Pension regimes in Latin American emerging countries: do and can individual capitalization schemes and PAYG systems coexist?

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Pension Regimes in Latin American Emerging Countries: Do and Can Individual Capitalization Schemes and PAYG Systems Coexist?

Regímenes Jubilatorios en países emergentes de Latinoamérica: Pueden coexistir los sistemas de capitalización individual y los de reparto?

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Abstract

Experts have been pointing out that, although fully funded pension schemes implemented by several Latin American countries gathered political rejection and experienced important setbacks, they were resorted to in response to the problems faced in the eighties and the nineties by unfunded regimes. In this connection, the idea is that both individual capitalization and PAYG systems can and should coexist provided that efficacy in ensuring expected levels of coverage, equity and efficiency and in guaranteeing also long run financial sustainability be appropriately reached.Nevertheless, several preconditions appear necessary for the preceding scenario to be possible: coverage and tax compliance need to be expanded in both regimes particularly to include the self employed workers, individual capitalization needs be improved and turned more attractive by reducing administrative and commercial costs and by offering a more varied portfolio composition concerning instruments and risk levels. Finally, despite that competition between regimes, by permitting affiliates to switch from one to another, promotes efficiency, non contributory pensions will still be necessary, on grounds of distributional, solidarity and equity goals.

Key words: Individual Capitalization, PAYG, Non Contributory Regimes, Coverage, Tax Compliance, Financial Sustainability.

JEL Classification: H55

Resumen

Diversos expertos señalaron que, aunque los esquemas jubilatorios de capitalización sufrieron rechazos políticos y experimentaron retrocesos y cambios en varios países latinoamericanos, la razón de su implementación se debió a los importantes problemas que se observaron en los ochenta y noventa con los sistemas jubilatorios basados en sistemas de reparto. En este sentido, existe la idea de que tanto la capitalización individual como los sistemas de reparto pueden y debieran coexistir siempre que se alcance eficacia en asegurar niveles esperados de cobertura, equidad y eficiencia y en garantizar también la sostenibilidad financiera de largo plazo. Sin embargo, el mencionado escenario hace necesario que se cumplan un conjunto de precondiciones: la cobertura y el cumplimiento tributario debe incrementarse en ambos sistemas incluyendo particularmente a los trabajadores independientes, la capitalización individual debe a su vez mejorarse y tornarse más atractiva vía la reducción de los costos administrativos y comerciales y la oferta de una composición más variada de las carteras tanto en instrumentos como en niveles de riesgo. Finalmente, no obstante que la competencia entre regímenes –al permitir que los afiliados circulen libremente de uno hacia el otro- promueve la eficiencia, los sistemas no contributivos de jubilación serán todavía necesarios, en términos de objetivos distribucionales, de solidaridad y equidad.

Palabras clave: Capitalización Individual, Sistemas de Reparto, Sistemas No Contributivos, Cobertura, Cumplimiento Tributario, Sostenibilidad Financiera.

Clasificación JEL: H55

I. Introduction

Theoretical frameworks based on the "life cycle hypothesis" were generally resorted to in order to analyze the impact of social security systems upon savings. The idea, originally due to Modigliani and Brumberg and later summarized and extended in the paper by Ando and Modigliani (1963), basically stated that an individual consumer's utility was a function of his/her own aggregate consumption in current and future periods. As is to be expected, the approach acknowledged that individuals maximized consumption subject to their budget constraint; that is, subject to their lifetime resources, which in turn summed current and discounted future earnings and current net worth.

The plain introduction of social security regimes[1] within the ´life cycle hypothesis´ is expected to affect individual's savings as the payment of benefits needs social security taxes to be collected and this will immediately cause the current disposable income to shrink by the amount of the payroll tax; therefore, the idea of savings' reduction taking place seems thus to rest on the following two accounts: the reduction of disposable income and the ultra rational idea that payroll taxes are perfectly substituting the impact of private saving fall upon future consumption.

Nevertheless, the implication that social security regimes always have a negative impact upon savings[2] has not gone unchallenged in the related literature, as soon as one departs from the framework of analysis provided by simpler versions of the life cycle model. Feldstein [1974] himself quoted authors' yielding empirical evidence on that people covered by fully funded regimes save even more than those uncovered individuals, based on a 'recognition effect'[3] emerging when people entering a private pension plan perceive the benefits of saving for their old age (educational effect) and change their utility function, or a 'goal gradient hypothesis'[4] whereby efforts are intensified the closer people are to set goals.

Blinder (1982) interestingly added to the theoretical discussion by raising the point that while expansions in private pensions, in the presence of capital market imperfections, would increase savings, social security systems of the PAYG system (based on the Modigliani-Miller Theorem) would likely not as savings in the latter case were solely aimed at financing consumption on retirement for what, and with no borrowing restraints, while private (funded) pension plans could not have any effect upon savings, social security taxes in unfunded regimes would in fact reduce savings, as shown in quoted Feldstein's developments.

Let alone the raised controversy above the likely effects of funded or unfunded systems upon aggregate savings, the Latin American region experienced in the eighties and the nineties the widespread adoption of funded systems (individual capitalization accounts) for reasons other than an expected positive impact upon savings and more related at the time with the collapse of PAYG regimes due to public sector's increasing deficits and debt

1. As will be shown, results more clearly depict the case of unfunded PAYG regimes.

2. This assertion obviously depicts the case of unfunded PAYG systems.

3. First stated by Cagan (1965).

4. See Katona (1964), p. 4.

accompanied by high inflation levels and low working labour/retirees ratios, as developed in Section III below. Nevertheless, the initial optimism placed upon funded systems gradually turned into skepticism as soon as evidences showed that the performance of individual capitalization accounts yielded in practice results that fell short of people's expectations, as shown in Section IV.

As the matter is of the outmost importance for the Region, this survey aims to contribute to the discussion of appropriate pension systems, for what the performance of both the PAYG and the Individual Capitalization Scheme is critically reviewed for eight developing and emerging countries: Argentina, Bolivia, Brazil, Chile, Colombia, México, Perú and Uruguay, in line with what Bertranou et al (2009) called the First Round of Reforms. This assessment purports not only to point out the regimes' shortages and drawbacks but also to ascertain whether both can be jointly and advantageously used when optimizing the working of pension systems is the upheld objective.

II. The Use of Defined Benefit and Defined Contribution Pension Regimes by Selected Latin American Countries

As Boadway and Cuff (2005) pointed out, contributory pension schemes basically aim at ensuring –through some coercion- that income earners save out of their incomes, as the presumption exists that otherwise this may not happen voluntarily. In this regard, the implied government intervention spreads over a range of matters such as regulation of alternative regimes, coverage, employees and employers' contributions, legal requirements for acceding to benefits, pension payments' form, public and private participation, composition of fund assets, schemes' administrative arrangements and so on.

Needless to emphasize, a major feature that characterizes pension regimes is whether they are funded or unfunded. In the first case, pension benefits are paid out of a fund, integrated with assets stemming from the accumulation of past or current contributions and whose size, determined on the basis of correct actuarial procedures[5], should permit to meet future liabilities; unfunded regimes, such as PAYG, rely on the contrary on the explicit principle of intergenerational solidarity in so far as all active labour's current contributions are devoted to finance benefits paid to individuals that, let alone compliance of legal requirements, have reached the retirement age.

5. Boadway and Cuff (2005, p. 101) pointed out the fact that actuarial fairness of fully funded regimes could refer to the accounts of each individual contributor but also to the regime as an aggregate but not for all persons.

In either case, pension regimes may fall in the categories of defined-contribution or defined-benefit depending on whether workers are subject to predetermined contributions or benefits. A defined-contribution regime implies that workers periodically (monthly) pay a predetermined percentage of earnings and therefore their pension payments will result from the accumulated contributions plus the expected investment's yield whereas in the second case they will accede –on retirement- to predetermined benefit levels based on income earned during working life[6]. Let it be noticed that different risk levels are involved for the parties depending on the chosen variant; thus, individuals undertake more risk under defined-contribution as the size of their pension benefits will be highly related to the rate of return of accumulated contributions; contrariwise, pension benefit providers (either public or private ones) are more exposed to risks in reason of the liability imposed upon them by the defined-benefit system. A worth mentioning point refers to the impact of inflationary risk that may hurt defined-benefits unless these are indexed and also individual accounts in defined-contribution plans that may have eroded their future values due to the negative impact of inflationary situations caused by government policies or any other cause.

Finally, defined-contribution or defined-benefit systems resort to various forms of financing the most common being employees or employers' contribution or a combination of both which are normally levied as a fixed percentage of wages. Nevertheless, and particularly in Latin American countries, pension systems are seen to permanently increase their dependence on budgetary tax resources (mainly Value Added and Income Tax); the reasons for that should mainly be sought at the large share of informal labour as well as the marked contributors' tax infidelity, particularly in the group of self employed workers. The need to resort to fiscal resources –other than payroll taxes- is also explained by important social policies of inclusion and poverty checking whereby governments set transfer programmes for supporting the elderly with no incomes.

Apart from the characterization of the different pension systems, a far more important policy matter, with which a number of specialists have deal with[7], refers to the economic effects of contributory pension regimes upon labour supply and demand, individual and aggregate savings and capital

6. There are several variants for computing the ratio of pension benefits to income earned: income of the last years before retirement, the highest earning years or a combination of both.

7. See for instance Baillieu and Reisin (1997), Boadway and Cuff (2005), Faruqee and Husain (1994), Feldstein (1974), Raddatz and Schmukler (2008), Rezk et al. (2009).

market furthering.[8] In this connection, labour supply may dwindle due to payroll taxes and their negative impact on wage incomes unless, and as Boadway and Cuff (2005) pointed out, benefits are directly related to contributions and these have an upper limit above which there is a nil marginal tax rate effect; a corollary of this is that while provident funds and pension plans are not expected to have an important effect upon labour supply, this conclusion is not straightaway applicable to public defined-benefit regimes. The impact of pension regimes on retirement age is not a linear one: in particular, the possibility of early retirement pensions tends to shrink labour supply to the extent that the pension size proves to be higher than the opportunity cost of staying (i.e additional contributions); on the other side, the retirement age will not be affected should actuarially well designed regimes operate. Also, the idea prevails that human capital accumulation will unlikely be affected by payroll schemes but would be favoured by provident funds from which individuals could draw resources for financing training. Finally, labour mobility will not generally be prevented if public pensions (such as PAYG) and provident funds grant their benefits at an individual level. Although subjects such as workers' mobility and cost of hiring somehow impact upon labour demand, the outstanding point here refers to employment effects of fully flexible labour markets versus those in which wage rigidities are important, as in the first case elasticities of demand and supply will determine how contributions will be absorbed both by employees and employers whereas if wage rigidities prevent shifting the tax burden to employees, employers may refrain from hiring additional labour.

Latin American countries, based on the European tradition of unfunded schemes and defined-benefits, traditionally ran PAYG regimes; however, and for reasons to be mentioned in the next section, they started to explore different alternatives in the last part of the 20 century and to experiencing advances as well as noticeable setbacks. In this connection, the ensuing Table 1 shows choices of eight selected Latin American emerging countries when resorting to one of the ensuing four variants for running their pension systems:

1. *A Single System*: In this case, affiliation is mandatory for all workers and contributions are channeled to the PAYG regime or to individual capitalization accounts in order to be administered by private firms or public bodies (pension fund administrators).

8. The economic impact of funded and unfunded regimes upon individual and aggregate saving and the capital market is dealt with in the next section.

Table 1: Operating Pension Systems

Countries	Year	Single System	Mixed Integrated System	Mixed In Competition	Others
Argentina	1994			x	
	2008	x			
Bolivia	1997			x	
	2010	x			
Brazil	1991				x
Chile	1981	x			
Colombia	1993			x	
Mexico	1997	x			
Peru	1993			x	
Uruguay	1995		x		

2. *Integrated Mixed System*: PAYG and individual capitalization regimes coexist and workers' contributions are distributed between both regimes as it is legally determined.

3. *Mixed System in Competence*: individual capitalization and PAYG compete for affiliations and contributions are totally directed to the regime chosen by employees.

4. *Others*: It refers to the case in which pillar 1 is mandatory and other options are open for pillar 2.

Argentina introduced in 1994 a mixed in competition system whereby labour and self employed workers could chose between the PAYG regime and individual capitalization accounts administered by private pension fund administrators. As of 2008, the system was suspended and the country returned to a single PAYG variant. Bolivia, for its part, somehow experienced a similar change the difference being that the mixed in competition scheme created in 1997 evolved into a capitalization regime in which workers' contributions started to be administered by a governmental body.

The mixed in competition regime (similar to those in Argentina and Bolivia) persists in Colombia and Peru whereas Uruguay adopted in 1995 a mixed integrated system whereby workers are compulsorily sent to the PAYG regime, if salaries do not exceed a fixed legal floor and to the individual capitalization accounts when salaries range between minima and maxima salary incomes. Contributions corresponding to salaries exceeding the compulsory upper limit can be voluntarily sent to the capitalization regime.

Finally Chile and Mexico, since 1981 and 1997 respectively, are the only two countries in the group that have a single mandatory system based on individual capitalization accounts.

III. Why Individual Capitalization Accounts became an alternative to PAYG Regimes in Latin America [9]

As of the eighties and the nineties, in the 20 century, several Latin American countries began to assess the convenience of substituting existing PAYG earning related pension schemes (as it happened with Chile's pioneering reforms) or adding (as in Argentina) privately managed fully funded pension systems –based on individual capitalization accounts- leaving however on contributors hands' (labour and self employed workers) the decision over the preferred system.

In some cases, the switch took place all of a sudden following bankruptcy situations faced by PAYG regimes, whose causes could be traced back to sharp inflationary processes and economic and demographic unbalances dwindling to unbearable levels the workers/retirees ratio and increasing existing pension regimes' deficits; the massive incorporation of beneficiaries (specially the self employed) through ad-hoc plans amounting to a bail out[10] and the channeling of pension resources to general fiscal revenues, in order to deal with the important deficits originated by a growing public spending and the difficulties in tax collection and budgetary financing, must also be accounted for at the moment of explaining the crisis of unfunded pension schemes.

It needs to be acknowledged also that a widespread fall in saving rates occurring by the time in many Latin American countries, must also be counted as an important motivation underlying substantial changes in pension systems, as the idea prevailed that the accumulation of pension fund assets would definitely encourage aggregate savings (Bailliu and Reisen, 1997) and contribute also to enlarge domestic capital stock markets (Reisen, 1997; Raddatz and Schmukler, 2008[11]).

9. Section III was taken from Rezk, Irace and Ricca (2009).

10. Those programmes, known as "moratorias", permitted contributors to enjoy the benefits after a limited number of years of contribution (smaller than the 35 legally required).

11. The paper by Raddatz and Schmukler is a particularly interesting one as the authors aim at shedding light on the very interesting debate of how pension funds affect capital markets´ development.

The economic appeal that individual capitalization schemes had upon policy makers, specially for their assumedly expected positive impact upon saving rates, must however be revised in the light of the very often ambiguous results found in the literature devoted to the analysis of several countries' recent experience. Thus, while some analysts of the micro and macroeconomic performance of pension systems concluded that fully funded pension schemes definitely contributed to enhancing private saving in countries like Chile and Singapore others found running counter evidences for Malaysia (see for instance Corsetti and Schmidt-Hebbel, 1996; Morandé, 1996; and Faruqee and Husain, 1994).

In the context of the American economy, Feldstein (1974) also analyzed the impact upon individuals' decision on saving of introducing social security systems; by resorting to a life cycle model, his econometric estimations showed that social security funds depressed personal savings.[12] Nevertheless, Feldstein also explored the implications of using an "extended life cycle model", allowing people to continue working after the age of 65 and in which the net impact of social security regimes upon aggregate savings fell short of being unambiguous.

It is to be noticed that the existing theoretical controversy with regard to the real impact of individual capitalization upon saving rates and capital formation is related to the Life Cycle Model's nature, whose conclusions sensitively react to changes in assumptions held, but also to the type of pension system referred to. Bailliu and Reisen's paper (1997) is in this regard worth mentioning as these authors also stressed the ambiguity of pension fund assets' effect upon saving depending for instance on whether there were taxed returns or liquidity constraints, for what they concluded that the sign of the relation between pension fund assets and saving was finally a matter of empirical resolution.

In dealing with the matter, Boadway and Cuff (2005) reflected the existing ambiguity in respect of the real effect of mandatory regimes upon aggregate saving, whose increase was deemed necessary to boost investment and, in turn, the growth rate. The analysis, built upon a dynamic version of the life-cycle model acknowledged in the first place that the financing form chosen for pensions could affect the saving rate either by affecting the average wealth of individuals in the pension regime or by respectively redistributing wealth among individuals in the same group (intra generational

12. Mainly based on the rational of a PAYG system, the idea was that the need of counting with savings for future consumption was averted by retirees´ guaranteed benefits financed through previously collected social security taxes.

transfers) or between different age groups (intergenerational transfers). The conclusion was that a fully funded scheme would not induce changes in the saving rate (and in turn in aggregate saving) unless a very high contribution rate were resorted to whereas an unfunded pay as you go system would decrease aggregate savings.[13]

The empirical treatment of the subject also posed interesting challenges, as shown by econometric attempts forced to dealing with the problem of a scarce number of degrees of freedom, this being explained by the relatively short existence of main fully funded pension regimes in the world and the consequent recourse to statistical series yielding information only for a limited number of periods. Grouping data for a set of countries and estimating coefficients by means of a fixed effect panel data model, in order to reflect included countries' specificities, became therefore an alternative to sort out the mentioned difficulty. [14]

IV. Features and Perfomance of Private Capitalization Regimes in the main Latin American Emerging Economies

The review of fully funded pension regimes in all the eight countries chosen[15], as well as the analysis of determined features regarding their investment portfolio structure and of some other related indicators intends to shed some light on individual capitalization' performance in the Region following something more than two decades since it came into being.[16]

A first feature deserving a comment is the relative size and evolution of pension fund assets, in terms of gross domestic product. As Graph 1 depicts for the period 1996-2006, the increasing paths show also differences in magnitude once countries are individually considered; thus, while the ratio reached in Chile more than 50%, it only reached 10% in average for the rest of the countries by the end of the period. Two main reasons can be accounted for

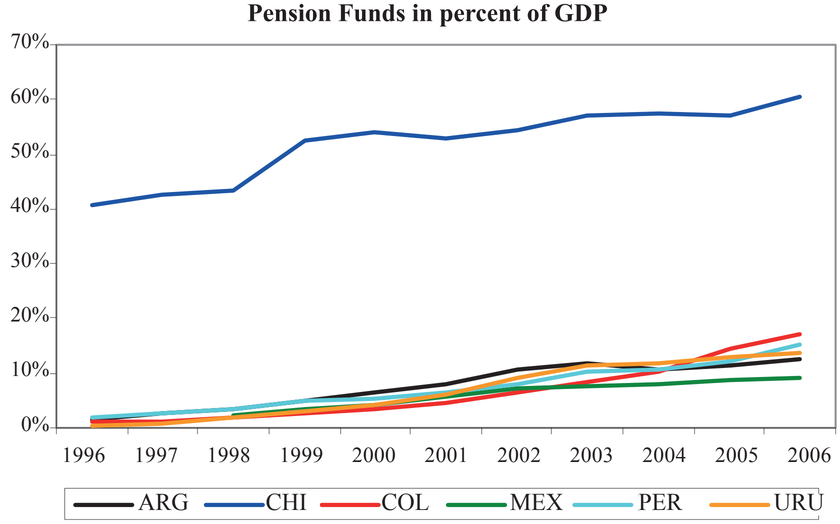
13. The situation becomes more complex when one intends to assess the impact of pension regimes upon individual saving as the outcome may depend on the type of assumptions held. In this regard, individuals may naturally be low savers, wages may not be flexible enough, individuals may be affected by the uncertainty of pension fund returns, individuals may save for reasons other than to smooth consumption, savings may be affected by pension plans that affect the decision to retire, etc.

14. See the empirical treatment due to Rezk et al. (2009).

15. Argentina, Bolivia, Brasil, Chile, Colombia, Mexico, Peru and Uruguay.

16. Except for Chile, where the system dates from 1981.

Graph 1
Pension Funds in percent of GDP



in explaining differences in percentages: in the first place, individual capitalization started much earlier in Chile for what the regime exhibits more maturity[17]; in the second place, individual capitalization was mandatory in Chile and Mexico whereas PAYG regimes in Argentina, Colombia and Peru have not been eliminated and competed with the former as people were allowed to choose. Uruguay presents in turn an interesting situation as inclusion in either of the two regimes depended on individuals' scale of income or wages[18].

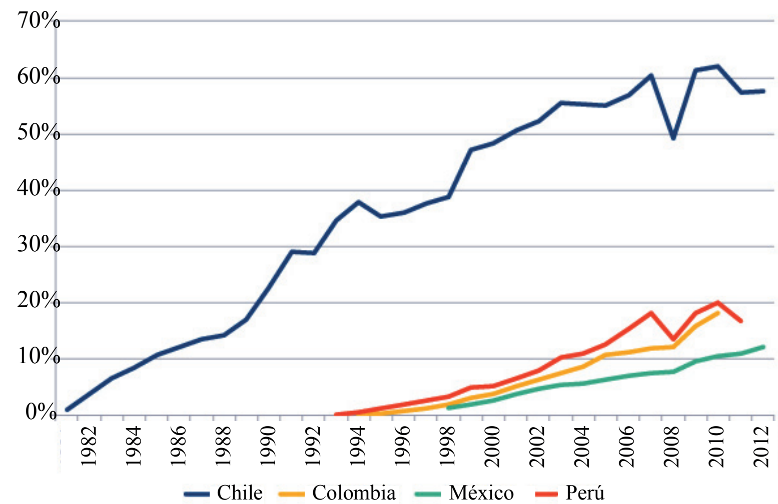
Graph 2, that depicts the evolution of funds (in terms of gross domestic products) beyond 2006 and up to 2012, permits to assert that pension funds kept increasing their participation with figures of 10% to almost 20% of product, with the exception of Chile that remained in 60%. Due to changes in their pension systems in 2008 and 2010 respectively, Argentina[19] and

17. Nevertheless, the assets´ yearly percentage growth is higher in the other five countries as suggested by Bailliu and Reisin (op.cit. page 23) due to the fact that, by being more recent, they have greater contributors/retirees ratios.

18. People can however express their decision to be included in one of them.

19. As is publicly known the Argentine Congress, following a project received from the Executive Branch, enacted in November 2008 a law to stop the privately managed fully funded pension scheme based on individual capitalization. From that moment on, the ANSES (Social Security National Administration) already managing the PAYG regime, took over exclusive responsibility for the collection of all social security taxes and the payment of pension benefits and for the management of the Sustainability Guarantee Fund composed at the time of the assets of the former capitalization system.

Graph 2
Pension Fund Assets in Percentage of GDP



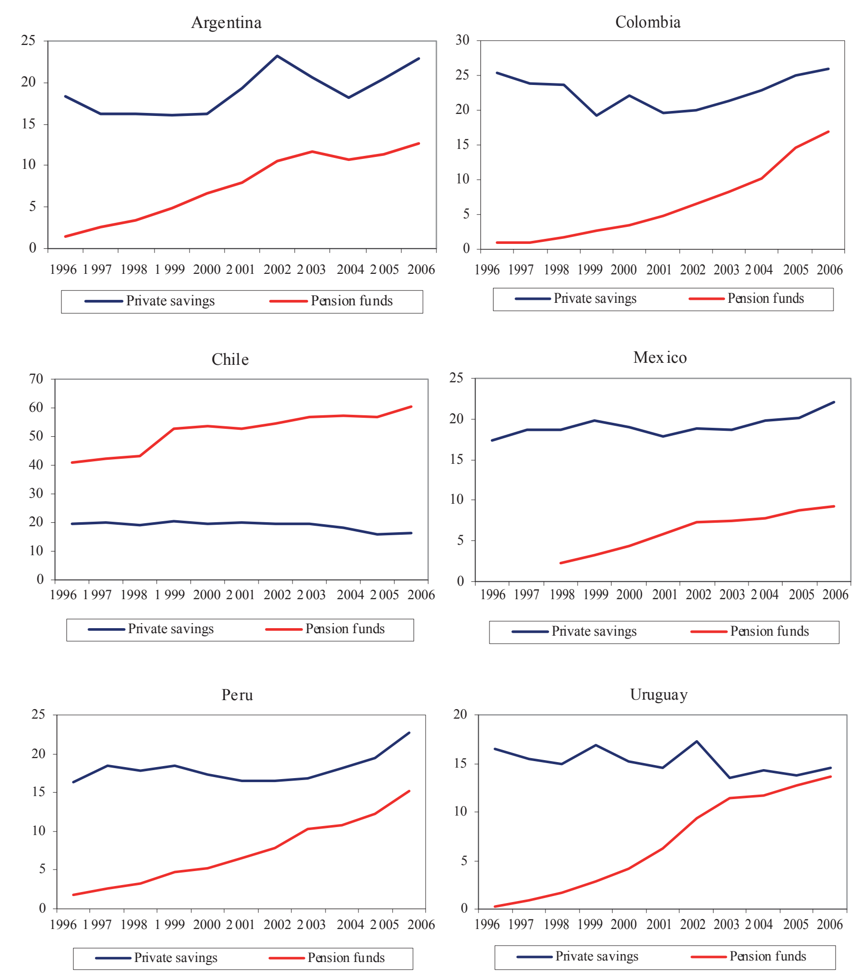
Bolivia are not represented in the graph; Brazil is –as mentioned above- a particular case as individual capitalization operates at the second pillar and close funds range between 17% and 20% of the product.

The matter discussed above made reference to the impact of funded pension systems upon aggregate saving formation, in relation to what it was assumed that unfunded systems stemming from the theoretical framework of the Life-Cycle Model were not expected to increase but rather decrease it. With respect to this, the following graphical display helps to visualize whether individual capitalization regimes implemented since the eighties in Argentina, Chile, Colombia, México, Peru and Uruguay were conducive to increasing aggregate saving in the period 1996-2006[20].

Figures in Graph 3 show that pension fund assets clearly dragged aggregate savings in all the countries, the effect being more visible generally after the fifth year of the regime implementation; Chile and Uruguay constituted the exception in so far as they seemed to reveal a negative relationship between both plots. Argentina was in particular a worth quoting case as aggregate private saving kept stable between 1997 and 2000 although gross

20. Graphs were taken from Acuña (2013) and from Rezk et al (2009) who also backed the graphical analysis with an econometric estimation of a panel data model one of whose purposes was to gather evidence about the role of fully funded regimes in enhancing aggregate saving.

Graph 3
Pension fund assets and aggregate private savings in percent of GDP, by country



domestic product shrank in these years as a consequence of an industrial recession lasting until 2001; it can be inferred therefore that the sustained growth shown by pension funds somehow helped to compensate a fall in private savings that would otherwise happened following the reduction of income.

As for the supposedly paradoxical Chilean case, the explanation can again be sought in that, due to the earlier regime implementation, the effect must have been stronger in the eighties when restrictions on foreign investment by the new pension funds existed.[21] In short, the stagnation and consequent small fall in aggregate savings in percent of gross domestic product must be looked at in the light of the banning lift in foreign investment, which is in turn confirmed by the diagram showing the latter's incidence in portfolios.

In seeking next an explanation for the Uruguayan case, the saving plot's pattern must somehow be reflecting a feature of the implemented system which notwithstanding the fact that it is compulsory for certain wage earner groups, inclusion by default is based on the individuals' income scale.

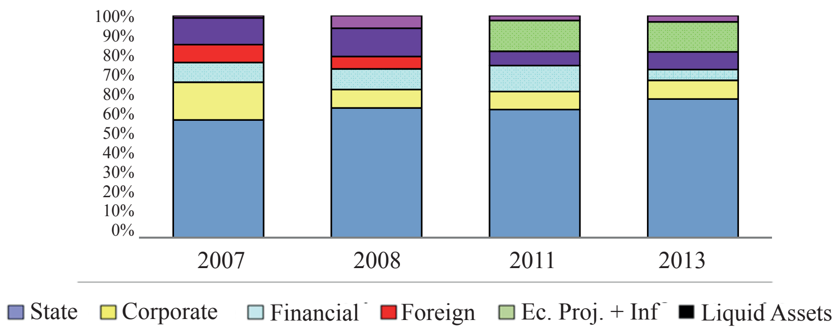
The variations and lack of similarities in portfolio structures, as shown by graphs 4 and 5 below, are the best examples of differences, in many cases significant ones, that can be found in national legislation concerning how pension fund assets can be invested. In particular, and even if it is taken for granted that public bonds will always be an important part of portfolios, countries often place a limit to their share in investment composition[22]. Despite this, countries have somehow managed to find shortcuts to the mentioned limitations, as it was particularly noticeable in the case of Argentina, whose legislation banned pension funds to invest in public bonds beyond 50% of the whole portfolio. Fiscal matters and the restructuring of public debt must be borne in mind when the excessive government bonds' participation in pension funds is analyzed in Argentina; in particular, severe credit restrictions preventing the access to foreign and domestic financing led the authorities to resort to pension funds which became forced lenders.

Worth quoting changes are however revealed by Graph 4, when comparing the situation while Argentina had the funded regime (2007-2008) with the one in which PAYG was reinstated and the Sustainability Guarantee Fund managed (2012-2013). In the first place, the section embodying investment in public bonds gradually increased up to 63% of total but the two following sections (corporate and financial assets) shrank and investment in foreign bonds disappeared and other assets in turn reduced drastically its share within the portfolio. In change, the governmental body managing the Fund (ANSES) started to finance a number of public projects included under the label of "productive projects and infrastructure" whose participation reaches 14% of the portfolio.

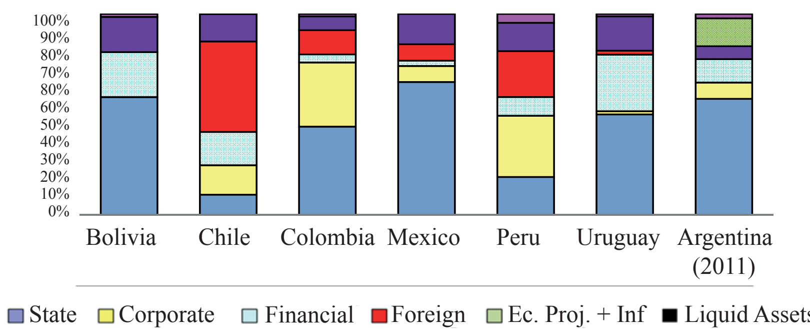
21. While Fontaine (1996) recalled that until 1989 Chilean regulations banned any international diversification of pension funds, Reisen (1997) in turn asserted that this restriction was crucial in explaining why the Chilean domestic capital market grew in size and depth despite an internal climate of debt crisis and uncertainty.

22 See National Legislation in the Appendix to this paper.

Graph 4
Argentina: Former Private Funds Portfolio (2007-2008) and PAYG Sustainability Guarantee Fund (2011-2013)



Graph 5
Structure of Fund Portfolios in some Latin American Countries (2010)



As for the rest of countries (Graph 5), Chile and Peru exhibit public bonds' lesser shares but while in the former the evolution shows a downturn trend there is a slight increase in participation in the latter country. The cases of Bolivia and Mexico are also noticeable in that public bonds participation in portfolios is practically overwhelming[23]; Uruguay, in turn, stabilized participations of public bonds in around 55% after experiencing shares as high as 90% in 2006 – 2007 whereas Colombia reflects in turn the average situation of 45%-50%.

23. Investment of Mexican pension funds in government bonds represented more than 90% in 1997, although they later stabilized in around 70%-80% for the rest of the period; the opposite took place in Uruguay as the initial participation rounding 60%-80% climbed to 80%-90% by the end of the considered period.

The participations of other portfolio components fell short of being stable, or similar among countries, throughout the period considered. In general, there has been a tendency, on the part of pension funds and except for Uruguay, to increase investment in foreign assets shares although at a slow rhythm. Chile is however the worth stressing case here as, following the end of the initial banning over pension funds' international diversification of portfolios, foreign assets started to climb reaching to around 40% of all applications. Investment in foreign bonds is also important in Peruvian pension funds and of lesser relevance in Colombia and México.

Financial investments by pension funds both exhibited an irregular performance among countries as well as a marked cyclical behavior in the period; except for the case of Chile where they have had a very stable share within the portfolio, with moderate variations within a 25%-30% interval, investment in financial assets showed marked cyclical variations in several countries although their participation is still important in Argentina, Bolivia, Chile, Peru and Uruguay whereas their importance is minor in the cases of Colombia and Mexico. Similar conclusions can in general be drawn for the case of equities, although in this case Colombia and Peru were the only countries in which the latter's participation kept stable around 35% total pension fund's portfolios and they are also noticeable in Chile.

While figures in Table 2, column 3, replicate the situation already shown by the Graph 2 above, it is noticeable what the column 4 indicates with respect to pension assets' real returns: in all cases, the average real return was positive and ranged between 6% and 10% per year. The Argentine case was also included in the table as, despite having stopped the individual capitalization regime in 2008, a Sustainability Guarantee Fund was created to which funds of the former Pension Fund Private Administrators were channeled.

V. Is the Region now experiencing a set back towards Non-funded PAYG Regimes?

As pointed out in Table 1, two countries (Argentina and Bolivia) reverted their systems from fully funded pension regimes to totally or partially PAYG systems in 2008 and 2010, respectively. Even the leading country, Chile, had a thorough revision in 2008 whereby a modification of its pension regime took place and an unfunded non contributory system was introduced

Table 2
Administered Pension Assets – Year 2012

	Million dollars	Share of GDP	Average Annual Real Return[c]
Argentina[a]	50,500	15.0%	9.4%
Brazil[b]	232,373	17.0%	
Bolivia	7,875	29.2%	5.8%
Chile	159,190	58.5%	8.7%
Colombia	71,205	18.8%	9.5%
Mexico	143,898	10,3%	6.9%
Peru	35,547	19.2%	8.1%
Uruguay	9,120	17.4%	9.0%

a. 2013 figures are used for Argentina, corresponding to the Sustainability Guarantee Fund.
b. Brazilian figures are for 2007 and they correspond to closed pension funds; open funds represented 3%-4% of GDP
c. As of the year each country started the regime.

financed out of general revenues; the revision also stated that individual capitalization beneficiaries would be supplemented had they not reached a minimum level for their retirement benefits. Furthermore, countries like Brazil or others, like Colombia and Peru in which individual capitalization schemes are a key component of the pension systems found necessary to implement non contributory pensions for individuals above 65 years with no incomes.

The response to the question posed by the headline to this section may not possible be straightforward, as distinct macro and microeconomic reasons such as sustainability and fairness might have been behind the changes; nevertheless, the information on coverage in the ensuing Tables 3 and 4 offers clear hints for understanding why this is today still an important political concern in the region, let alone the socio economic implications.

The first of two facts deserving being stressed in Table 3 is that only 55% of workers in the region are in average actually contributing to any pension regime and that this percentage is not also even throughout countries analyzed as figures as low as 32% (for Bolivia) find their counterpart in Uruguay with almost 85%. The second result is the striking evidence that, while the average for regional affiliation is substantially high regarding civil servants (90%), almost 40% of private labour and 90% of self employed workers are not included in any pension scheme. Needless to emphasize, the

Table 3
Employed Individuals, over 15, effectively contributing to PAYG or Individual Capitalization Regimes

	Total	Civil Servants	Private Sector Workers	Self Employed Workers	Pension earners over 65
Argentina	68.7%	92.6%	77.2%	32.7%	90.7%
Bolivia	32.4%	74.6%	32.5%	2.1%	91.0%
Brazil	75.9%	93.6%	84.0%	24.3%	84.7%
Chile	81.7%	86.0%	86.5%	26.3%	84.2%
Colombia	57.2%	97.2%	77.2%	10.5%	44.0%
Mexico	41.3%	69.2%	59.3%	…	44.0%
Peru	50.4%	89.0%	59.5%	14.0%	25.4%
Uruguay	84.7%	99.9%	91.5%	39.4%	85.6%
Latin America	**55.4%**	**90.4%**	**65.5%**	**12.4%**	%

Source: ECLAC figures for 2011, Mexico 2010.

Table 4
Pension Funds´ gross and effective contributors - year 2010

	Registered Contributing	Effectively
Argentina[a]	10,972,000	40.9%
Brazil	…	…
Bolivia	515,159	39.3%
Chile	4,487,843	51.7%
Colombia	4,080,088	45.3%
Mexico	13,440,855	33.0%
Peru	1,923,466	42.4%
Uruguay	624,093	65.5%

a. Figures for Argentina correspond to 2008, as the regime was stopped that year.

explanation must be sought at the existence and size of the shadow economy and consequently of informal labour markets, which is particularly noticeable in Bolivia, Mexico and Peru (for the case of private workers) and generalized to all countries with respect to self employed workers. Despite the pessimism transpired by figures in Tables 3 and 4, the last column of Table 3 clearly shows that the performance in most of the selected countries is much better than in the regional level, situation explained by strong national social policies oriented to widening the coverage of the elderly (as is particularly the case of Argentina and its ample moratoria) or to enabling people over 65 to accede to non contributive income (such as Dignity Rents in Bolivia, or pensions financed out general revenues in Chile).[24]

The question as to why individual capitalization accounts did not become the solution envisaged when the system was first implemented, in the eighties in Chile, is somehow responded by figures of Table 4 that pointed out the marked discrepancy between those individuals registered and those effectively complying with the payment of contributions; the compliance hardly reached the fifty per cent of registered in fully funded regimes.[25] Needless to say, this feature is basically related to the weakest tax compliance of affiliated self employed workers that, in many cases, carry out their economic activities in the informal sector.

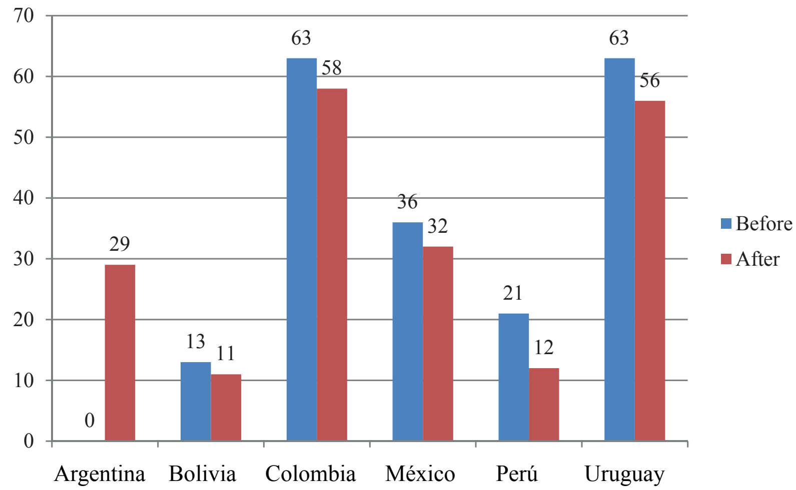
The major role of, or reliance on, fully funded private systems has been challenged several times, let alone the most extreme Argentine and Bolivian cases. It has already been said that the leading country in this field, Chile, underwent in 2008 a revision of its regime the result of which were some important modifications and the introduction of a non contributory regime for the poor without income or pension coverage. The discussion seems not to be over in this country as the government recently initiated announced the setting up of a committee of national and international experts with the duty of assessing the system and proposing changes in the light of low pensions earned by the retired.

In a very interesting article in which Bertranou et al. (2009) wondered whether Latin American countries were actually moving away from individual capitalization accounts these authors emphasized that fear of fiscal unbalances and badly managed PAYG regimes counted at the outset for countries to resort to pensions based on capitalization but also pointed out that three main issues could not appropriately be dealt with by fully funded schemes; that is, a low level of coverage, the contraction of social nets and imperfections in regulatory frameworks.

24. Colombia, Mexico and Peru stand as an exception as they have lower coverage of the elderly.

25. It is not uncommon that employees´ lack of compliance be in turn accompanied by tax evasion on the employers´ side.

Graph 6
Latin American Countries: Coverage rates previous to fully funded schemes (before) and in 2002 (after)



The authors' first assertion is clearly reflected not only by figures in Table 4 but also but the bars of the ensuing Graph 6 in which coverage rates[26] for the seven countries[27] are measured for two points in time: the moment before countries adopted a fully funded scheme (also called first round of reforms) and the year 2002, depicted in the graph as after.

The underlying rationale behind what Bertranou et al. (2009) called the First Round of Reforms was the idea that defined contribution schemes were going to enhance not only the level of coverage, but also tax compliance, based on the assumption that individuals would not only find a stronger connection between contributions and benefits but also because they would regard contribution payments as savings instead of a tax; nevertheless, and supporting the evidence given by Table 4, the above Graph 6 clearly shows that the rate of coverage fell in all countries once fully funded schemes started to operate. The main reasons for this to happen were already mentioned; that

26. For the purpose of the analysis, the coverage rate is defined as the quotient between contributors and economically active population.

27. Needless to say, Argentina is only represented by the ´before´ bar as individual accounts were stopped at 2008. Brazil is not represented either as PAYG is still the main pension system, although there is an important development of individual accounts at firms´ level (closed funds) and also some others run by state governments.

is, the structure of labour markets in which informality is by no means a minor feature[28], apart from other features such as important unemployment levels.

A second important reason explaining why fully funded regimes fell short of fulfilling expectations was that, contrariwise to PAYG systems, they did not solve the problem of inter and intra generational solidarity for what public intervention had to be called upon in order to handle, via non contributory regimes, the situation of the elder with no incomes.[29]

A third worth emphasizing matter was that, after an initial enthusiasm with fully funded schemes, a feeling of disappointment grew among retirees when they realized that the quantum of their benefits was by far much smaller than originally expected, as rates of return resulted negatively affected by the excessive burden of items such as fees, insurance premium and other costs detracted from their contributions.

A last but by no means less important matter referred to imperfect regulation, one of whose flaws was a marked degree of weakness due to political interference with the investment decisions followed by funds. Argentina was a clear example in this matter, as pension administrators suffered, due to the government's scanty access to international capital markets, an enormous pressure to take public bonds, which ended in 2009 with the total asset seizure.[30]

In sum, a fair and balanced answer to the question posed at the beginning of this section should be that many Latin American countries managed to legally enact –and operate- sophisticated fully funded pension regimes that not only relieved governments in a moment of fiscally strained fiscal budgets but also served the purpose of enhancing aggregate saving and of furthering financial markets.[31] Nevertheless, the experience of almost two decades of fully funded regimes clearly showed that important changes were indispensable should countries intend to continue running pension systems based on individual capitalization accounts.

28. As expected, this is also a consequence of a stretching informal economy that prevails in many sectors of activity.

29. After individual capitalization accounts were implemented, different countries (i.e. Bolivia, Chile, Colombia) had to strengthen their social security nets with non contributory pensions.

30. The authorities blamed the world crisis of 2008 and 2009, as being responsible for the country´s fiscal problems and the transmission of their negative effects to the pension system.

31. It must also be pointed out that private pension schemes counted in general with approval within the countries where they were implemented. Argentina was a clear example of this: the government did away with the regime in 2008 notwithstanding the fact that –the year before- the option of allowing those individuals in capitalization accounts to return to the PAYG systems was rejected by more than 80% of affiliates.

VI. Can Pensions' Individual Accounts and PAYG regimes coexist in Latin American emerging countries?

Although many experts have pointed out that the use fully funded schemes en Latin American countries gathered political rejection and experienced contraction, the prevailing idea is that fully funded and unfunded regimes can and should coexist for what, as Bertranou et al (2009) suggested, individual accounts should be improved while accepting –at the same time- that PAYG and non contributory regimes may successfully accompany properly designed and run defined-contribution schemes as the former could have, at least in relation to solidarity, equity and distributional goals, a better performance.

In this regard, and given that the quality of any pension regime, or combination of pension regimes, must be judged for the efficacy in reaching expected levels of coverage, equity and efficiency as well as for its success in guaranteeing long run financial sustainability, social security economic policies to be drawn in the future must necessary address a set of matters which, only for the sake of illustration are listed below:

1. Non contributory pensions are definitely necessary, on grounds of distributional, solidarity and equity goals and should work in connection with programmes seeking to check poverty and structural unemployment.
2. Coverage and tax compliance need to be expanded, both in fully funded and unfunded regimes, in special in the case of self employed workers as they prove to be the more reluctant group at the moment of meeting their fiscal (including social security) responsibilities.
3. Individual capitalization needs be improved and turned more attractive in various ways that could influence pensions' size at retirement, as for instance by reducing administrative and commercial costs for allowing rates of return to increase and by offering a more varied portfolio composition both in term of financial instruments and levels of risk.
4. Competition between fully funded and unfunded regimes, by permitting affiliates to switch from one system to another, could at the end be favourable in so far as this enhances overall efficiency.

5. Financial sustainability of PAYG regimes may be deepened by resorting to ad-hoc reserve funds whose resources are available for stabilizing pension outlays in the event of cyclical perturbations taking place. In this connection, schemes like the Argentine Sustainability Guarantee Fund could be very useful should they have clear and sound portfolio investment rules averting theirs becoming an additional revenue source for governments' public spending.

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