://www.stats.gov.cn/english/>

OECD China Country Profile, (2007), available in: <http://www.oecd.org/dataoecd/53/46/38766497.pdf>

Packard, Truman G., (2001), “Is There a Positive Incentive Effect from Privatizing Social Security? Evidence from Latin America”, World Bank Working Paper N° 2719.

Queisser, Monika (1998) “The Second-Generation Pension Reforms in Latin America”, OECD Ageing Working Paper (AWP) 5.4, available in: <http://www.oecd.org/dataoecd/21/39/2429287.pdf>

Rodríguez Herrera, Adolfo and Fabio Durán Valverde, (2000), “Los Costos de la Transición en un Régimen de Beneficio Definido”, *Financiamiento del desarrollo series*, No. 100, Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC).

Rofman, Rafael and Leonardo Lucchetti, (2006), “Pension systems in Latin America: Concepts and measurements of Coverage”, World Bank, Social Protection Discussion Papers Nro. 0616, Washington, DC.

Rofman, Rafael, (2004), “The Economic Crisis in Argentina and its Impacts on the Pension System”, available in: <http://www.iadb.org/sds/doc/IFM-Rofman-Pension-WP-2004-E.pdf>

Salditt, Felix, Whiteford, Peter and Willem Adema, (2008), “Pension reform in China”, *International Social Security Review*, Volume 61, Number 3, July/September 2008 , pp. 47-71(25).

Salditt, Felix, Whiteford, Peter and Willem Adema (2007) “Pension Reform in China: Progress and Prospects” OECD Social, Employment and Migration Working Papers No. 53.

Sin, Yvonne (2006), "Evolution of pension reforms in China", Powerpoint presentation, available in: http://siteresources.worldbank.org/INTPENSIONS/Resources/395443-1142535808399/2329423-1153494626907/Sin_ChinaPensionReforms.pdf

Sin, Yvonne., 2005, "China: Pension Liabilities and Reform Options for Old Age Insurance," Working Paper No. 2005-1, World Bank, Washington DC.

Uthoff, Andras. 2001. "La reforma del sistema de pensiones en Chile: desafíos pendientes." *Financiamiento del desarrollo series*, No. 112. Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC).

Wang, Dewen, (2006), "China's Urban and Rural Old Age Security System: Challenges and Options" *China & World Economy*, Volume 14, Number 1, February 2006 , pp. 102-116(15)

World Bank, 2006, China: Evaluation of the Liaoning Social Security Reform Pilot, Report No. 38183-CN, December.

Zviniene, Asta and Truman G. Packard, (2004), "A Simulation Of Social Security Reforms in Latin America: What Has Been Gained?", Background paper for regional study on social security reform, Office of the Chief Economist, Latin America and Caribbean region, The World Bank, Washington.