

Pension and income transfers for old age

Inter- and intra-generational distribution
in comparative perspective

Fernando Filgueira
Pilar Manzi



UNITED NATIONS

ECLAC

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POLICY****Pension and income transfers
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E C L A C

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Summary

This document provides a world comparative analysis regarding the design and reform of pension systems in order to improve coverage, equality and sustainability. It looks at how pension systems, rules and financing affect coverage, sufficiency, and distribution as well as fiscal and intergenerational sustainability and equality. The main findings are:

- (a) Countries in the developing world will face a steeper increase in their ageing population and a steeper decrease in their active population than did developed countries, due to drastic fertility drops. They will also face a lower supply of formal stable jobs since growth will take place not under 20th century industrialization but in the new knowledge and service economy.
- (b) Different regions of the developing world face different challenges: Latin America combines fiscally unsustainable contributory systems, weak basic non-contributory pillars and problems of coverage and stratification of benefits; Asia faces underdeveloped old age income support systems with rapid social and demographic transformations that will place major proportions of the elderly in a vulnerable situation; and Africa faces very weak pension systems, stringent fiscal space, and some very small but expensive privileged systems for public workers and higher income groups, a combination both regressive and unsustainable.
- (c) The evidence for developed countries show that strong first non-contributory pillars work best for coverage and adequacy for low income earners, as well as in terms of fiscal sustainability in inter-temporal terms.
- (d) Fully funded capitalization systems proved to be inadequate to meet either distributional concerns, adequacy or sustainability when promoted as the dominant pillar.

Based on this evidence, the document recommends:

- (a) Promoting strong non-contributive pillars (both means-tested and universal), as this option is possible in both poorer and richer countries. Slightly smaller flat-rate values, for wider coverage seems to be a reasonable trade off.

- (b) Defined Benefit (DB) pillars have to be reformed, and if they are to be created must follow some simple rules of thumb. Replacement rates should not be homogenous but inversely stratified, retirement ages should be higher, and incentives to remain in the labor force should be integrated into replacement rates. Contributions need to guarantee long-term sustainability, and indexation criteria should consider a fiscally sound combination of preserving purchasing power and actuarial sustainability.
- (c) Capitalization and notional systems can be a way to reform DB systems that are regressive and unsustainable, but only if strong non-contributory pillars are put in place first.

Introduction

This document seeks to provide comparative analyses and recommendations for both developing and developed countries around the world regarding the design and reform of its pension systems in order to increase intergenerational and intra-generational equality as well as sustainability, efficacy and efficiency. Thus, this document delves into how pension systems, rules and financing affects coverage (for those already retired and for those who will retire), sufficiency (looking at pension level¹), distribution (looking at pension financing and pension benefit access and stratification), and fiscal and intergenerational sustainability and equality (looking at actuarial issues and public intergenerational transfers and how pension systems influence them).

Modern pension systems are state managed and/or regulated transfer programs that provide income to the elderly². The creation of pension systems is linked to three overlapping processes: industrialization and capitalism, family transformation and longer life expectancy. In pre-capitalist and pre-industrial societies, the elderly were supported through family or informal social networks that shared shelter, food and other goods and services produced by its members. In many other cases the elderly received no such support and were thus vulnerable to poverty and exclusion with its effects on health decay and high mortality.

As labor markets extended and salaried work became the main source of income for most households and as populations increased longevity and life expectancy new social and state devices were needed (Flora and Heidenheimer, 1981). This need was enhanced by the demographic transition process, as the ratio of elderly to young adults in families slowly increased, making the old informal arrangements less sustainable as can be seen by the general trend in decreasing multigenerational extended households (Therborn, 2004). The market solution for these challenges proved also to be inadequate given myopic behaviour, scale economies, asymmetries of information and coordination problems (Barr and Diamond, 2006).

¹ Sufficiency can either refer to basic needs or basic income levels (in which cases national poverty lines or minimum wages can be and are used as parameters) or to replacement levels (in that case the relevant parameter is how much pensions represent in comparison to previous labour earnings).

² Although some pension systems also take into account other populations who are unable to generate their own income, such as people with disabilities.

The literature on pension systems identifies two core objectives of these systems: prevent poverty among the elderly and smooth consumption over a person's lifetime. These two objectives are not attained with similar devices and much debate has taken place regarding which of these objectives should be more important, and thus which income retirement architecture is better. While some authors believe that the principal objective should be the alleviation of poverty, others claim that redistribution within individuals in their life cycle should be the main goal (St John and Willmore, 2001, Barr and Diamond, 2006, Filgueira, 2007, 2014). Still others give the pension system a central role in a society's income redistribution policy. A third group focuses on the labor market, interpreting pension benefits as part of labor agreements in the form of delayed wages and, as such, arguing that only in the context of a performing labor market it is possible to establish an effective pension system³.

We will come back to this debate as it is central to current reform issues around the world. Several authors⁴ have focused their analysis on other objectives such as their effects on national savings, the accumulation of capital, the deepening of the financial sector, the dynamics of entry and exit into labor markets, or the fiscal structure of the state. We will also consider such debates.

No matter what the options are regarding these different aims and their corresponding tools, the historical record shows the increasing role and importance of pension systems in both shaping and responding to the challenges brought about by changing societies and economies.

Most of the developed world and a large part of the developing world are undergoing a demographic process of rapid fertility decline and an incipient and in some cases advanced process of ageing of its societies. Indeed, in only 15 years from now, people aged 60 years or more will grow from 901 million to 1.4 billion, and in 2050 it is projected to surpass two billion. Those aged 80 years or over will grow even faster reaching in 2050 almost 440 million from 125 million in 2015 (UN-DESA, 2015). While these general trends vary by region, few will be spared from confronting massive changes in their age structure, with relevant increases in their elderly population. Over the next 15 years, the number of older persons is expected to grow fastest in Latin America and the Caribbean with a projected 71 percent increase in the population aged 60 years or over, followed by Asia (66 percent), Africa (64 percent), Oceania (47 percent), Northern America (41 percent) and Europe (23 percent).

Pension systems confront three distinct problems, with different relevance and combinations depending on the region, level of development and stage of the demographic transition. In many parts of the world pension systems remain narrow in scope⁵ with huge problems of coverage. As societies age, this will create a large group of vulnerable people in the elderly population. A second problem is that of sufficiency of the entitlements. While population coverage may be larger, in some cases such coverage is of dismal quality and pension values are absolutely inadequate to provide reasonable social protection in old age. Finally, many pension systems face actuarial and financial sustainability issues, requiring large transfers from general revenue and placing a heavy burden through taxes and social security contributions on the active population. As new cohorts become smaller and the elderly population increases, these problems will become more acute.

In many countries a combination of these problems are actually present. Individual capitalization systems⁶ have been one way by which countries sought to deal with both pension levels and financial sustainability. Yet in most cases they have provided a solution to neither of these challenges. More recently some countries have developed stronger solidarity pillars (non-contributory old age support systems or pensions and minimum pension guarantees) either through targeted or universal programs.

³ The seminal paper by Lazear (1979), that views retirement as part of the labour contract in the form of delayed wages and as a way to cap salary increases, has been the basis for this strand of literature.

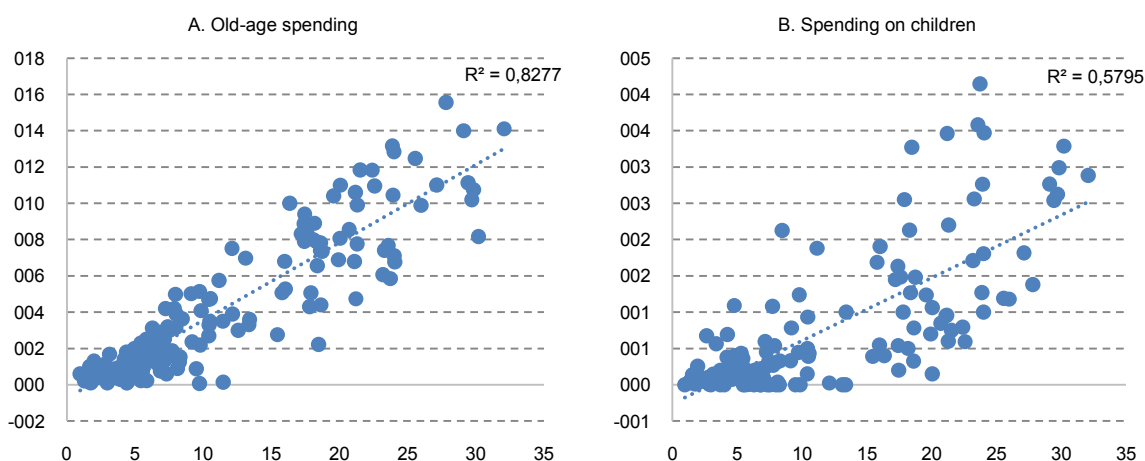
⁴ For a detailed consideration of these issues, see Barr (1998) and Barr and Diamond (2006).

⁵ Many systems are designed only to cover civil servants and certain privileged categories of workers. Others, while broader, exclude certain categories such as rural workers and domestic workers. Still while some are formally open to all workers who contribute, informality and the requirements in terms of contribution render formality unreal, with many workers who will never reach eligibility.

⁶ Individual capitalization systems, also known as private pensions, refer to those pension schemes where, broadly speaking, each individual saves for his/her retirement in an individual account. These savings accounts are usually managed by retirement funds, who then return a given amount to the worker upon retirement. The amount of each pension varies according to the worker's savings accumulation and to the rate of returns obtained in those active years.

Yet both fiscal constraints and insufficient coverage remain a challenge. Thus beside both types of innovations –capitalization and basic non-contributory pillars- many of the above mentioned problems remain and might become critical in the future. If history provides fuel for thought, in most countries pension systems already are or will become one of the major areas of social government spending. While countries' social protection on children has a relatively weak association with overall social protection spending, old age spending has a very high correlation with overall spending in social protection (see Figure 1).

Figure 1
Social protection spending as a percentage of GDP, (circa 2010)



Source: Author elaboration based on data from ILO (2014).

Finding the right architecture that will foster intergenerational and intra-generational justice and well-being is a major task facing both developed and developing countries. Pension systems and old age income support in general do not only impact on today's social and economic structures, but because of their very nature have massive impact on the future health of the social, economic, and fiscal dimensions of the nation-state. Once set in motion, these legally binding systems constitute the most important intergenerational transfer devices⁷ in most countries and will create liabilities that have inter-temporal major impacts on nation-states.

Because of their nature, these systems are strongly path-dependent and choices in mature systems are strongly constrained by choices made before. It follows that initial choices in young systems will have a major effect on future possible choices. This is both due to the legal framework they create, the financial liabilities they commit to honor, the type of state collection and delivery capacity they build, and last, but maybe most importantly, because of the political economy they set in motion.

Based on available evidence, this document will make recommendations for reform and policies regarding old age monetary support systems. The ILO data base (ILO, 2014) will allow us to provide a comparative world view of pension systems looking both at its institutional design and rules –eligibility, financing, replacement rate criteria and the relative weight of basic non-contributory, pay as you go contributory and capitalization systems. On the other hand, the National Transfer Accounts⁸ project which covers countries from Asia, Europe, the Americas and Africa, developed a powerful methodology for the estimation of public and private intergenerational transfers.

⁷ Family allowances financed from general taxes and public education are other typical state mechanisms of intergenerational transfers. Of course, outside of the state rests the most important realm for intergenerational transfers: the family and very especially transfers that take place within the the family.

⁸ See <http://www.ntaccounts.org/web/nta/show/>.

Regarding regional trends and realities, in OECD countries there is a rich and detailed data base that is used for their periodic report “Pension at a Glance”. In Latin America a recent work by the World Bank reviews reforms to expand coverage in the 90s and 2000s (Rofman, Apella and Vezza, 2013) and another carried out by OECD/IADB/World Bank (2014) seeks to typify the different regimes according to the OECD methodology and tries to model the effects of pension systems on three “typical” workers (with full contribution record, substantive but partial or small contributory record). It then estimates for these typical workers -along the income distribution- what their pension levels and replacement rates would be at each bracket of the income distribution. ECLAC has done extensive work regarding levels of coverage of social security of the workforce, levels of coverage of pensions of the older population and real –not modeled- pension spending distributional effects and impacts on poverty in Latin America and the Caribbean (ECLAC, 2009, 2010, 2013, 2014, 2015; Cecchini et al, 2014, Filgueira and Espíndola, 2014).

I. Social security and pension systems as social engineering: historical origins and development

Though pension systems are taken for granted today, this has not always been the case. On the contrary, pensions are a fairly recent development of economic and political thought. Specifically, state-based pension systems aimed at old age and retirement from the labor force are a relatively modern concept evolving in the late 19th and early 20th century. Despite the early introduction of widowers' pension annuities in some countries and in the Protestant branches of the church⁹ in Europe, and disability and old age pensions for the military after wars in the US, Latin America, and Europe in the 17th and 18th century¹⁰, widespread compulsory state based pension systems are a creation of the late 19th and early 20th century.

In 1889 “The Old Age and Disability Bill” was passed in Germany, furthered by the Chancellor Otto von Bismarck. This was the first fully-fledged pensions systems for workers¹¹ even if it did not cover all workers (those aged 70 or more at first and lowered to 65 in 1916). Workers in Great Britain gained this right with the “Old Age Pension Act” of 1908, which awarded pensioners aged 70 or above a basic amount.

Three processes are at the basis of the birth of pension systems. Firstly, the industrial and capitalist revolution brought with it the *proletarianization* of wide arrays of population that were previously small propertied classes. People were left mostly with their labour capacity and the labour market cash nexus as their only means of survival. Thus, when that was no longer possible because of old age or sickness, few options of livelihood were left. Secondly, people, due to a different number of reasons, lived longer. Old age, while positive as a human development, brought with it larger

⁹ In 1645 the Duke Ernest the Pious of Gotha, a Protestant prince whom Oliver Cromwell deeply admired, decreed the creation of a fund to support widows of clergymen across his realm. In 1662, a similar fund would be set up to support widows of the duchy again; this time, widows of teachers would be the beneficiaries. These two funds are among the firsts modern examples of what we may call pension funds.

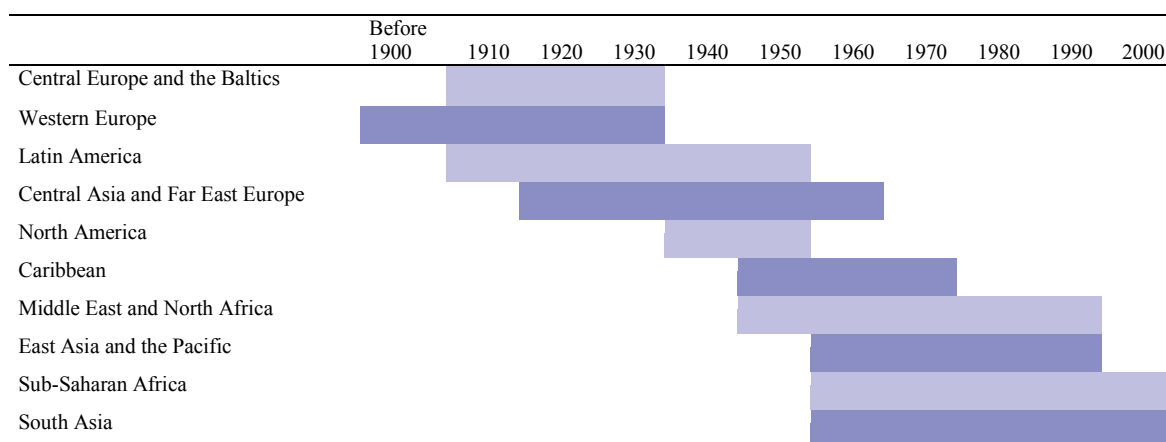
¹⁰ In the 17th and 18th centuries, war-related pensions under the form of annuities would become more and more common across Europe. These were largely granted as compensation for the loss of spouses (especially for men of rank killed in action), loss of limbs (again, mostly for the wounded in action) or in return for acts of merit, either military or civil.

¹¹ The political economy of the first pioneering social security systems owes a big debt to the emergence of the working class and its organization. Even though workers not always advocated for such systems, elites saw such systems as a way to co-opt and confront the socialist menace.

possibilities of survival in infirmity or dependency. Thirdly, extended households and filial responsibility to the elderly broke down with modernization, urbanization, the lack of property –as nucleus of the family- and family transformation. In a way, family based systems of old age insurance broke down. Mandatory state-led pension systems were the response to these processes. Their expansion was further fuelled by massive industrialization, urbanization, economic growth and state fiscal capacities, overall state expansion in social protection and democracy.

Mature, massive pension systems are to be seen only towards the 1930s and universal ones after the Second World War. In the UK, the National Insurance Act of 1946 completed universal coverage of social security. The National Assistance Act of 1948 formally abolished the Poor Law of 1834, and gave a minimum income to those not paying national insurance. Pension plans became popular in the United States during World War II, and in Latin America pension systems that had been pioneered by Uruguay, Argentina and Chile before the war, but that were still fragmented and limited, became massive and in some cases close to universal for urban workers in the 1950s and 1960s. More limited developments, at least until the 1960s were to be seen in Asia and the less developed parts of Latin America. Only after the 1950s would North Africa and South Africa see some relevant development, and the rest of Africa and large parts of Asia saw scant development still after the 1950s. The Arab countries are also late developers of pension systems (ILO, 2014) (see table 1).

Table 1
Adoption of first social security and old age pensions law by region



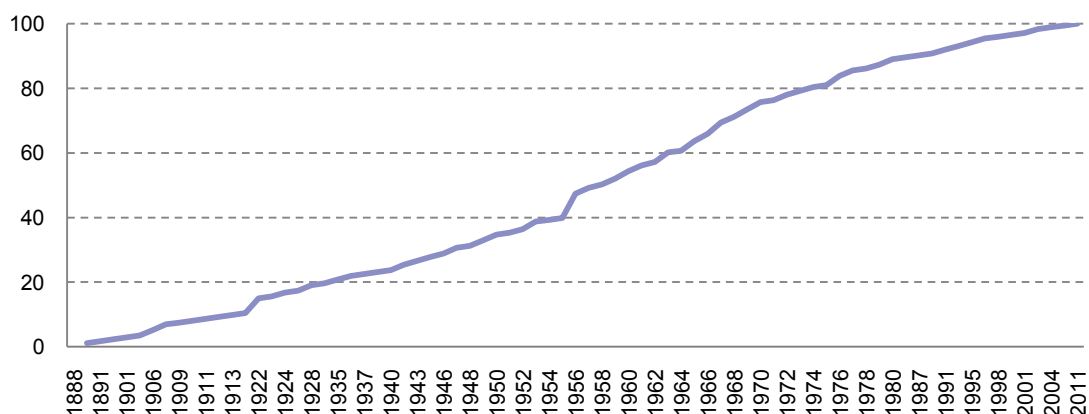
Source: Own elaboration based on ILO (2014).

Looking at countries that set up social security systems, and in particular at those that covered the three main risks typically affecting the elderly population (old age, disability and spouse survival) ILO (2014) shows that these systems became widespread towards the second half of the 20th century (see figure 2). Close to 100% of countries in 2005 had some insurance for old age and disability, and close to 70% had some pension system for widowers (survival). Yet it is also true that almost half of all countries only developed some form of legally binding income retirement systems after the 1950s.¹²

Figure 2 reflects countries that have some mandatory legally based old age retirement systems. It does not, by any means, imply that today 100% of countries provide 100% coverage of these risks to the elderly population. Quite the contrary, coverage remains scant in most countries covering usually only those who are state employees or worked for wages in the formal sector of the economy with sufficient stability to be eligible for pensions.

¹² The curve shows the cumulative percentage for countries that have data on first social insurance law. Yet the few cases that do not have data do have pension systems, thus we use the cumulative percentage, rather than the cumulative frequency, since the last one conveys the wrong idea that some countries have no retirement income systems at all.

Figure 2
Year of first social insurance law. Cumulative percent, world



Source: Own elaboration, based on ILO (2014). For information on different programs (unemployment, family allowances, job related injury, etc.), see ILO (2014).

Furthermore, even in the cases where coverage is larger or universal, quality many times is not. Pensions in many countries fail to provide adequate replacement rates, and in some cases pension value is not even enough to cover for basic needs with values below that of national poverty lines.

Indeed, according to the ILO (2014) almost half of all people of or above pensionable age do not receive a pension¹³. For many of those who do receive a pension, pension levels are not adequate (see box 1 on international standards on old-age pensions). Thus, most of the elderly population today have no income security, and in many cases not even the right to retire. Vulnerability in old age and the lack of adequate income support forces millions of those in old age to work with serious risk to their health and more often than not in jobs that are underpaid and precarious.

Besides the degree of development of the different pension systems and schemes to provide income support in old age, there are a number of core social and economic functions that are usually accepted as goals and aims of pension systems. Among them the most important ones regarding inequality and welfare are to:

- Avoid or alleviate poverty in old age.
- Achieve social risk pooling and income redistribution.
- Other critical functions will also have an impact on inequality and poverty in old age depending on the way it is done, but their explicit aim is neither redistribution of income nor poverty alleviation.
- Smooth income and consumption throughout the life of individuals.
- Provide fluidity and mobility for labor force younger and older cohorts by allowing the older cohorts to retire.
- Contribute to the savings and eventually investment rates in the country.

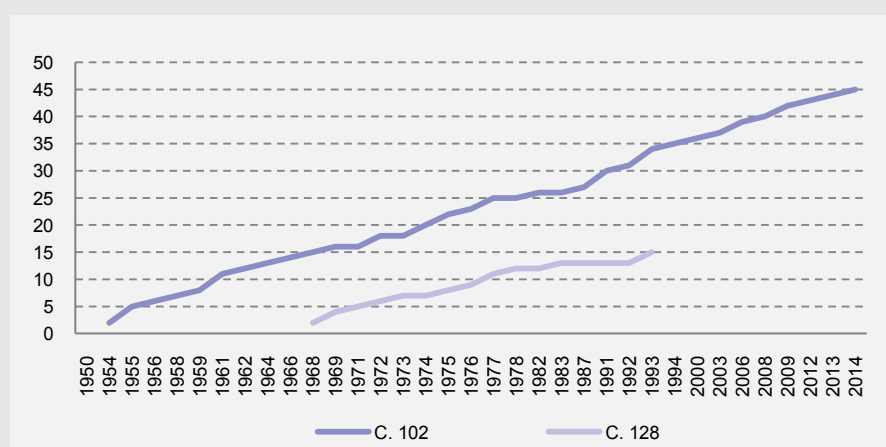
These functions are achieved by different combinations of old age income support models and pension systems.

¹³ ILO considers each country's statutory pensionable age, which is usually around 60-65 years of age, although these values range from 50 to 70 years old, based on the general rules that determine the minimum age at which people are eligible for retirement pensions (in many countries specific groups have earlier pensionable ages than the general rule).

Box 1 International standards on old-age pensions and country commitments

The rights of older persons to social security and to an adequate standard of living to support their health and well-being, including medical care and necessary social services, are laid down in the major international human rights instruments, the Universal Declaration of Human Rights (UDHR), 1948, and (in more general terms) the International Covenant on Economic, Social and Cultural Rights (ICESCR), 1966. The content of these rights is further specified in the normative body of standards developed by the ILO, which provide concrete guidance to countries for giving effect to the right of older persons to social security, from basic levels to full realization. The Social Security (Minimum Standards) Convention, 1952 (No. 102), the Old-Age, Invalidity and Survivors' Benefits Convention, 1967 (No. 128), and its accompanying Recommendation No. 131, and the Social Protection Floors Recommendation, 2012 (No. 202), provide an international reference framework setting out the range and levels of social security benefits that are necessary and adequate for ensuring income maintenance and income security, as well as access to health care, in old age. The extension of coverage to all older persons is an underlying objective of these standards, with the aim of achieving universality of protection, as explicitly stated in Recommendation No. 202. Conventions No. 102 and 128 and Recommendation No. 131 make provision for the payment of pensions in old age, at guaranteed levels, upon completion of a qualifying period, and their regular adjustment to maintain pensioners' purchasing power. More particularly, Conventions No. 102 and 128 envisage the provision of income security to people who have reached pensionable age through earnings-related contributory pensions (guaranteeing minimum benefit levels, or replacement rates, corresponding to a prescribed proportion of an individual's past earnings – in particular to those with lower earnings) and/or by flat-rate non-contributory pensions which can be either universal or means-tested. The guaranteed minimum levels for the latter should be a prescribed proportion of the average earnings of a typical unskilled worker, but the "total of the benefit and other available means ... shall be sufficient to maintain the family of the beneficiary in health and decency" (Convention No. 102, Art. 67(a)).

Figure 1
ILO Old Age conventions ratifications



Source: Own elaboration based on ILO (2014).

Recommendation No. 202 completes this framework by calling for the guarantee of basic income security to all persons in old age, prioritizing those in need and those not covered by existing arrangements. Such a guarantee would act as a safeguard against poverty, vulnerability and social exclusion in old age, for people not covered by contributory pension schemes. It is also of high relevance to pensioners whose benefits are affected by the financial losses suffered by pension funds, whose pensions are not regularly adjusted to changes in the costs of living, or whose pensions are simply inadequate to secure effective access to necessary goods and services and allow life in dignity. ILO social security standards thus provide a comprehensive set of references and a framework for the establishment, development and maintenance of old-age pension systems at national level. An important social policy challenge facing ageing societies is to secure an adequate level of income for all people in old age without overstressing the capacities of younger generations. In view of the financing and sustainability challenge faced by social security systems in the context of demographic change, the State has a vital role to play in forecasting the long-term balance between resources and expenditure in order to guarantee that institutions will meet their obligations towards older persons. The principle in ILO social security standards, strongly reaffirmed recently by Recommendation No. 202, of the overall and primary responsibility of the State in this respect will undoubtedly play an important role in how future governments are held accountable for the sustainability of national social security systems in view of, among other factors, demographic change.

Source: Transcribed from ILO (2014). Figures added by authors based on data from ILO (2014).

II. The wide variety of pension systems today: a typology and its distributional implications

We tend to think of pension systems in its classic pay as you go, mandatory, contributory fashion. Yet systems in the world today show a wide variety of arrangements regarding its financial basis, eligibility criteria, benefit criteria and indexation features (OECD, 2015; ILO, 2014; Uthoff, 2016).

A. Alternatives for old age income support systems

1. Funded vs Pay as you go (PAYG) systems

A first broad distinction between pension systems or pension “sub-systems” (or “pillars”) refers to its funded or PAYG nature. Yet this is not always the case, and mixed and overlaps between funding/PAYG, private/public, individual accounts/collective criteria do happen more often than not. Funded systems accumulate resources in order to then pay for benefits. Members contribute to a scheme, those funds are accumulated and usually invested, the return of which is credited to its members. Alternatively, pay as you go systems use the contributions of currently active income generating populations to pay for the benefits of currently retired populations. Usually the first model is private and based on individual accounts, while the second one is public and organized either on broad categories of people based on occupations or on earning related schemes.

2. Defined benefit (DB) and defined contribution (DC) schemes

In essence, in order to redistribute consumption over time individuals can do either of two things: they can acquire a claim to future production or they can store current production. DB and DC schemes mimic these two conceptual alternatives. In DB schemes they lay claim, through a contractual arrangement or a mandatory system, to future production. In a DC scheme they accumulate resources and then use it in the future.

DB schemes provide a benefit that is calculated based on years of contributions, wage level and age at retirement. The state, insurance company, firm or industry promises to pay a defined benefit to members at retirement, if members honoured their commitment to contribute a given number of years

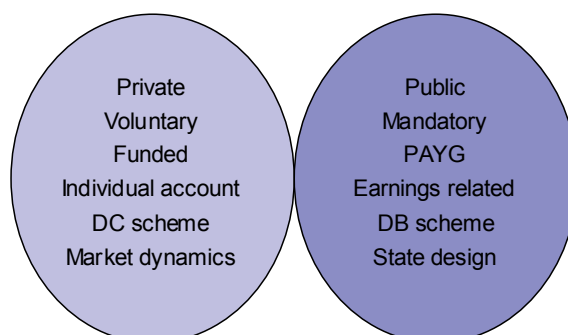
and accepted a given age limit for retirement. A formula defines such benefit level. Thus it is the provider of the benefit that assumes the risk of sustainability, given a benefit level. If it is an insurance company, it will be those holding the shares that assume the risk; if it is a firm or industry, capitalist and firm owners assume that risk; if it is the state, taxpayers assume that risk.

In DC schemes a rate of contribution over wages, periodic out-of pocket payments or lump sums payable once or at different points in time is what is set. Benefits will depend on the value of contributions made and accumulated, the investment returns earned, and the rate at which accumulated capital is converted into a retirement-income stream. Risk here is shouldered mostly by those receiving the pension, since, if accurately estimated, the total sum of benefits paid will never (on average) be more than the accumulated savings plus its interest.

Once again DB schemes predominate in PAYG, publicly administered, earning or occupational related pension schemes. In the same vein DC schemes are more likely in fully funded, individual accounts, privately administered insurance schemes. Although there is a “natural affinity” between such options, they are far from perfect, and many combinations do exist. Perhaps the only case in which definitional options go together regards DC schemes and funding: there are no DC schemes that, by definition, are not funded.

In any case these different options and their combinations accept two additional distinctions. One is the aforementioned distinction between its private or public nature; the other refers to their mandatory or voluntary nature. Let us illustrate then the ideal types as they would cluster given their affinity. One is governed by market logic, the other by state design (see diagram 1).

Diagram 1
Simplified clustering of pension schemes



Source: Own elaboration based on Barr (1998).

Yet these ideal types do not convey the real combinations that are possible. In what concerns complex nationwide pension systems many more combinations are possible, and many times systems such as the ones depicted above coexists or combine dimensions and options in mixed models where one pillar is a PAYG DB scheme administered by the state and another pillar for workers with higher incomes is a mandatory DC scheme administered by private insurance firms.

Furthermore, these combinations can be even more complex. That is not only because combinations can be extended, but also because another distinction, related now to state-led systems, is critical for understanding pension systems. The claims on benefits in old age are not just derived from contributions, but can also be accessed because of other eligibility criteria: need and citizenship. These are typically what are defined as non-contributory systems.

3. Contributory and non-contributory pensions

Contributory systems of the mandatory kind require that all those employed, sometimes employers, and eventually the state, contribute a given amount of money defined as a proportion of their payroll in order to be eligible for a pension later in life. In many of these systems such contributions also cover other risks of old age and risks in active labor participation stages of life (sickness and unemployment). In

historical terms they originate from what is called the Bismarckian tradition, in honor of Otto Von Bismarck who pioneered these systems in Germany (Uthoff, 2016).

Such contributions can be used at the same time they are received to either feed a social security financial fund –that then pays for benefits- or directly to pay for pension benefits of the retired population. In this case, as we explained, we talk about either partially funded or pay as you go systems that usually fall under what is called defined benefit (DB) systems. They are usually earnings-related and the benefit level is defined by different parameters that shape the levels of replacement rates (past earnings, years of contribution, age of retirement or combinations of such parameters).

In other cases, such contributions go into an individual or group account, and its amount and returns in the financial markets then provide a benefit that will vary based on such accumulation and criteria regarding life expectancy and expected returns of the saved amounts. As we saw, these are defined as defined contribution (DC) systems. These systems, also called individual accounts capitalization systems dominated important reforms in the 1980s and 1990s in Latin America and Eastern Europe, but fell short of their promises regarding both adequate replacement levels for those with short or interrupted labor careers and left out a large part of the population that could not be eligible given their length and density of contributions (Uthoff, 2016).

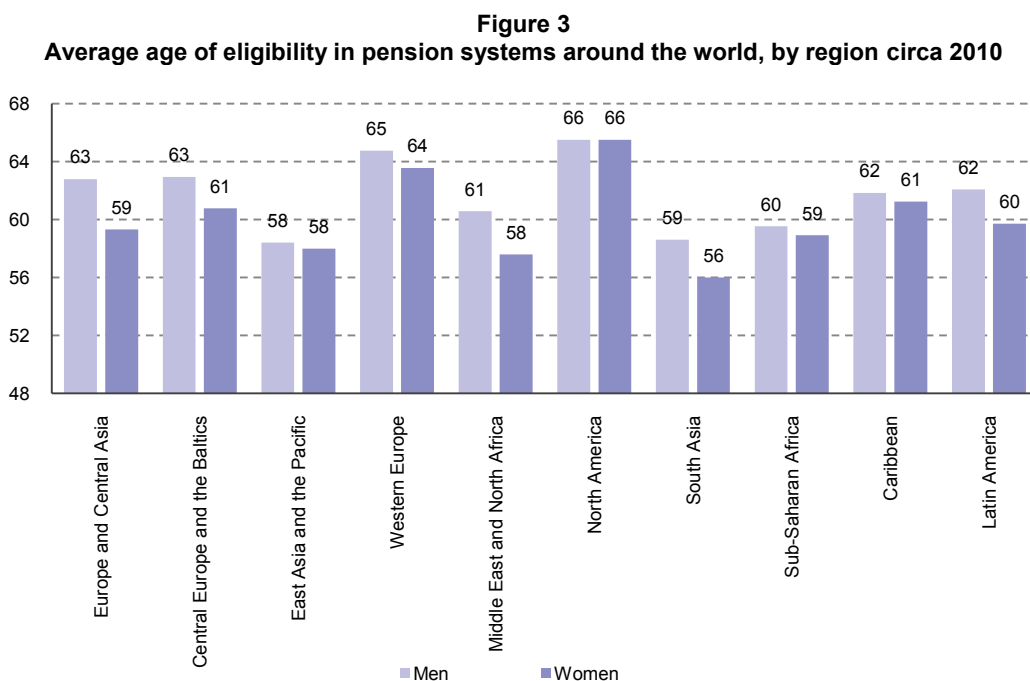
There are also flat-rate contributory pension systems, though these are less common. In this case benefits are flat-rate, thus unrelated to earnings or occupational categories, yet a service or contribution history is required to be eligible (such is the case of Ireland). These are usually also pay as you go systems.

- In short, regarding mandatory contributory systems we can group them in:
- Basic schemes, where the pension is a flat rate amount per year of contributions or residency.
- Earnings-related schemes, where the pension depends on past earnings. Different countries have adopted different variants, including the traditional defined-benefit model, notional accounts (e.g. Norway and Sweden), or points systems (e.g. Germany and France) (see box 2).
- Defined-contribution schemes, where the pension depends on the value of contributions made, the investment returns earned, and the rate at which accumulated capital is converted into a retirement-income stream.

As previously mentioned, contributory schemes can be either privately or publicly managed, but when they are mandatory, they always fall under state monopoly or heavy state regulation. In many cases, mandatory systems both publicly and privately managed have some guarantee for a basic pension value, thus introducing a redistributive subsidy in the system. In DB this is usually done by simply adding some floor in replacement rate formulas, while in DC schemes there is an explicit subsidy for cases with low contribution records, and thus low pension value, but eligible for pension retirement.

The critical ingredients of “classic” defined benefit pay as you go systems are those related to age of retirement (see figure 3), contributory years required, replacement rate formulas¹⁴, indexation criteria, and level of contribution stipulated. There is wide variation in these parameters across the world and changes in them have broad and long lasting implications for sustainability, coverage and pension level, as well as clear impacts on distributional outcomes, both in intra-generational terms as well as inter-generationally.

¹⁴ Floors and ceilings for pension levels are part of the replacement rate criteria.



Source: Own elaboration based on ILO (2014).

There is a natural trend in these systems to be relatively generous when rates of beneficiaries to contributors are low and a need for more stringent adjustments when these parameters worsen. In their least sustainable version these systems mimic pyramid schemes where money is easy to collect and benefits, for those first inside, are high. In general terms they reflect a logic that can be equated with “club goods” in the tradition of welfare economics. In the case of club goods a member has certain rights to access certain common goods and services financed by all those paying a fee as if it were a public good (once you are a member there is no exclusion and consumption is considered to be non-rival). Yet if at some point too many people enter the “club” the artificial nature of such public good consideration wears off, and rivalry, exclusion or quality deterioration sets in. Indeed crowding either leads to lower benefits, higher membership fees or exit from the system (by avoiding contributions to social security).

Of course this is not inevitable, but to avoid pyramid models or the “club good” type of problem, the design of the system as it takes off must confront powerful political economy incentives¹⁵ that will push for far too generous systems that will not be sustainable in the future. For politicians looking at the short term, the bounty of many small contributors and concentrated powerful potential beneficiaries is far too sweet and hard to overcome through careful technical design.

Indeed, in many cases, DB PAYG systems can have at a massive, mandatory and collective level, the very thing they wanted to avoid: myopic behaviour, where society as a whole does not consider the required savings rate for legally binding intertemporal income transfers. Notional and point systems have been one way by which countries have tried to avoid this, without moving into fully funded individual capitalization systems (see box 2).

¹⁵ Immediate concentrated benefits and diffused and long-term costs.

Box 2 Notional Defined Contribution Systems

The NDC (Notional Defined Contribution) system has been seen as a good solution for countries that want to put their pension systems on a financially sustainable path. Especially those worried about fiscal stress have heralded the notional system (and points systems) as positive. *The Economist*^a claimed that “The NDC model retains pay-as-you-go state financing but mimics a privately funded DC plan. Workers continue to pay for today’s pensioners but their contributions are also credited to notional accounts, which get a rate of return broadly linked to earnings growth. When they retire their pension benefits are based on the notional capital they have accumulated, which is turned into annuities through a formula based on life expectancy at their retirement age. In this way pensions automatically respond to rising longevity since the annuities become less generous as life expectancy for older people rises. More generally, by fixing the contribution rate, the reform forces the rest of the pension system to adjust when economic and demographic changes make it financially unviable. This can occur through both lower benefits and longer working lives. No pension model can fully insulate itself from political pressures on the part of pensioners, especially as their number swells. But the NDC reform, which has been adopted in only a handful of countries^b, is worth considering not just in the rich world but in emerging economies like fast-ageing China that have the institutional capacity to make it work”.

Yet not all view such insulation and fiscal conservatism as positive. For the ILO:

The failures to agree on necessary reforms through social dialogue and implement them through well-informed and deliberate policy-making has led many countries to adopt too readily a “hands-off” approach to their governance of the pension system (...) through various “automatic balancing mechanisms”. These include linking accrual rates used to calculate pensions in social security schemes automatically to life expectancy at retirement (as in countries which introduced NDC schemes (...)) or automatically linking the age of pension eligibility to life expectancy, as in Denmark, France, Greece and Italy). This took most extreme form in Sweden, where changes in value of one indicator (“balance ratio”) deemed to reflect the long-term financial position of the pension scheme not only affect the future pension entitlements of contributors, but may also lead to reductions in the amounts of pension paid to current pensioners (as it happened in the middle of the financial and economic crisis).

“Solutions” of this kind would automatically, without intervention of policy-makers and without discussions among the social partners, adjust benefit levels, indexation formulas, retirement ages and numbers of years of contributions required to receive a full pension, according to certain selected statistical indicators (linked to life expectancy at retirement or to certain ratios between revenue or assets of a scheme and its expenditure or liability). One of the ways to achieve such automatic (downward) adjustments of benefit levels to the changing demographic and economic conditions is to expand the defined contribution components of pension systems, as has happened in many countries across the world. Such “automatic pilots” are however also built in into “notional” defined-contribution schemes in countries including Italy, Latvia, Norway, Poland and in particular Sweden, where the “automatic balancing mechanism” in addition regulates the pace of indexation of benefits and the valorization of past contributions. They are also present in the form of various “sustainability factors” in different “point” schemes (such as those in Germany and France, and outside Europe in Canada or Japan). Most of these automatic mechanisms lead ultimately to downward adjustments of benefit levels to ensure financial sustainability. (...) These automatic mechanisms focus solely on the objective of ensuring the long-term financial sustainability of pension systems, while at the same time trying to sidestep open policy debates and social dialogue, which are seen as obstacles preventing timely adoption of necessary policy changes. The consequences of this approach are very severe, as the absence of any corresponding automatic mechanisms to secure desired levels of adequacy undermines the necessary balance between adequacy and sustainability concerns.”

Source: Own elaboration on the basis of ILO, 2014 and *The Economist*, see <http://www.economist.com/blogs/freexchange/2013/01/reforming-public-pensions->

^a Reforming public pensions: The notional solution. January 31st, 2013.

^b Sweden, Italy, Poland and China have incorporated such systems.

Non-contributory systems are funded not by payroll contributions but by general taxes or other fiscal sources (royalties or rents from publicly owned or regulated non-renewable mineral commodities). Eligibility and benefits are not linked to contributions. Usually these systems are either universal or targeted¹⁶. Conceptually, then, eligibility depends either on need or citizenship (and/or residency). They

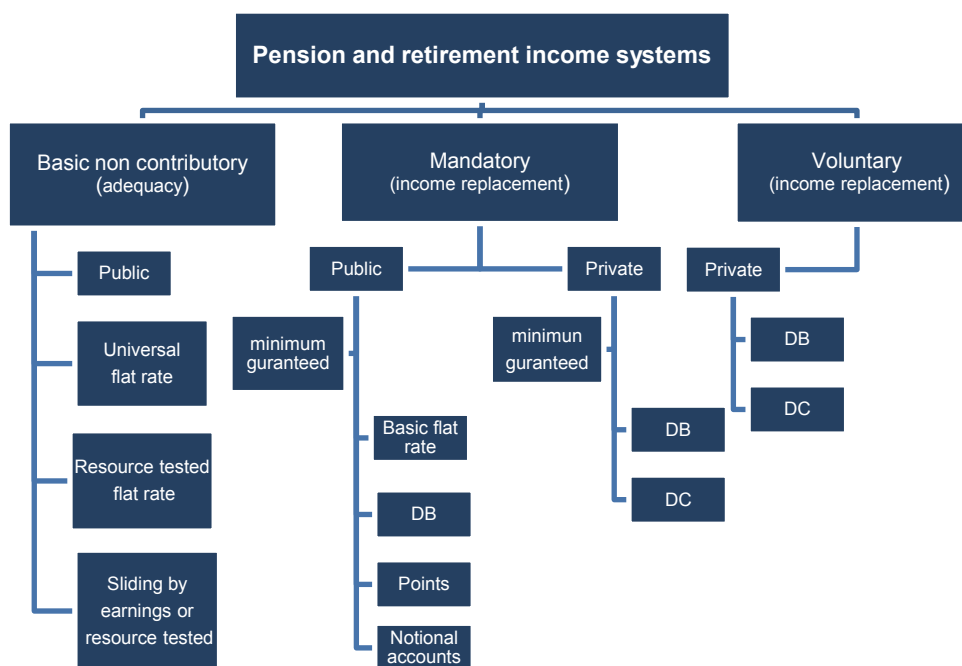
¹⁶ Universal non-contributory systems are linked not to the historical figure of Bismarck but to the other historical figure that later in England would push for such systems both in pensions and health: Lord Beveridge in England. Such systems are then said to be part

are usually flat-rate and its main function is not to provide an adequate replacement rate of previous labor income, but rather a guarantee of basic income to all or those in need or with no contributory pensions. There is a wide variety of non-contributory systems with narrow, wide and even universal coverage and very different levels of benefits. Targeted programs are usually either income tested, means-tested and/or pension-tested. This last model is the one that provides some form of transfers to those above a certain age that do not have or are not eligible for contributory pensions.

Western Europe has for most cases some form of non-contributory assistance to the elderly. In some cases, this takes the form of a universal benefit paid on the basis of residence or citizenship (Netherlands, Denmark, Norway, Finland, Sweden), in others the non-contributory transfer is a means-tested benefit that either supports those without contributory pensions or those in need (means tested for poverty). In Latin America and the Caribbean (Plurinational State of Bolivia, Trinidad and Tobago, Mexico City) and in some countries in Africa (South Africa, Botswana) there has been a recent move towards universal or quasi-universal non-contributory models. In addition, means-tested assistance to the elderly (either pension tested or income tested) has increased across the globe.

Diagram 2 shows a summary of the possible components of income support for the elderly that can be then combined in different models at the country level.

Diagram 2
Pillars that can be part of pension and retirement systems



Source: Adapted from OECD, *Pensions at a Glance* (2013). Note: Sliding by earning means that the higher the income of the receiver, the smaller is the value of the allowance, even though the latter does not disappear.

The variations and possible combinations are large indeed. New Zealand has a public non-contributory universal flat-rate pillar combined with a voluntary defined contribution state regulated optional pillar. Uruguay has a resource-tested or targeted flat rate non contributory pension pillar for people not eligible in the contributory pillars and below a certain income level, a DB state administered PAYG second pillar and a third pillar, also mandatory, DC individual account, state regulated but privately administered subsystem. Ireland has a public mandatory contributory basic flat rate pension

of the Beveridgian tradition (Uthoff, 2016). Yet this is true for systems that are universal or quasi-universal, not to highly targeted non-contributory systems.

system. Most Nordic countries, as well as the Netherlands, combine a strong flat rate non-contributory system (universal or close to universal) with an additional earning related PAYG contributory pillar of the defined benefit type. In some cases, such as it happens in Sweden, the old contributory PAYG system has been replaced by a notional system that mimics the logic of a DB system rather than a DC system. Based on Uthoff (2016) for Latin America, table 2 is here adapted and presented with examples from different countries around the world.

Table 2
Types of pensions systems by predominant pillar or models

Options	Beveridge Universal pension	Bismarck Public (Pay as you go)	Individual capitalization	Mixed (Beveridge and Bismarck)	Mixed (Individual capitalization and PAYG)	Notional or Point system ^a
Financial sources and eligibility criteria						
Contributory		X	X	X	X	X
Non contributory	X			X	X	
Financial management						
Pay as you go	X	X		X	X	X
Funded			X		X	
Benefits and Contributions						
Flat rate and/or adjusted by income level	X			X		
Defined benefits		X		X	X	
Defined contributions			X		X	X
Administration						
State	X	X		X	X	X
Private with state regulation			X		X	
Redistributional mechanisms						
Subsidized minimum in contributory systems		X	X	X	X	X
Targeted non- contributory		X	X	X	X	X
Ceilings on replacement rates		X		X	X	
Country examples	New Zealand, Plurinational State of Bolivia, Trinidad and Tobago, Botswana, Mauritius, Lesotho, Nepal	Austria, Belgium, Ecuador, Nicaragua, Bolivarian Republic of Venezuela, Germany, Hungary, Republic of Korea, Portugal	Plurinational State of Bolivia, Chile, El Salvador, Mexico, Dominican Republic, Australia, Indonesia	Netherlands, Norway, Canada, Finland	Colombia, Peru, Uruguay, Costa Rica, Panama, Czech Republic, Estonia	Sweden, China, Italy, Poland

Source: Adapted by authors from Uthoff (2016) with examples based on ILO (2014), OECD (2015), Cecchini, Filgueira, Rossell and Martinez (2015) and Roffman, Apella and Vezza (2013).

^a Some of this notional systems are combined with strong non-contributory pillars, making them also mixed, with a Beveridge component. Such is the case of Sweden.

(a) Distributional implications of individual alternatives and combined systems

The different options and combinations of old age income support systems and pension systems have different intra-generational and intergeneration distributional implications. Furthermore, the small print in each of these alternatives and combinations (such as replacement rates, payroll contributions by employees and employers, tax treatment of pensions, basic pension guarantees, ceilings on pension values, indexation criteria, state role in financing actuarial deficits, and regulations on privately managed individual accounts systems) are as important in distributional terms as the broad options and combinations themselves. In addition, models (with its options, combinations and fine print) do not

operate in a vacuum. The distributional effects of such systems are very much dependent on the interaction of choices in design and on the structural social and economic features of societies (dependency rates, longevity, formal and informal employment, gendered rates of economic participation, overall wage and income inequality, etc.).

Finally, the options combinations, fine print and structural conditions foster different political economies, distributional coalitions, and veto points that shape the political actions by players, workers, employers and retirees that will in turn influence the room for reform and change in more or less progressive directions. Given the layers of complexity and causal factors to be considered let us first analyze a simplified version that starts with broad nation-wide basic options.

Let us assume three different possible options: a universal flat rate pension scheme financed by general revenue, an earnings related PAYG contributory mandatory scheme financed by payroll taxes of employees and employers, and an individual accounts capitalization fully funded scheme financed only by workers' payroll contributions.

In intra-generational terms there is not much debate regarding the preference for a universal flat rate progressive funded system over the other two options.

The first model is the most progressive one, as long as general revenue is levied either progressively or in a neutral relative fashion¹⁷. The state collects money in a progressive or neutral manner and it pays benefits in a flat rate fashion. Thus, while the state collects more from those who have more (in absolute and/or relative terms), it then pays everybody the same amount. If this happens, the state will be taking more money from the rich than the poor and giving equal amounts to everybody. The pension value will be the same for all people but the replacement rates will be inversely stratified. Imagine the state pays 200 dollars a month in an economy where the lowest quintile has an average income of 300 dollars and the highest quintile of 3,000 dollars. The replacement rate for the poorest quintile will be 66% and for the richest quintile 10%. Furthermore, this system is best at avoiding old age poverty in those that were already poor or vulnerable to poverty. Social risk pooling in this case is meant not at smoothing consumption, but at guaranteeing basic income levels.

Box 3 **Pension design and inequality**

In theory, it seems reasonable that PAYG, public funded systems offer greater opportunities for redistributing income among the elderly. In contrast, it could be expected that private pension schemes carry the labour market inequalities into old age. However, there are several difficulties in testing these claims with real life evidence. As explained, countries rarely have pure systems; instead, they tend to combine different elements that make each pension design practically unique. Because of the copious variations in pension systems, results regarding which type of system has greater effects on inequality is inconclusive.

Van Vliet et al. (2012), for example, compare data from 15 European countries to test whether shifts from public to private pension provisions have had a detrimental effect on income distribution among the elderly. Contrary to their expectations, the authors conclude that relieving pressure from the public system (and translating it to the private sphere), does not appear to increase inequality among retirees. As the authors explain, using a dichotomous categorization ("public" or "private"), obscures many relevant differences which could explain these results. For example, even though Denmark has a strong private pension system, its possible negative effects on equality could be counterbalanced by its also strong basic pensions.

Notwithstanding these difficulties, several works have found significant effects of private/public mix on income inequality. A recent update of Van Vliet et al. (2012) has concluded the opposite: a greater participation of private pension systems does increase inequality and poverty among the elderly (Been et al., 2016). These findings are consistent with previous analyses, which also find a link between public expenditure in old age and reduced levels of inequality and poverty (Brown and Prus, 2004; Milligan, 2008; Weller, 2004; Schirle, 2009). Again, this ambiguity in the findings is most probably a product of the particularities of each pension system, which makes it hard to unequivocally categorize them.

Source: Own elaboration.

¹⁷ Relative neutral fashion refers to flat marginal rate.

The answer is not so simple when we compare capitalization and earning related PAYG systems. Let us assume that the capitalization system is the most regressive. This seems reasonable, since it is the one that ties benefits to contributions (based on earnings) in its purest form. Furthermore, since we are assuming that such systems still expect basic years and contributory density for eligibility, they transfer resources from those with irregular contributory records to those with full contributory records or to the administrators, and leave those in the informal sector and broken contributory records with no form of support. Unless we allow for those with, say less than ten years of contributions, to collect the money at some point, the resources they channeled into the system will go as profit to the manager of the fund or to the pension recipients, while those with full contributory records will get the benefits from their savings and interest generation.

But it is also true that a PAYG system with stringent contributory requirements will do the same, only that in this case the money channeled by those with contributions that are not enough for retirement eligibility, will go either into wages of those state employees administering the system, or to those that ended up being eligible for pensions. The fine print is critical in this case. PAYG systems can be more progressive, but there is no guarantee, and furthermore, they can be less progressive than capitalization funds. Capitalization funds can never be more progressive than their countries' income (especially wage) distribution, but they can be less regressive than highly regressive, low coverage, overtly generous and fiscally unsustainable PAYG systems. Let us substantiate these claims with examples. The New Zealand model is highly progressive. It grants a flat-rate universal pension to those aged 65 and over and is based on a relatively progressive system of tax collection. The Chilean model before the recent reforms was a purely individual accounts capitalization privately managed system¹⁸. Its impact as it started to pay pensions, showed that it was highly regressive and left many of the elderly without any pension support or with inadequate pension benefits. The DB, state managed, mandatory PAYG system, which is still a dominant model, shows a wide variety of results, from strongly progressive, to neutral systems to radically regressive systems. Once again the fine print is critical, and the way in which such critical issues are considered is also relevant.

¹⁸ Before 2008, Chile did have a social pension (PASIS), but its coverage and amount was increased significantly with the reform. Currently, the poorest 60% of the population (64 and over, who do not already receive a pension) is entitled to receive the new non-contributory pension (Pensión Básica Solidaria), whose amount is 50% higher than PASIS.

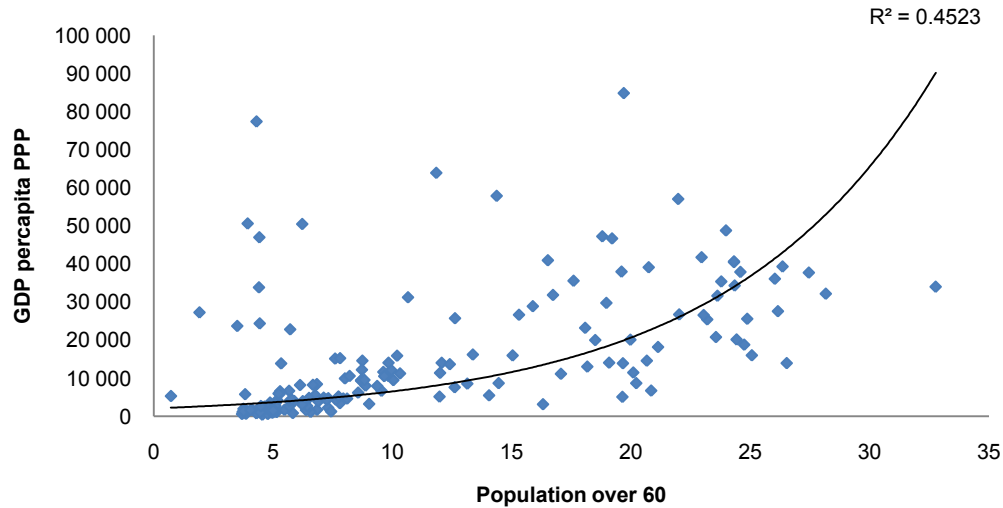
III. Demographic stages, economic development, social protection and pension systems: searching for connections and models

As countries move from early demographic transition stages to later ones, the population at or over 60 years of age will increase. Even though the relationship is far from perfect, countries should be aware that as they grow more developed, they will age. Furthermore, the shape of the relationship is on average exponential, meaning that as we move into the higher GDP levels, ageing accelerates. It is important to note that around what can be termed middle income and upper middle income countries there is quite a wide variation in the proportion of people aged 60 and over.

It is also important to note that while it is true that countries will and are getting older, old age, or those 65 and above, enjoy today, on average, healthier lives than before. The balance between aging societies and health and autonomy in old age will become crucial for sustainability. Furthermore, the relationship between GDP growth and the proportion of salaried workers follows a Log shape. This implies that salaried workers that can contribute to pensions systems will increase faster at early stages of development but slower in richer areas. If we compare the shape of both curves they will increase especially slower than the increase in people aged 60 and over (see figure 4 and 5).

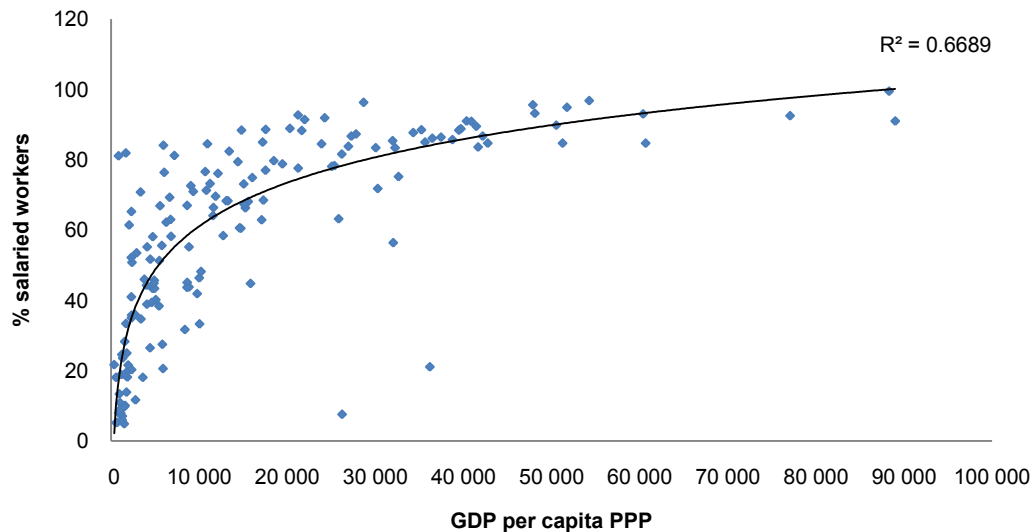
Another important parameter relates to fertility rates. In contrast to Europe where fertility rates declined over a long historical period, in some developing countries fertility declines have been sharp. This provides an intense demographic bonus, for in a short period of time, the relation between active and dependent population increases dramatically (since there are less children). But it will also imply an accelerated process of ageing, since as the new smaller cohorts mature, and the older cohorts gain longevity, the dependency relation will increase markedly in one or two generations. One of the facts that should be considered when thinking about pension design in the developing world is precisely the shorter and more intense demographic bonus that most of such countries are going through (or will go through) and design their systems in such a way that retirement age takes into account life expectancy and longevity.

Figure 4
GDP per capita (PPP) and population over 60, around 2010



Source: Own elaboration based on ILO (2014).

Figure 5
GDP per capita (PPP) and proportion of salaried workers, around 2010



Source: Authors, on the basis of ILO (2014).

Longevity and relatively early ages of retirement will create major problems for many countries in developing regions (see table 3). To this we should add that in some regions overall contributions are too low to adequately finance pensions -for the years that reasonable estimations suggest- at adequate levels. In many countries with PAYG systems with contribution rates of less than 20% over wages, the active contributing population will have to finance, on average, more than 20 years of pensions per pensioner.

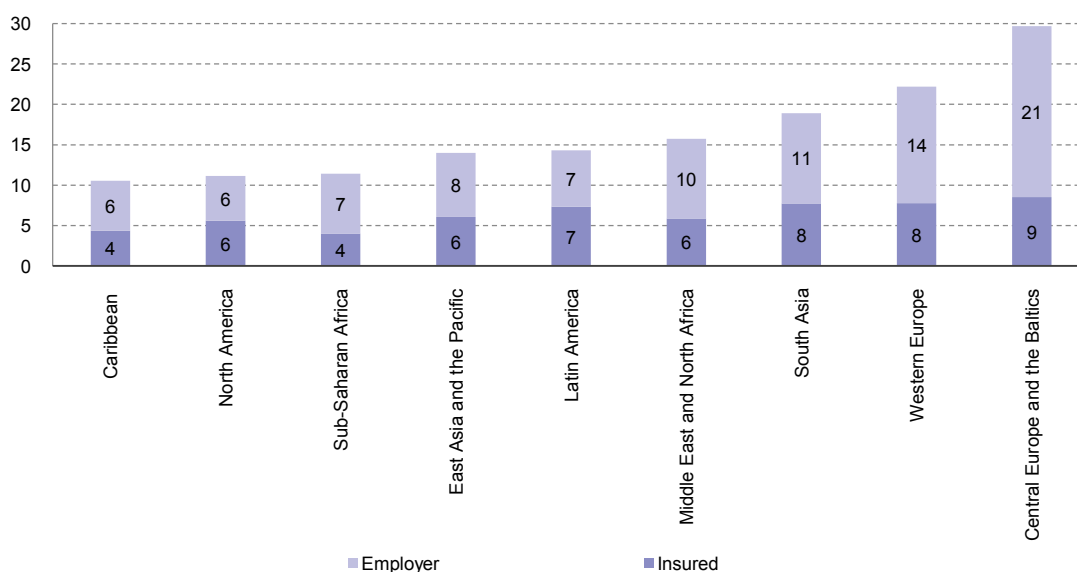
Table 3
Age-related characteristics of social insurance schemes, by sub regions, around 2010

Regions	Age of eligibility for men	Age of eligibility for women	Approximate population over pensionable age	Average pensionable age	Life expectancy of those 65 and over	Estimated pension years to be paid ^a
Central Asia and Far East Europe	62.78	59.31	14.52	61.0	79.94	18.89
Central Europe and the Baltics	62.94	60.76	19.19	61.8	81.32	19.47
East Asia and the Pacific	58.40	57.98	10.52	58.2	80.90	22.71
Western Europe	64.75	63.56	16.65	64.2	83.33	19.18
Middle East and North Africa	60.56	57.57	7.06	59.1	80.19	21.13
North America	65.50	65.50	14.15	65.5	84.30	18.80
South Asia	58.60	56.00	7.20	57.3	79.36	22.06
Sub-Saharan Africa	59.53	58.91	5.03	59.2	77.73	18.51
Caribbean	61.82	61.24	9.80	61.5	81.41	19.88
Latin America	62.06	59.71	9.68	60.9	82.68	21.80

Source: Authors, on the basis of ILO (2014).

^a Difference between life expectancy of those 65 and over and average pensionable age.

Figure 6
Contribution rates of employees and employers, by region around 2010



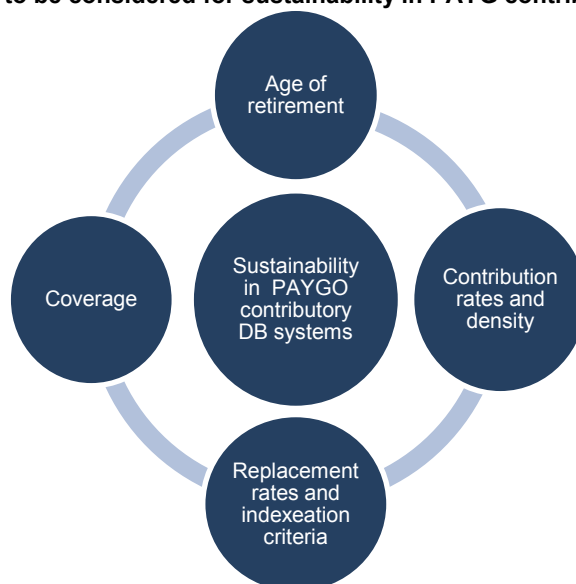
Source: Authors elaboration based on ILO (2014).

There are of course three adjustment mechanisms that are less desirable than adequate consideration of aging and longevity: coverage, replacement rates or value of pensions, and indexation criteria. There are four things that cannot be sustained at the same time in the long run in PAYG DB contributory regimes (see diagram 3): high coverage of the elderly, high replacement rates, full wage indexation and low contribution rates and/or active contributors¹⁹. As countries age, this combination

¹⁹ While productivity increases are key in any hypothesis to sustain pension systems in ageing populations, no productivity increases can bridge the gap of low contributions, few contributors, high coverage, high replacement rates and generous indexation criteria. This of course will make systems actuarially unsustainable. And the subsidies required to sustain them would make the state face fiscal and financial problems. In short such parameters lead to actuarial and financial stress and make up a highly inequalitarian system in intergenerational terms.

will be impossible to maintain and will many times adjust in very regressive terms. One way by which that happens is when the state enters the scheme with subsidies, not to support a minimum pension or extend coverage for those with low contribution records, but to grant high replacement rates for higher income earners. In general DB systems that seek to provide a homogeneous replacement rate are more likely to meet actuarial problems and are also more likely to allocate subsidies in a regressive form.

Diagram 3
Key elements to be considered for sustainability in PAYG contributory DB systems



Source: Own elaboration.

In cases of fully funded individual accounts systems, the problem is not one of sustainability, but of adequacy. If contributions are not adequate for longevity, then they will adjust by value. Yet, as it is becoming evident in many countries that moved to DC capitalization systems, the state might end up stepping in and subsidizing such systems²⁰. Finally, in the case of non-contributory pensions, GDP per capita, fiscal capacity, coverage, age of retirement and pension value are the parameters for sustainability. Poor countries with low fiscal capacity will have to build systems with retirement ages, coverage and pension values that recognize such limits. Yet the advantage here is that sustainability is relatively straightforward, and given its predominantly flat-rate nature, increasing funds will also have a straightforward, mostly progressive effect.

Whatever combination of DB, DC and social pensions countries choose to design, they will face the limitations of these parameters which will in turn limit coverage, value, and indexation. Of course, in many regions and countries, the underlying assumption is that other means of income support will be available to the elderly: their own individual savings, family support or their permanence in the labor market. While it is true that the elderly rarely rely only upon their pension or retirement income, it is imperative that all countries build sustainable and equitable pensions and retirement income systems as part of their overall system of intergenerational transfers, for as societies change, state managed or mandated retirement income retirement systems will become more, not less, important for overall well-being of the elderly.

²⁰ This happens in two ways. The state picks up the tab of a DC system that does not provide adequate insurance for low income earners (Chile, Uruguay, Mexico) and worse still, the state starts subsidizing the payment of the pensions. One must remember that the Private Pension Fund Managers collect the money and invest, but they do not pay the beneficiaries. They give their accumulated capital and obligations to insurance companies that are willing to accept the risks given the accumulated funds. In the case of Uruguay no private insurance company has been willing to buy the options. Thus the State Insurance Bank has done it. As payments started, it became evident that the Bank has more obligations than funds, thus the state will once again subsidize high income earners, but will do so in the new capitalization system.

IV. National Transfer Accounts and old-age support income and pension systems: drawing conceptual and analytical links

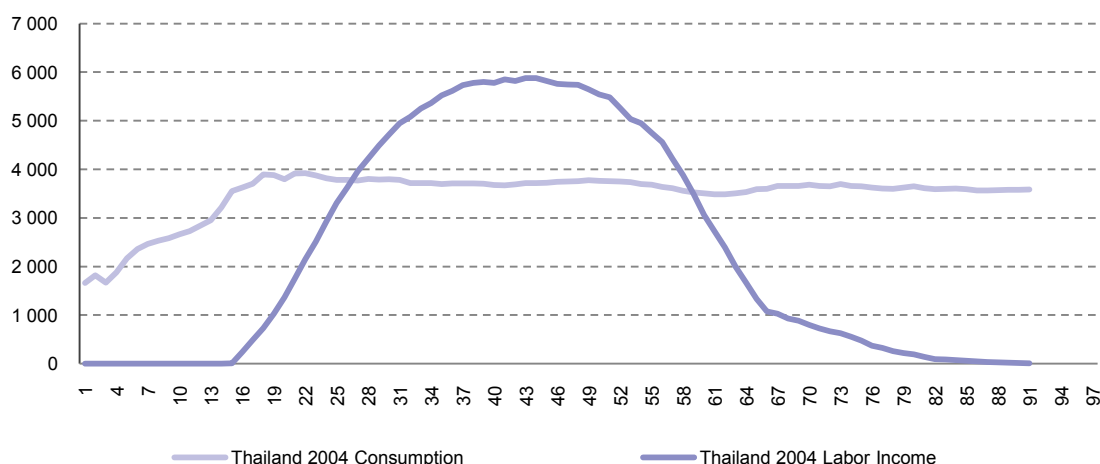
Pension systems are indeed one of the major devices of inter-generational transfers. The National Transfer Accounts (NTA)²¹ project has provided tools to analyse demographic trends, economic structure and public policy regarding intergenerational transfers. As Mason and others (2016, p. 28) argue, “[t]ransfer systems serve an essential economic function by shifting resources across and within age groups. Children and, in most societies, the elderly meet their material needs by relying heavily on public and private transfers. As population age structure changes, transfer systems must constantly rebalance with profound implications for economic development and generational equity. How changes in age structure will play out over the coming decades varies greatly depending on each country’s position in the demographic transition and its approach toward intergenerational transfers”.

The NTA approach starts by presenting a stylized description of consumption and income generation through the life cycle (see an example for Thailand in figure 7).

In the example in figure 8, people between 25 and 61 years of age approximately generate more labor income that they consume, while people below 25 and above 61 consume more income than they generate, measured on average per capita spending and labor income generation. Thus there is a deficit at the age extremes and superavit in middle age. How do societies deal with such unbalanced life cycle income and consumption patterns? They redistribute income from those with superavit to those with deficit. Note that these curves are not meant to define adequate consumption levels or required income levels, but actual ones. Thus, the only way in which the consumption levels of children and the elderly can be fulfilled, is because someone transfers money from those that generate more income than they consume to those that consume more than they generate.

²¹ The goal of the National Transfer Accounts (NTA) project is to improve the understanding of the generational economy. The accounts are designed to complement the UN System of National Accounts, population data, and other economic and demographic indicators. The National Transfer Accounts sheds new light on many areas of importance to policymakers. These include the evolution of intergenerational transfer systems; public policy with respect to pensions, health care, education, reproductive health, and the economic implications of population aging.

Figure 7
Per capita consumption and income flows, Thailand, 2004



Source: Authors elaboration, based on NTA comparative data sheets.

There are three ways by which such transfers can take place: (i) families do it; (ii) the state does it; or (iii) individuals save or accumulate assets in T1, -say when they are in their 40s- and turn it into income at T2, say when they are in their 60s or 70s. The first form is defined as *private transfers*, the second as *public transfers*, while the third is defined as *asset based reallocation*. It is quite clear that children's average consumption is made up mostly of public (family allowances, public education and health care) and private transfers (room and board, care, clothing, etc.), -as well as, marginally, their own labor income (child labour).

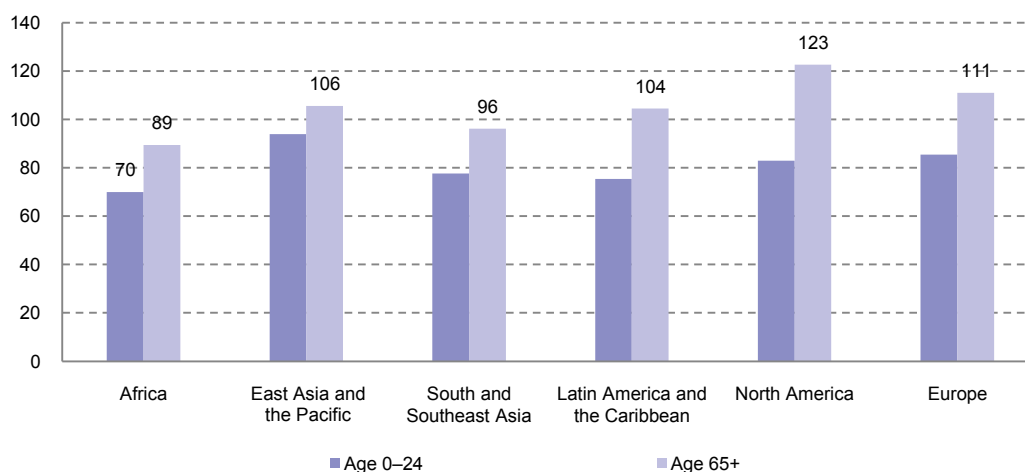
In the case of the elderly, there are four ways by which they can access consumption: (i) they can generate labor income by remaining in the labor market or in income generating activities; (ii) they can receive income through pensions and care and services through public programs (i.e. public health care); (iii) they can rely on their families, receiving room, board and other services financed by the income of other family members, or (iv) they can rely on assets that they have accumulated previously.

However, it is also important to note that many elderly are also providers of support. One important form is time provided -mostly by grandmothers- to care for their grandchildren. But even if only financial flows are considered, the elderly are often important providers of support. They pay taxes and they provide direct financial support to younger generations. A full understanding of the support system is essential to understanding the implications of population aging, the role of income retirement income systems and the broader economic and social role of older persons in nations.

The first analysis that we can develop with these simple analytical end empirical tools is one that allows us to better measure the consumption and income levels across the life cycle in different societies and the aggregate effort that societies make to finance the consumption of the elderly.

The elderly consume less than the average person in their active years in Africa and South and South East Asia, slightly above in Latin America and the Caribbean and in East Asia and Asia Pacific, and a good deal more in Europe and North America. In all cases they consume more than children and young people up to 25 years of age (see figure 8).

Figure 8
Consumption level as a percentage of consumption of those aged 25 to 64,
by region and age brackets, latest available year^a

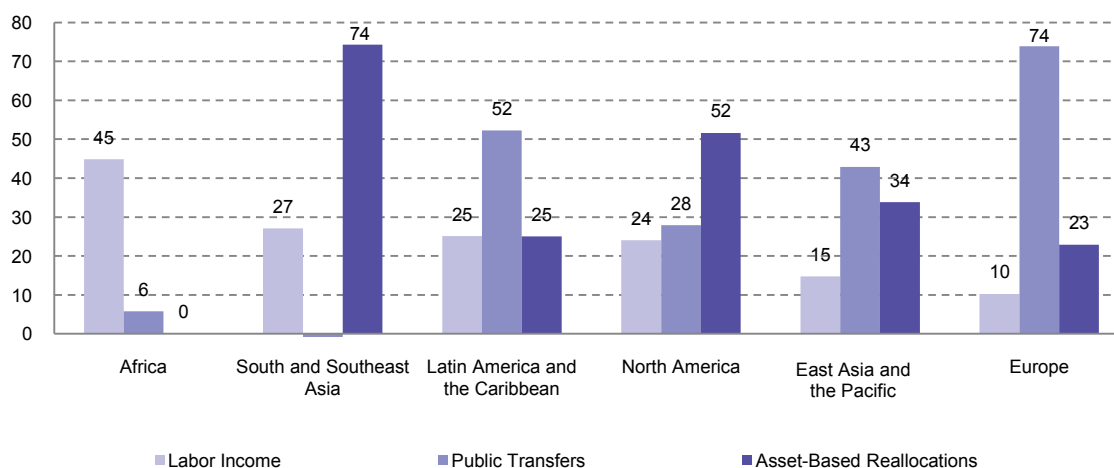


Source: Authors, on the basis of selected data based on NTA comparative data sheet, latest data available.

^a NTA country data at different points in time, from 1996 to 2008.

Regarding the financial sources for consumption in old age, there is a wide variety among regions. In Africa there is almost no available data for public transfers, so the dominant position of labor income may be overestimated. Still, it comes as no surprise that the region with the least developed retirement income systems presents the highest dependence on their own labor. A larger surprise comes from South and South East Asia. Because NTA methodology places capitalization and fully funded systems as asset based reallocations, in this region public transfers play almost no role, labor income remains an important source for financing consumption, but it is asset-based reallocation that dominates. In East Asia and the Pacific and in Europe is where labor income plays the least important role. Yet among these two regions the most important differences are in the relative weight of public transfers (central in Europe) and asset based reallocation (more important in East Asia and the Pacific). North and Latin America place a still relatively important role on labor income, but while the lion's share goes to public transfers in Latin America, in North America it goes to either private savings or firm based capitalization systems, and thus fall under the category of asset based reallocations (see figure 9).

Figure 9
Financial sources of old age (65+) consumption by source and region, latest available year^a

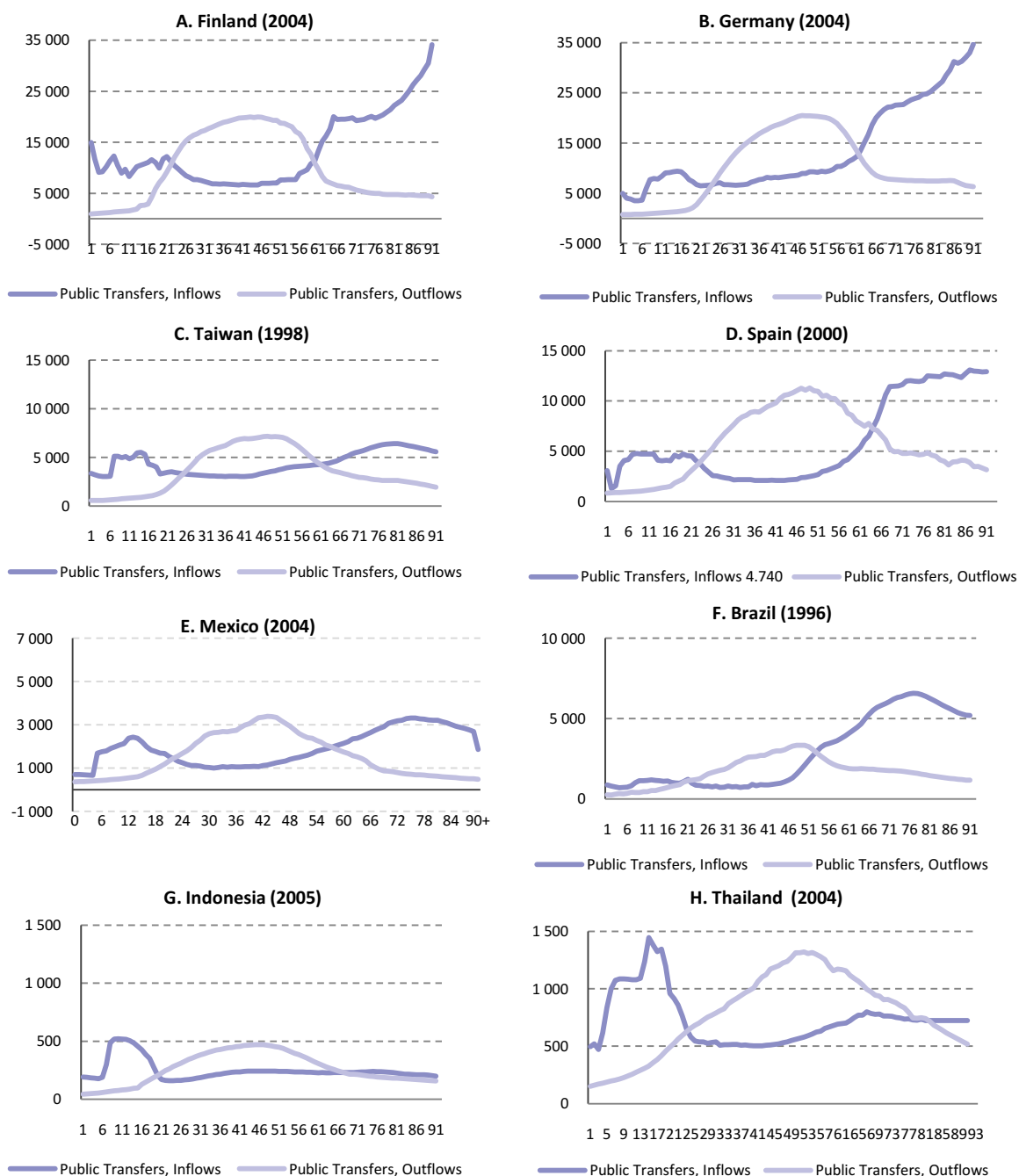


Source: Authors, on the basis of selected data from NTA comparative data sheet, latest data available.

^a NTA country data at different points in time, from 1996 to 2008.

A more nuanced way to look at the role the state plays in regard to old age consumption (and children's consumption) is to look at the way public outflows and public inflows distribute themselves across the life cycle. In other words, figures 11 and 12 show how states tax and collect money from people (outflows) and how in turn states provide transfers and public services to individuals throughout the lifecycle (inflows).

Figure 10
Public transfers (inflows and outflows) along the life cycle for selected countries
(per capita flows in PPP dollars), 1998/2005



Source: Authors elaboration based on selected data from NTA country profiles, latest data available.

The differences in the distribution of public transfer inflows and outflows along the life cycle are worth mentioning. In very high income countries such as Finland, Germany, Taiwan, and to a lesser extent Spain, there are stark differences in how the state redistributes income across ages. Finland is a case in which heavy taxation (in the chart, corresponding to outflows in typical active ages) finance a strong welfare state at both ends of life. In per capita terms, the Finnish state provides between 10 and 15 thousand PPP dollars for each child, and for the elderly from the age of 63 to 80 between 15 and 20 thousand PPP dollars. In order to do so, it taxes the active population heavily (through social security contributions and general taxes) reaching almost 20 thousand dollars a year in prime age. Germany taxes at similar levels but its intergenerational distribution is rather different: for children, the range of public transfers is between five and ten thousand dollars, but for the elderly it is higher than Finland, mainly because the curve steeps early and it increases at a steady pace, while Finland does not increase flows to the elderly between the ages of 65 and 80²². It may seem obvious, but it is worth reminding the reader that the longer the state holds increases in flows to the elderly, the less it spends given the relative population sizes of those at 60, 70 and above 80.

Spain and Taiwan also provide an interesting contrast. Taiwan taxes far more lightly than European countries and then distributes such taxes with a strong balance between children and the elderly. This is rare, since in almost all developed countries per capita flows are quite higher for the elderly than for children. Spain follows such general pattern, with heavier taxation (compare outflows in Taiwan and Spain) on the active population, even though its GDP per capita is smaller than Taiwan, but with a clear emphasis on flows to the elderly.

Indonesia and Thailand, while different in their GDP per capita levels, place children at the center of their fiscal efforts and lightly tax the active population. Such is not the case of Brazil where taxation is larger –consider that its GDP per capita is slightly below that of Thailand- with outflows at peak active ages close to four thousand dollars (against 1,500 dollars for Thailand) but with a clear preference for fiscal spending on the elderly and a strong neglect for spending in the early stages of life. Mexico is in this sense more moderate, with smaller tax burdens but a more balanced age profile regarding inflows.

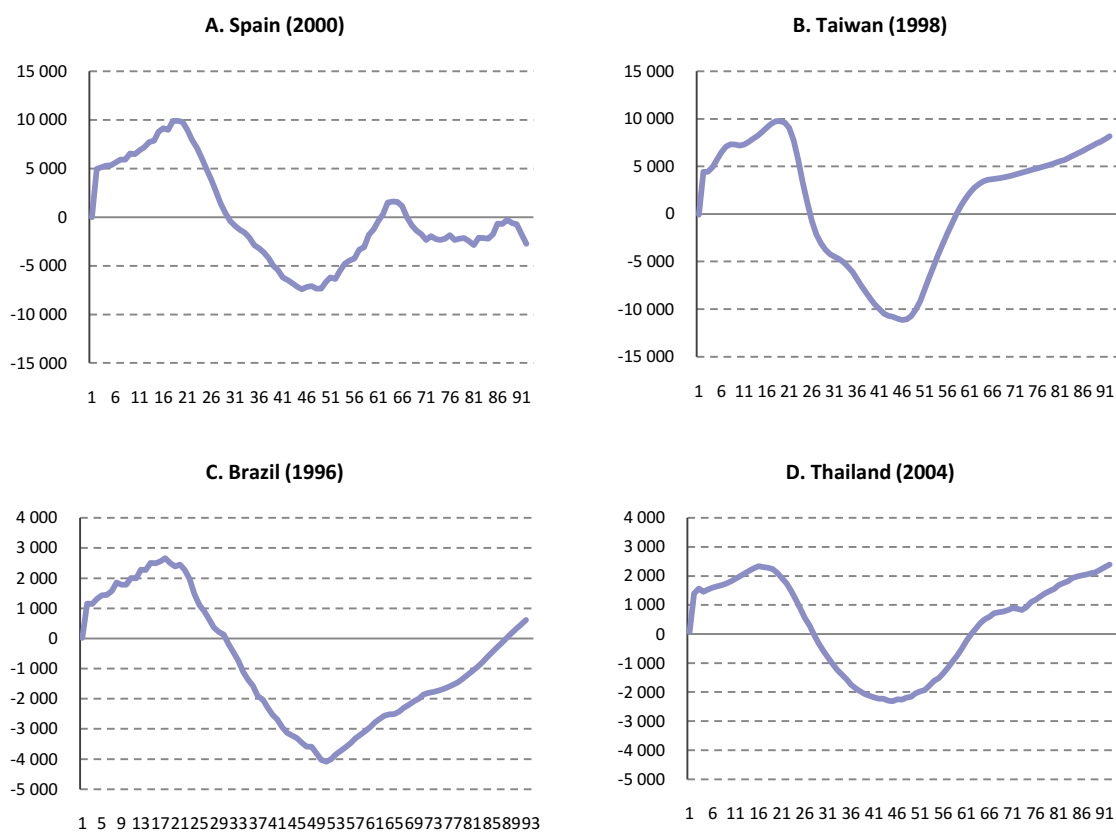
Of course, such pattern of public inflows and outflows has another side of the story, which can be seen in private outflows and inflows. When private transfers are positive it means that such ages are receiving more than they are giving; if they are negative it means that they transfer to other ages at a greater extent than they receive.

Brazil and Spain have negative private transfers for most of the elderly population (see figure 12). This means that the elders receive less in the form of intra-family and inter-family transfers than they provide (to other family members). Thailand and Taiwan show the strong familial pattern of protection in old age. Taiwanese and Thai elders are being supported by other family members as early as when they turn 60 years old.

Continental and Southern European and Latin American countries face the challenge of rebalancing their public transfer systems in intergenerational terms. Asian countries face the challenge of building protection systems for the elderly that are less dependent on family support, as these forms of support will erode with urbanization, demographic change and secularization. The Nordic European countries seem to have solved the dilemma of investing in children and protecting the elders through heavy taxation and progressive spending. Still, as they age they will have to confront the steep increases in spending geared at the oldest of the old.

²² After the ages of eighty, flows increase substantially, but this is less related to pensions as it is to care systems and health (NTA country profiles, 2015).

Figure 11
Private transfers during the life cycle for selected countries
(per capita flows in PPP dollars), 1996/2004



Source: Authors elaboration based on selected data from NTA country profiles, latest data available.

V. A comparative outlook of pension systems models and challenges

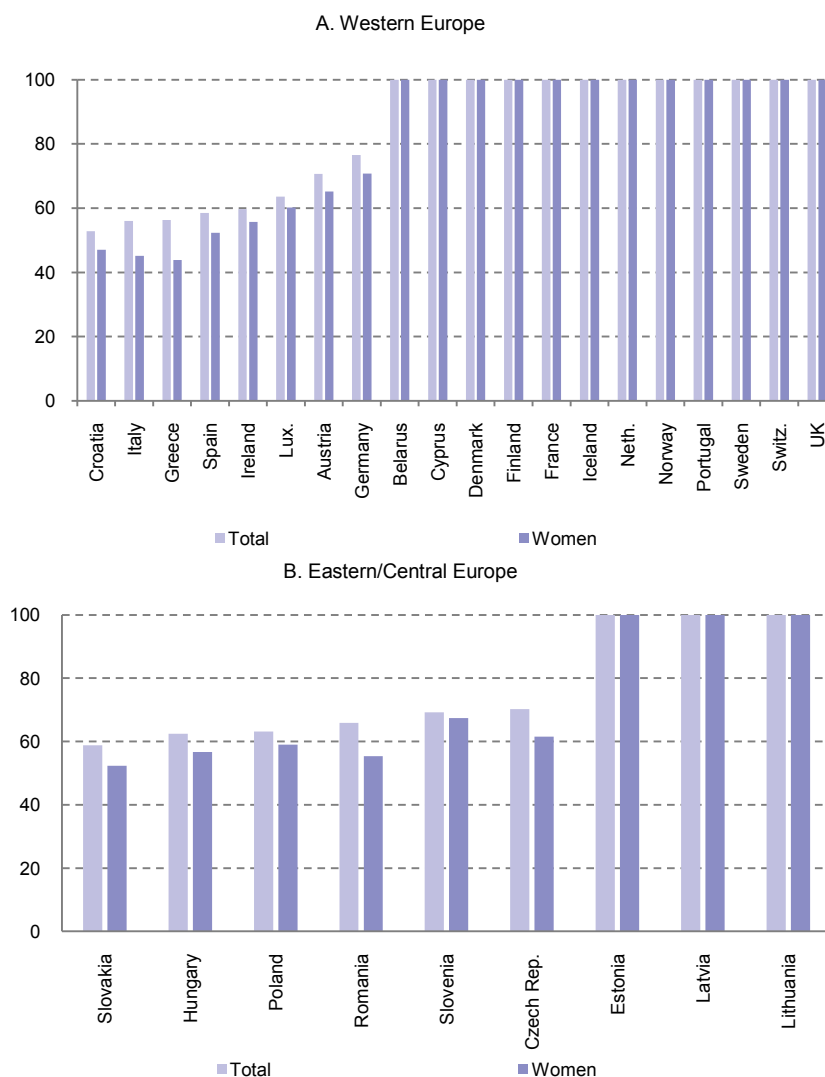
Different world regions and even different countries within regions face different challenges regarding pensions systems. This is due to a number of interacting factors: the stage of their demographic transition, their level of economic development and the architecture of their pensions systems. The distributional impacts in terms of class, gender and inter-generational fairness are strongly dependent on such interactions.

A. Europe

One of the most important challenges facing most European countries relates to sustainability, given its increasing proportion of the elderly among the population and slow growth, scant employment creation and meager productivity increases for some time now. The critical issue in Europe has been how to gain sustainability while at the same time protecting coverage and adequacy for those most vulnerable. The reversal to PAYG individual, fully funded capitalization systems (mostly in Eastern Europe), the reform of DB PAYG earning-related systems (with notional and point systems as in Sweden and Italy and parametric reforms as in France, Finland, Germany and Austria) and the expansion or protection of non-contributory systems (as in Netherlands, Sweden, Denmark and Norway) have been some of the ways by which European countries have confronted demographic, social and economic challenges. Replacement rates of higher-income earners and indexation criteria have suffered as states adjust to limit current deficit and future liabilities.

Coverage of both the active population and the elderly is quite high (see figure 13, 14 and 15), even though some differences should be mentioned. In Western Europe, Southern Mediterranean countries (with the exception of Portugal) together with Croatia have the worst results in terms of who would be covered given present rules in the active working population. Luxembourg, Austria and Germany follow with levels that do not reach 80%. All the other countries considered in Western Europe in ILO's estimates cover all of the working age population. In the case of Eastern/Central Europe and the Baltics only three countries have full coverage of the working population (see figure 13). The rest hover around 60% to 70%. In all cases of incomplete coverage of working age population, in both sub-regions, women are at a disadvantage.

Figure 12
Western and Eastern/Central Europe: estimated effective coverage of pension systems
(percentages of the working age population), latest available year^a

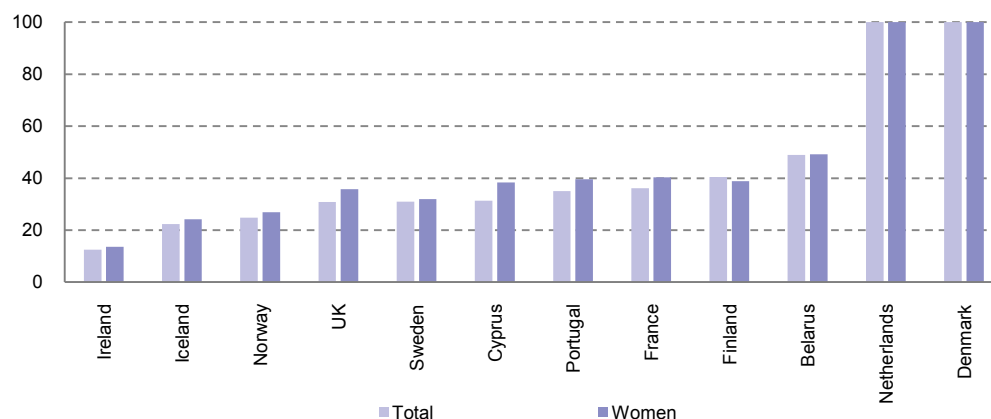


Source: Authors elaboration based on ILO (2014). It includes both contributive and non-contributive pensions.

^a The extent of legal coverage is defined as the proportion of the working age population covered by law with schemes providing periodic cash benefits once pensionable age is reached. The estimation of the working age population effectively covered is reached using available demographic, income and employment statistics to quantify groups covered given existing laws (ILO, 2014) both in contributory and non-contributory systems. For all graphs based on ILO statistics regarding coverage of working age population and coverage of those above pensionable age latest available year refers to a year between 2012 and 2014.

The critical factor accounting for full coverage is the existence of relatively strong non-contributory systems. All of the countries with such systems reach 100% of estimated coverage, while almost all those who lack such systems do not reach full coverage. In the case of Ireland, despite a means tested pension that covers approximately 12% of the population, overall coverage is estimated at 60%. In the case of Eastern/Central Europe and the Baltics, Lithuania and Estonia have relatively large non-contributory schemes, while Latvia also has one, though rather small in coverage. For non-contributory pensions, the gender gap reverses in all cases except Finland, as women have larger coverage (see figure 14).

Figure 13
Western Europe: non-contributory coverage
 (percentages of working age population), latest available year^a

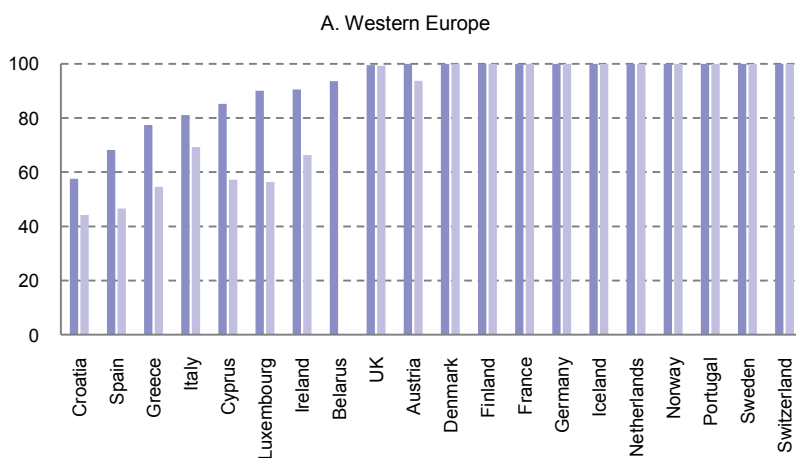


Source: Authors elaboration based on ILO (2014).

^a The extent of legal coverage is defined as the proportion of the working age population covered by law with schemes providing periodic cash benefits once pensionable age is reached. The estimation of the working age population effectively covered is reached using available demographic, income and employment statistics to quantify groups covered given existing laws (ILO, 2014) both in contributory and non-contributory systems. For all graphs based on ILO statistics regarding coverage of working age population and coverage of those above pensionable age latest available year refers to a year between 2012 and 2014.

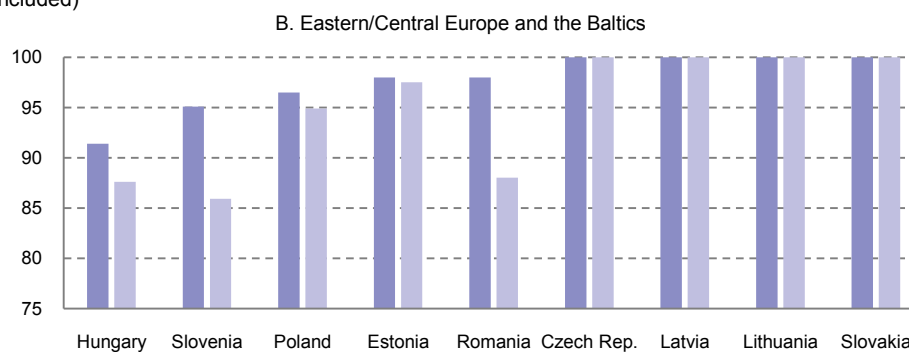
The data presented in figures 13 and 14 refer only to contributory or non-contributory pensions recognized by ILO standards, but do not consider survival pensions and disability pensions for old age.²³ When these are considered, most countries in Europe provide support in some monetary form to almost all of the elderly population above pensionable age. However, some countries still fail to reach full coverage even after considering survival and disability pensions. As figure 14 shows the real coverage of elders documented by ILO is usually higher than the expected coverage of working age population but failed to reach universality in many countries still.

Figure 14
Western and Eastern/Central Europe: effective coverage of old age pensions
 in population above pensionable age, latest available year^a



²³ OECD *Pensions at a glance* (2013 and 2015) offers a more nuanced description of basic and non-contributory systems in Europe and OECD countries. Most of them have some targeted safety net, even if some of them are not always considered in the ILO report. In particular, the OECD defines as first tier basic non-contributory pensions based on residence, minimum guaranteed pensions in contributory regimes and social assistance means-tested income transfers for the elderly that are poor or vulnerable to poverty (OECD, 2013 and 2015a).

Figure 14 (concluded)



Source: Authors elaboration based on ILO (2014).

^a The extent of legal coverage is defined as the proportion of the working age population covered by law with schemes providing periodic cash benefits once pensionable age is reached. The estimation of the working age population effectively covered is reached using available demographic, income and employment statistics to quantify groups covered given existing laws (ILO, 2014) both in contributory and non-contributory systems. For all graphs based on ILO statistics regarding coverage of working age population and coverage of those above pensionable age latest available year refers to a year between 2012 and 2014.

While coverage is high in general terms, Europe has very different combinations of income retirement models. As shown previously, Scandinavian and some northern countries usually have robust non-contributory schemes, while Southern Mediterranean ones do not. Continental and Central Europe do have non-contributory systems, though usually with less coverage and generosity. The Anglo-Saxon countries (UK and Ireland) have means tested non-contributory regimes. However, there are also wide differences in their contributory regimes.

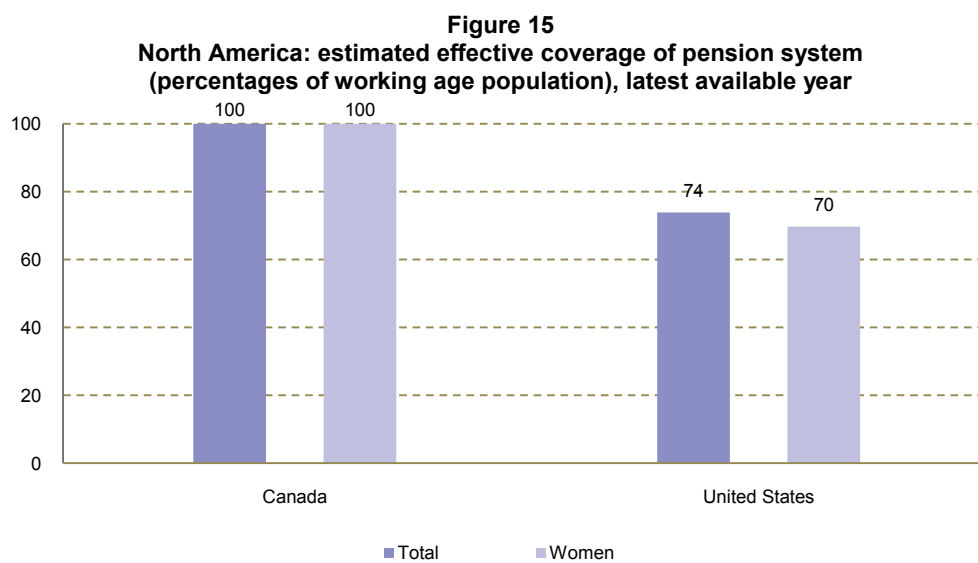
Ireland has a flat rate contributory system and a relatively small means tested additional transfer. Denmark has a flat rate universal non-contributory system, on top of which targeted transfers are made to those worse off –even after the universal flat rate transfer– and additionally an optional defined contribution system that has quite a large coverage. Spain and, until recently, Greece have typical earnings-related, DB, contributory schemes, with a ceiling regarding replacement rates in the case of Spain, and subsidies to guarantee equal replacement rates for higher-income earners in Greece. The first is thus a case with small redistributive bend, while Greece was a case of rather regressive subsidy allocation. Recent reforms in Greece have created a basic means-tested pillar and suppressed subsidies to higher-income earners (OECD, 2013). Hungary, as well as other eastern European countries that had created mixed PAYG and fully funded individual accounts capitalization systems, have reversed those previous reforms and gone back to PAYG defined benefit earning-related schemes.

Still, the effect of different architectures of pension systems is quite clear in distributional terms. Combined replacement rates and coverage for low-income earners are highest in countries with strong first pillars. In their latest OECD report, the countries that combined at the same time above –or equal– average replacement rates and above average coverage were Denmark, the Netherlands, Sweden, Iceland, Norway and Finland. Spain, Greece, Turkey, and Italy have above average replacement rates but lower coverage rates. Germany and Austria have above average replacement rates for low earners but slightly below coverage (OECD, 2015a).

As this region has the most mature systems in the world, there are some lessons to be learned from it, as other regions face or will face similar challenges in terms of sustainability and progressivity. First, strong non-contributory schemes provide the basis for universal coverage and have a clear redistributive effect. Contributory, PAYG, DB schemes have adjusted to gain sustainability and at the same time become more redistributive through ceilings in their replacement rates and subsidies for guaranteed minimum pensions. DC capitalization systems have been reversed or rolled back, while points systems and notional systems have become the preferred way to gain sustainability in former DB schemes. The cases of Sweden, Germany and Italy are good examples of the latter, while Hungary and Poland are typical cases of reversal or rolling back of privately managed, fully funded, DC, mandatory contributory systems (OECD, 2013 and 2015a).

B. North America

Canada and the US are rather different in the way they approach pension and income retirement strategies. They also confront issue of sustainability given both demographic trends and economic challenges but to a lesser extent than most European countries. While Canada seems to have solved issues of coverage and adequacy, it faces problems regarding income replacement in the higher income groups. The US faces both coverage and adequacy issues (see figure 15), while replacement rates for high-income earners are also a problem as in Canada due to the financial crises and the large dependence this country has on voluntary, DC, private capitalization systems.



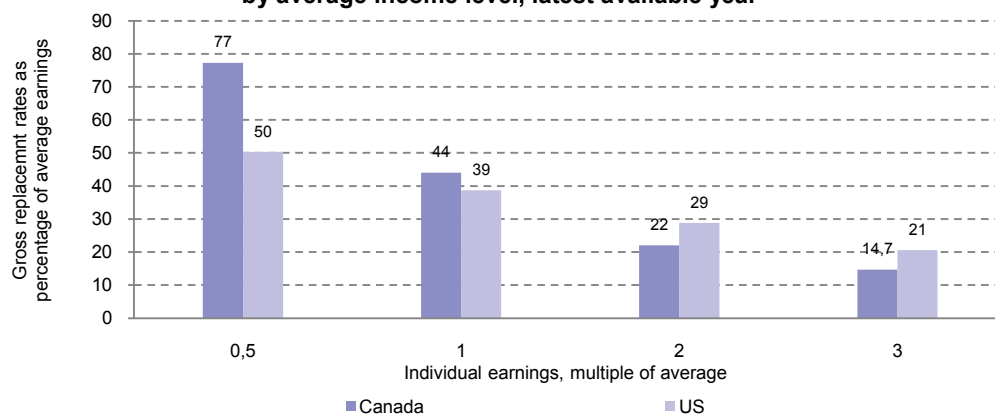
Source: Authors elaboration based on ILO (2014).

Once again, non-contributory systems explain a large part of the differences in coverage of the working age population. While in Canada 26% of the population is estimated by the ILO to be covered by a non-contributory pension, there is no similar estimate in the US. Instead, means-tested social assistance to the elderly is known to be extremely stringent. According to OECD data, effective coverage of non-contributory benefits of those 65 and over is close to 40% in Canada, while in the US it does not reach 10%.

The US Social security system is progressive regarding those eligible for pensions. The social security system has a progressive formula based on differential replacement rates, yet the final effect is moderate and a large proportion of the elderly will not access such system and will either have no income support or the stringent means tested benefit (OECD, 2013). In Canada the reality is rather different. A strong and relatively wide targeted non-contributory regime, an additional targeted safety net benefit and a progressive earnings related DB scheme provide a far more redistributive old age income retirement scheme (OECD, 2013). This can be seen clearly in the gross replacement rates of average earners in both countries (see figure 16).

The value of the basic pension plus the targeted top up benefit represents slightly more than 30% of average earnings of Canadians. In contrast, the safety net benefit in the US amounts to less than 20% of average earnings (OECD, 2015a). Considering all systems and how taxation treats retirement income, net replacement rates in both Canada and the US are below OECD levels for all type of earners (low, medium and high). Yet they are lower for high income earners in Canada than in the US, and lower for low income earners in the US compared to Canada. As a consequence, in the case of Canada, poverty in old age amounts to less than 7% of those aged 65 and more, while in the United States slightly more than 20% of the elderly are poor.

Figure 16
North America: pensions gross replacement rates as a percentage of average earnings, by average income level, latest available year^a



Source: Authors elaboration based on data from OECD (2015a).

^a Latest available year for OECD statistics refer to years between 2012 and 2015 unless otherwise specified.

C. Australia and New Zealand

Australia and New Zealand are very different from all other pension schemes in Asia Pacific. They belong to countries that developed quite some time before most of Asia in the 20th century and that have already mature pension and income retirement systems, and are further into their final stages of the demographic transition.

New Zealand is a rather unique case. It has full coverage of both the working population and of those above pensionable age (see figure 17)²⁴. This is due to the fact that the only state-based old age income system is a universal flat-rate non-contributory pension. On top of that scheme, New Zealand has a capitalization, fully funded voluntary system, with some state subsidies to induce and support lower income earners to join²⁵.

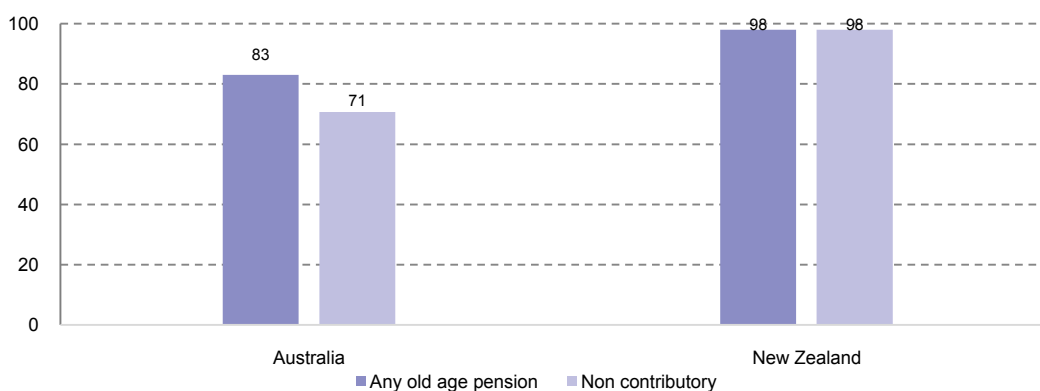
What makes New Zealand unique is the simplicity and clear focus of the system. It is not aimed at adequate replacement levels of different income earners; it is not even really a retirement pension, since nobody has to retire or stop working to be granted such pension. It is simply an old-age income support system that is given with the requirement of residence –a number of years that has varied in time- for all those who turn 65.

What sets New Zealand apart is not just the simple and ample definition of eligibility –creating such a universal system-, but the combination of that trait with the value of the flat rate pension: it represents almost 40% of the average wage, thus for those earning half the average wage, the replacement rate is close to 80%, while it drops to 20% with those who earn twice the average wage. Maybe one major surprise is that pension spending in New Zealand reaches 4.9% of GDP, while the average for OECD countries is quite higher: 7.9%.

²⁴ The data on coverage is around 98%. The 2% missing that do not receive pensions is due to a residency test. Currently the residency test entitling people to the public pension from 65 years of age requires ten years' residency since the age of 20 (including five years after age 50).

²⁵ KiwiSaver is a government-subsidised voluntary retirement saving scheme introduced on 1 July 2007. At 30 June 2014, approximately 67% of New Zealanders aged 18-64 were active or provisional KiwiSaver members. The default minimum contribution rate for this scheme increased on 1 April 2013 from 4% to 6% of earnings, divided equally between employees and employers. Employees are able to select a higher personal contribution rate of 4% or 8%.

Figure 17
Australia and New Zealand: people above pensionable age receiving an old age pension,
latest available year
(Percentages)



Source: Authors elaboration based on ILO (2014).

Australia, on its end, has a mixed system, combining a public targeted program and a mandatory occupational scheme (called “Superannuation”). It is one of the few developed countries which has not had a traditional PAYG system in the past. Through the combination of these two pillars, Australia covers approximately 83% of elders aged 65 and above (ILO, 2014, see figure 17).

The mandatory private pillar is funded through employer’s contributions. Specifically, they contribute around 9.25% of their employee’s salaries to individual accounts. In addition, individuals can also contribute to their funds, although this aspect is voluntary. Upon reaching retirement age, people can opt between receiving their pension in the form of a lump sum or as an annuity. The vast majority of the employed are covered by this pillar.

The public transfer, called Age Pension, is a non-contributory income and asset tested pension. Besides passing the income and asset tests, one must meet age requirements (currently 65 but rising) and residency requirements. Notwithstanding the fact that many Australians are covered by Superannuation, a large proportion also receives the Age Pension, since they are not incompatible (although the income received through Superannuation is considered in the asset test). Around 72% of the population aged above 64 is Age Pension recipients. This means that most Australian elders receive incomes through both the private and the public pillar. The Age Pension is financed through general revenues, and it costs the government around 2.2% of GDP (ILO, 2014).

D. Latin America and the Caribbean

The biggest pension policy challenges faced by most countries in Latin America and the Caribbean (LAC)²⁶ today are: (a) low coverage of formal pension systems, both in terms of the proportion of workers participating in pension schemes and the proportion of the elderly receiving some kind of pension income (Cecchini et al, 2015); (b) sustainability and distributional impacts of contributory systems that are too generous with state employees and some categories of formal workers, and stratified and regressive given their sources of financing and their benefit conditions and level (Filgueira, 2014, ECLAC, 2015); and (c) individual capitalization, DC, systems, which have proven to be far less capable of delivering adequate coverage and pension benefits for most of the population (Uthoff, 2015). These challenges create fiscal problems and distortions in labor markets that are neither efficient nor progressive. Efforts to close the

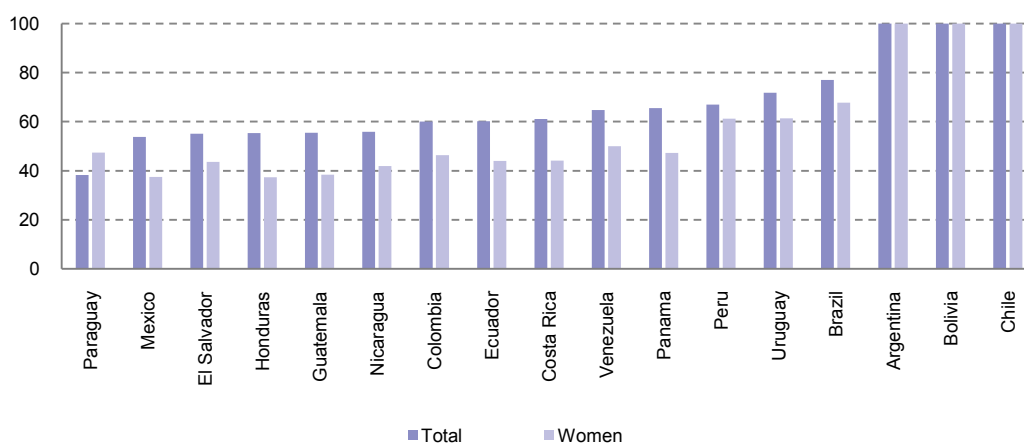
²⁶ There is very few data available on pensions in Caribbean countries, which is why few analysts consider them in their studies (Marco, 2015; Bosch and others, 2013).

coverage gap, for example through non-contributory pensions²⁷, are therefore at the heart of the pension policy debate in the region (Cecchini et al, 2015). However, these policies might pose significant fiscal challenges in the next decades as the population ages and if contributory systems are not checked to limit future liabilities.

According to Rofman and Olivieri (2012) the percentage of those contributing to or affiliated with a contributory pension scheme declined from 42% in the 1990s to around 32% in the 2000s, and then increased to 37% by the end of the decade. On average, active pension coverage fell in almost all of the countries of the region between the early 1990s and the early 2000s, when most private pension schemes were implemented. The financial crises the region underwent, the privatization of public services and a deregulated labor market are some of the reasons behind these trends. At the end of the 2000s, coverage of the economically active population was less than 30% in eight countries (Plurinational State of Bolivia, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay and Peru) and above 60% in only three (Chile, Costa Rica and Uruguay).

There are, however, significant differences among countries. In particular, countries with the highest coverage rates at the beginning of the 1990s (such as Chile and Uruguay) continued to consolidate their pension systems, currently reaching coverage rates close to 70%. Other countries, such as Peru and the Dominican Republic, have significantly increased their active coverage rates since the 1990s, even though they are still below 30%. In a third group of countries, such as Ecuador, Nicaragua, and Paraguay, the coverage rate continued to decline over the last two decades. No particular trend in coverage can be observed in the remaining set of countries. Given the low levels of pension contributions, other elements of the current labor markets in Latin America and the weak impact of growth, it is likely that pension coverage will continue to be low in the future, thus presenting policy makers with one of the key challenges for economic and social policy. When both contributory and non-contributory pensions systems are considered, the coverage for the active population increases, yet remains low in most countries (see figure 18).

Figure 18
Latin America: estimated coverage of pension systems
(percentages of working age population), latest available year

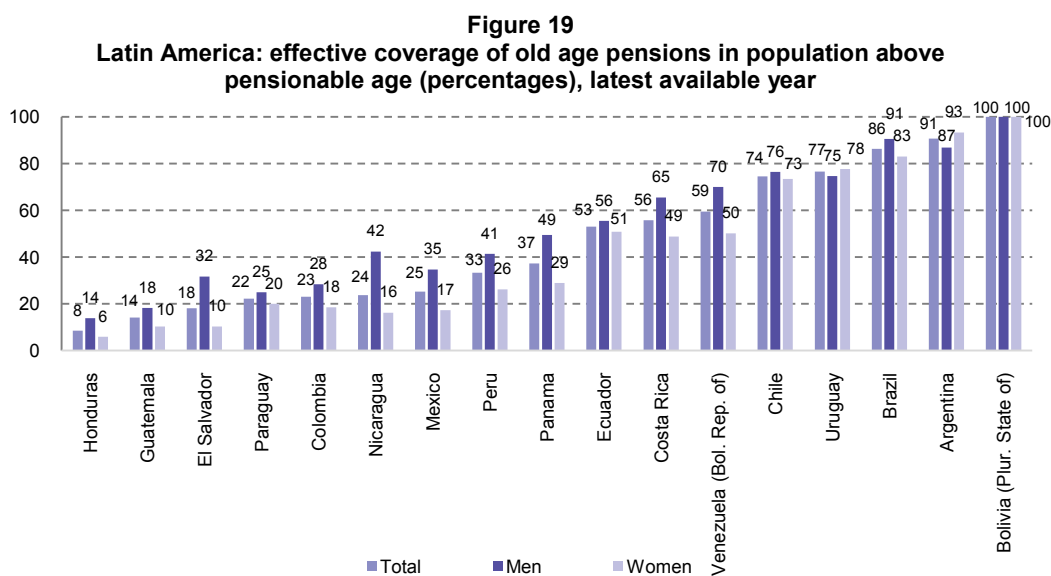


Source: Authors elaboration based on ILO (2014).

It should be noted, however, that in reality, strictly considered, old age pensions in Latin America reach less, not more, people than the estimations made for present active population. This is in part due to the fact that reforms that increase coverage are recent. Also this happens because other income support for the elderly are not considered in the ILO data regarding effective coverage for old age pensions. With these

²⁷ For a complete list of social pensions in Latin America and the Caribbean, see ECLAC, Non-contributory social protection programmes in Latin America and the Caribbean, Social Pensions [online] <http://dds.cepal.org/bdps/en/>.

caveats, it is worth noting that the only cases that get close to universal coverage (above or close to 80%) are the Plurinational State of Bolivia, Brazil, Argentina, Uruguay and Chile. Panama, Peru, Mexico, Nicaragua, Colombia, Paraguay, El Salvador, Guatemala and Honduras cover on average close to or less than 30% of the population above pensionable age. Ecuador, the Bolivarian Republic of Venezuela and Costa Rica are between slightly below 60% and 80% of coverage (see figure 19).



Source: Authors elaboration based on ILO (2014).

Yet, in contrast to the data for Europe, data on effective coverage of people above pensionable age underestimates real coverage of the elderly who receive some form of monetary transfers. This is due to the fact that a number of social assistance programs that are not part of pensions or the social security system have been recently developed in Latin America and the Caribbean as part of CCT programmes or social assistance strategies. The relatively important coverage of non-contributory transfers to the elderly somehow improves the situation (see table 4).

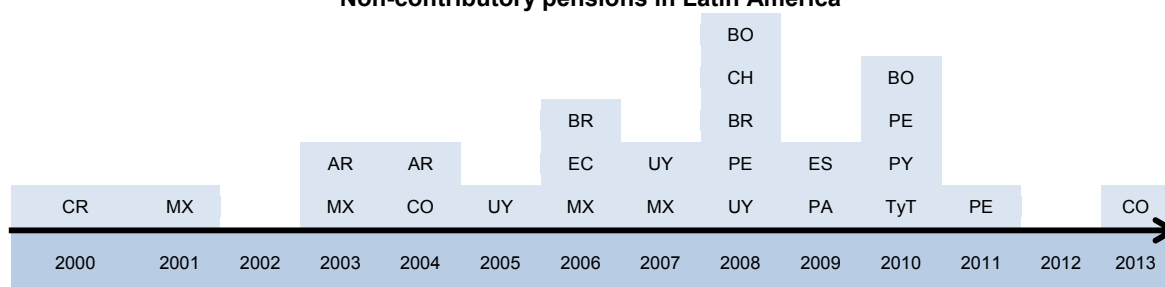
Table 4
Latin America: people receiving some income support from non-contributory sources in old age (percentages), latest year available

	Above 65	Above 60	Above eligible age
Argentina	3.2	2.3	4.7
Colombia	11.6	7.7	17.9
El Salvador	5.9	4.3	8.6
Uruguay	6.9	5.2	9.6
Peru	15.9	11.3	15.9
Guatemala	16.3	11.2	16.3
Venezuela (Bolivarian Republic of)	37.7	24.6	20.2
Chile	22.8	16.0	22.8
Paraguay	26.8	17.9	26.8
Costa Rica	28.6	19.7	28.6
Mexico	22.2	15.4	33.6
Brazil	41.8	28.3	41.8
Panama	32.2	22.5	48.4
Ecuador	57.0	39.2	57.0
Bolivia (Plurinational State of)	100.0	100.0	100.0

Source: Authors elaboration based on ILO (2014).

There are a number of new non-contributory pensions that explain this. In the first decade of the 21st century an important set of reforms of either the pension system or social assistance have contributed to expansion in coverage (see diagram 4).

Diagram 4
Non-contributory pensions in Latin America



Source: Rofman and others (2013).

The explanation for Argentina's large coverage is particularly interesting. During the late 1990s and early 2000s, coverage of the elderly population began falling steadily, given stricter conditions to access a pension and rising informality rates²⁸. By 2003, coverage of the elderly was at a low 68% - which, for Argentinian standards, was a significant drop (Rofman and others, 2009). Around 2003-2004, however, the trend began to change direction. The government introduced a new alternative to receiving an old age pension, something between a contributory and a non-contributory pension, which had a significant impact on coverage. This new alternative was known as "Moratoria": people who had worked for 30 years but had not contributed to social security could still receive an old-age pension by providing evidence of those years of employment. A certain amount would be discounted from the monthly pension to compensate for the absence of those contributions (Arza, 2012). Through this medium, approximately 2.5 million people began receiving a pension; the proportion of elders covered rose to approximately 90% (Arza, 2012; Cecchini et al, 2015, ILO, 2014). According to official statistics, 43% of those receiving an old age "contributory" pension do so through "Moratoria", while the rest receive it through traditional contributory records (Ministerio de Trabajo, Empleo y Seguridad Social, 2012). Given that Moratoria is widespread, the number of elders receiving a purely non-contributory pension is quite low.

A second Latin American case which is worth mentioning is the Plurinational State of Bolivia, given that it is one of the few countries in the world with a universal old age pension, albeit of low value. The first version of it, "Bonosol", was introduced during the 1990s, perhaps counterintuitively, during a phase of neoliberal politics. All elders over 65 would receive a monthly income of around 27% of per capita national income (Laserna and Martínez, 2014). President Evo Morales replaced Bonosol with "Renta Dignidad" in 2007. Although the essence of the policy remained the same, three fundamental changes were implemented: (i) eligibility was extended to those 60 and above; (ii) the amount of the benefit was increased by 25%; and (iii) it was established that those elders who also received a contributory pension would only get 75% of the value of Renta Dignidad (Muller, 2009).

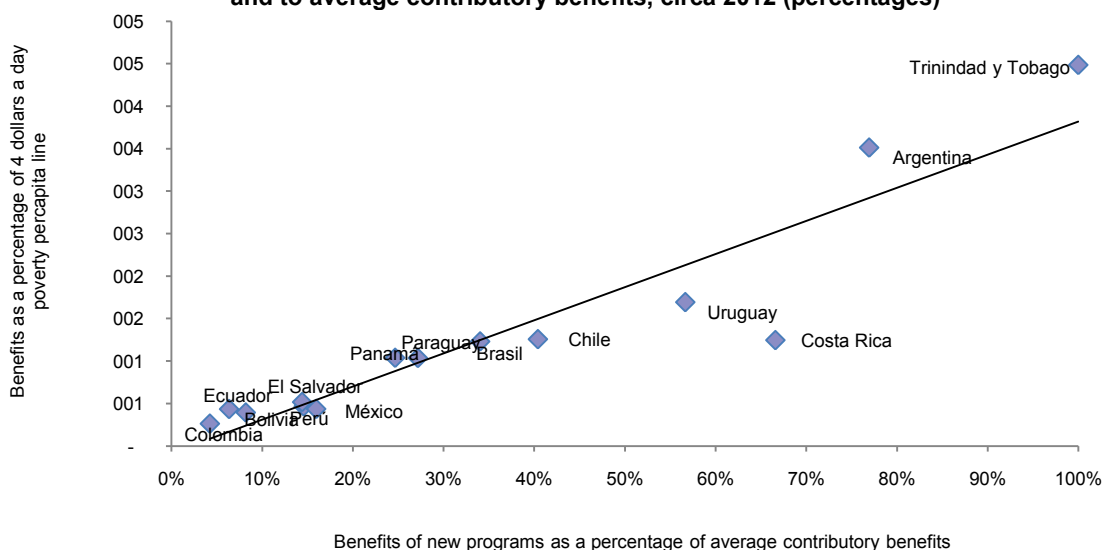
Despite these efforts to offer some protection to elders, poverty rates in the Plurinational State of Bolivia among this population remains quite high. On the one hand, elders continue to work even after they reach a pensionable age. Most, though, do so in precarious conditions. This is especially true in rural areas, where 79% of elders are employed, of which 95% are informal and 87% are self-employed or work for a family member (Laserna and Martínez, 2014). Of the total elderly population, only around 16% access a contributory pension. This means that the only source of pension income for the vast majority of Bolivian elders is Renta Dignidad, whose level of benefit is not as laudable as its coverage.

²⁸ At that moment, Argentina had a mixed system, which reversed back to a wholly PAYG system in 2008.

Despite the low amount of the pension (approximately US\$32²⁹), given the Plurinational State of Bolivia's high informality rates, providing a universal old-age pension seems to be an adequate choice for protecting the elders.

As in the case of the Plurinational State of Bolivia, the value of pensions or retirement support systems is rather meagre for almost half of the countries, being unable to reach, on average, the World Bank's poverty line of 4 dollars a day. The only countries with both universal coverage and high values of transfers are Argentina and Trinidad and Tobago (see figure 20) followed with some distance by Uruguay. In Trinidad and Tobago, which was one of the first Caribbean countries to implement a cash benefit to the elders (1934), high coverage is explained by its multi pillar system, which includes a non-contributory pension. Although it suffered some small modifications regarding eligibility criteria, it has always remained a means-tested pension. Since the availability of reliable administrative data (1995), coverage has been at 80% of the elders aged 65 and above. In addition, it is not incompatible with receiving a contributive pension, so total coverage is even higher. The value of the pension has increased significantly in recent years: as of 2011, it was 2.6 times the poverty line and 1.36 times the minimum wage- considerably more generous than social pensions elsewhere. In terms of cost, it represented 1.8% of Trinidad and Tobago's GDP (Reyes and Bronfman, 2014).

Figure 20
Latin America and the Caribbean: value of old-age monetary transfers in relation to the poverty line and to average contributory benefits, circa 2012 (percentages)



Source: Rofman and others (2013).

Regarding replacement rates of combined contributory and non-contributory systems, comparable data has only recently become available. Yet, the OECD estimation method assumes a far highly formalized reality with full density of contributions than is the reality in most countries in LAC. For this reason, “the estimations made for LAC assume three stylized profiles for male workers: i) formal workers (100% density of contributions, which is representative of high-income workers in most countries); ii) workers with 60% contribution densities (close to average in less informal countries such as Argentina, Chile, Panama, and Uruguay); and iii) workers with 30% contribution densities (the average in more informal countries such as Colombia, the Dominican Republic, Ecuador, El Salvador and Mexico)” (OECD/IADB/The World Bank, 2015). Such adjustments are far from perfect, and still assume stylized profiles only for male workers, but they do provide a first approximation at replacement rates.

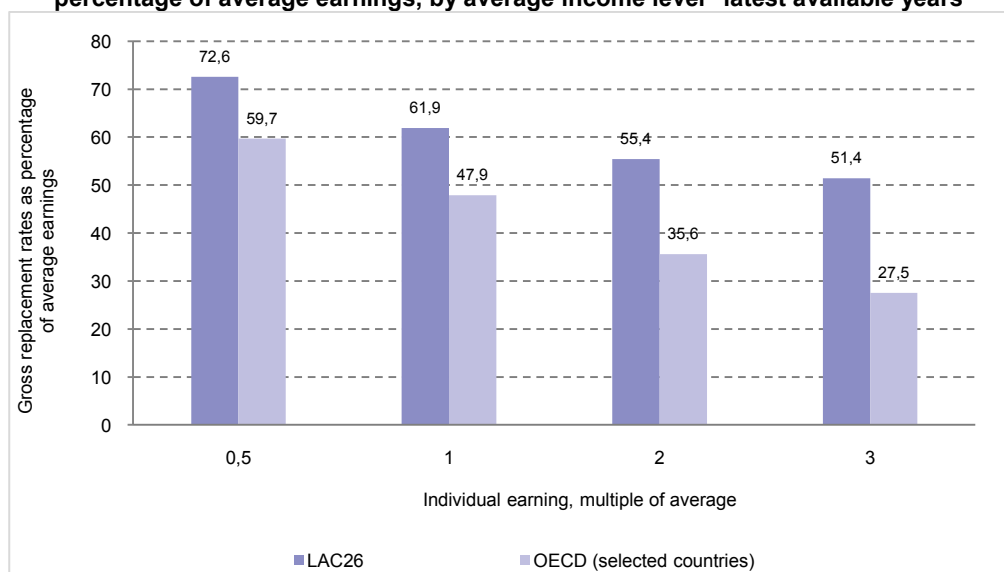
²⁹ The amount of the pension equals \$250 Bolivian pesos (US\$36) for those who do not receive a contributory pension; \$200 Bolivian pesos (US\$28) for those who do (Bosch and others, 2013).

DB dominated systems in general show relatively high replacement rates, quite higher than OECD countries. These are, in some cases, progressive across the income level of previous earnings, such as the case of Argentina and Colombia, or flat as in the cases of Ecuador, Paraguay and Nicaragua. The problem is that density of contributions, especially for those in the lower income brackets, is by no means 100%, not even 60%. Thus, we are left with either dismal replacement rates or directly with lack of coverage. The other problem is that almost all LAC countries today –with the exception of Costa Rica- subsidize their DB systems from general revenue. Since coverage is stratified along income lines, and replacement rates are usually worse for low-income earners than for high-income earners given their real densities in contributions, these end up being quite regressive systems. Only countries with minimum pension guarantees and strong non-contributory regimes in either coverage or value provide correctives to what are basically neutral or regressive DB systems. The DB of some mixed systems – those which have a first tier of non-contributory pensions and a third DC capitalization tier- do tend to be more progressive within the DB architecture, because they have some form of basic pension guarantee and ceilings on replacement rates for high earners.

On the other hand, DC systems tend to be regressive since higher and longer uninterrupted contributions increase the final estimated value of the benefits; these three features of contribution history (value, length and density) are highly correlated with income levels. Such is the case of Uruguay, Chile and Colombia. Yet, when these DC schemes are part of three tiered systems, the patterns become more progressive. The most consistent progressive system so far is Chile after the 2008 reform and Mexico because of its extension of non- contributory pensions. Yet they are only progressive up to the average income earner; for those beyond such threshold they are either regressive or neutral.

The major conclusion that can be reached with these data is that, in comparison with OECD countries, gross replacement rates in pension systems in LAC are high and impose a smaller penalty on high earners (see figure 21).

Figure 21
Latin America and the Caribbean and OECD (selected countries): pension gross replacement rates as a percentage of average earnings, by average income level^a, latest available years^b



Source: Authors elaboration based on OECD/IADB/The World Bank (2015).

^a Note: OECD countries: Canada, France, Germany, Portugal, Spain, United Kingdom and the United States of America.

^b For Latin America data are from years around 2010 (2008-2012) for OECD countries 2012-2015.

If we add to the analysis, that these data do not consider the value zero –i.e. lack of coverage- and that the systems are almost always subsidized, including a subsidy for high income earners, the conclusion is that LAC presents some of the most regressive old age income retirement systems in the world, which will be increasingly unsustainable and more regressive –given high replacement rates, ageing and contribution requirements– in the future.

Filgueira and Espíndola (2014) performed a micro simulation exercise for all Latin American countries with available household survey data to estimate the cost and impact of both a universal and targeted non-contributory pension. They do this with three different scenarios: a universal pension defined at the poverty line of each nation on top of whatever pensions the elderly already receive, a universal pension that considers those who already receive some transfers (so the fiscal effort required is to provide benefits for those who have none or additional benefits to those who receive benefits below the poverty line) and a targeted benefit also considering benefits already received for those elders in households whose per capita income is below 1.8 of the poverty line. The overall results show that the fiscal effort for the second and third option are feasible in the more developed countries of the region (Argentina, Brazil, Costa Rica, Chile, Panama, and Uruguay) (on average between 0,07 and 0,17% of GDP). In lower-income countries (Plurinational State of Bolivia, Guatemala, El Salvador, Paraguay, Honduras), the fiscal effort increases but is not impossible to reach in the targeted model (0.72% of GDP). Intermediate countries (Colombia, Ecuador, Mexico and the Dominican Republic) require on average 0.58% of GDP for a universal pension, taking previous benefits into account, and 0.38% for the targeted model. The poverty impact of such measures is significant but not enormous, given that the elderly comprise only a fraction of poor households: overall initial poverty would lower between 5 and 12 percent. But for poverty among the elderly the effect is very large indeed, making poverty nonexistent in single elderly households and in households with elderly couples living alone, as well as lifting out of poverty a number of households with elderly members.

A previous study by Dethier and others (2011) on the impact of a minimum pension in 18 Latin American countries was conducted in a more simplified fashion. The authors simulate two types of schemes: a universal social pension given to all elders and a means-tested one, given only to those below a certain income threshold. They conclude that, with the exception of Argentina, Uruguay, Brazil, and Chile, implementing a social pension would lift a considerable amount of elders out of poverty, the effects being larger if it is universal. This would not have such an impact in the aforementioned countries, given their already low poverty rates among elders. The authors also estimate the cost of implementing such program, which varies according to the amount established. For the poorest countries (such as Honduras and Nicaragua), a US\$2.5 a day pension would have a large effect on poverty and would cost around 0.6% to 1.6% of the GDP. For richer countries, particularly those with incomes above the regional average, the authors suggest that setting the minimum pension equal to the median income would be (economically) feasible.

E. Asia

Old-age income support will be one of the greatest social and economic challenges facing Asia in the 21st century. In some cases, such as Japan, this is because it already has one of the oldest populations and the most aged society in the world. But the increasing interest on old-age income support is mostly due to countries that are undergoing a profound and accelerated demographic transition that is reshaping Asia's age and family profiles. Most Asian countries do not have mature, widespread pension systems, are not able to provide economic security for their elderly, and are even less likely to do so for the large number of retirees that will soon increase dramatically. The demographic transition that took a century in Europe and North America will take place in Asia in one or two generations (UN DESA, 2015).

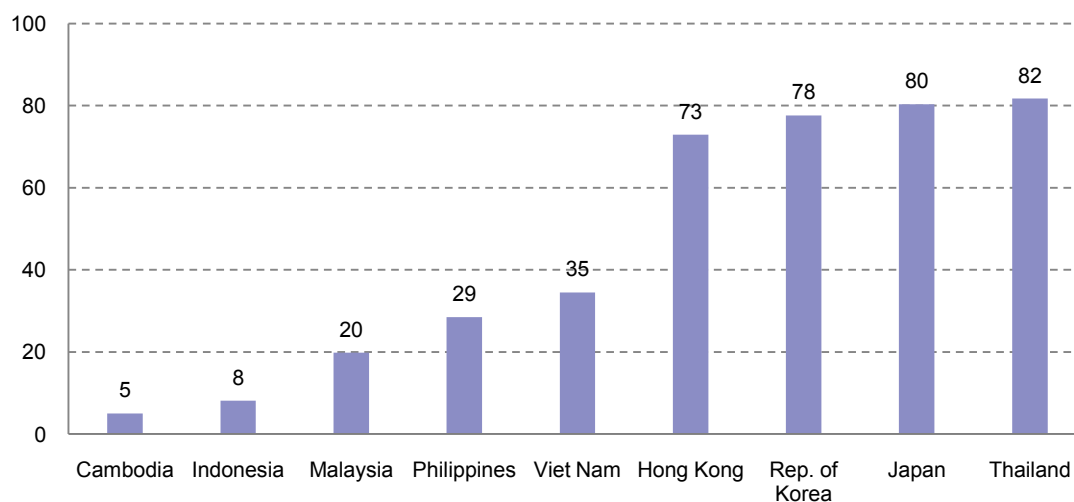
That said, it is important to consider the widely different realities in Asia. There is a group of countries that are highly developed both in GDP terms as well as in terms of human development (and have been for some time now), which are also societies that have undergone a full demographic transition. The Republic of Korea, Hong Kong, Taiwan, Japan, and, to a lesser extent, Singapore, are such cases. While Japan and, to a lesser extent, the Republic of Korea rely on traditional social security defined benefit (DB) arrangements combined with a basic flat rate pension with contributory requirements that allow them to reach high coverage, the rest of Asia Pacific has limited coverage in either DB systems or capitalization systems.

Hong Kong, Taiwan and Singapore³⁰ rely on provident funds or capitalization systems, even though Taiwan also has a DB earning related tier.

In addition, they have some form of social assistance for those that lack any entitlement –be it basic or earnings related- but they are stringent in coverage and very limited in value. With the exception of Japan, these rather rich countries in terms of GDP are world outliers in terms of pension coverage. For its development level, pension coverage is usually low, as family, continuous work and asset reallocation play a much more important role in providing income for the elderly than other regions of the world.

Indeed, beyond these more developed countries, coverage in other countries of Asia Pacific (Vietnam, Indonesia, Philippines and Malaysia) are extremely low (see figure 22). This is partly due to the traditional structural features of these economies. Countries with large rural populations predominantly engaged in small-scale agriculture and high degrees of absolute poverty are unlikely to have high coverage. Moreover, networks of family support are still present and operate as alternatives to formal pension systems. Yet many of these countries are no longer poor countries and are also facing an accelerated demographic transformation, not only in ageing but also in their family structures. Unless they modernize and expand their pension systems, they will place large masses of the elderly in extreme vulnerability.

Figure 22
Selected Asian countries: effective pension coverage
(percentages of people above pensionable age), latest available year



Source: Authors elaboration based on ILO (2014).

Thailand, with a lower GDP per capita than Japan or the Republic of Korea, is somewhat of an outlier in this group of countries. It was not so in the early 2000s, when coverage was less than 10%. By expanding the old-age allowance to all those not in receipt of other pensions in 2009, Thailand increased coverage ratios from around 5% in 2000 to 81.7% of people aged 60 and above in 2011. Its cost equals approximately 0.3% of its GDP. Other countries have also implemented non-contributory pensions but coverage remains low nonetheless. Viet Nam, for example, has two social pensions: one for elders 80 years above (only pensions tested), and another for elders between 60 and 79, which is also income tested. Both of these programs cover around 20% of the population above eligible age and cost around 0.05% of GDP (ILO, 2014). The Philippines also has a means tested non-contributory scheme for those above 77 years or older, reaching around 19% of this population (at a cost of 0.34% of GDP).

³⁰ Singapore's single-tier pension system is a defined-contribution scheme administered by a Central Provident Fund; it has become a key social, political, and economic institution. It was set up under the British colonial government in 1955 and is quite complex due to its multiple roles. It is, for example, the primary mortgage financing institution in the country.

In all three countries, the amount of the pension represents between 5% and 7% of the average wage. Thus, there is room for improvement at manageable fiscal cost. All in all, this seems an interesting venue to be considered by other low coverage countries with growing elderly populations and GDPs.

Box 4

The expansion of benefits in China: inducing voluntary insurance

Before 2009, only two institutional mechanisms for income security in old age existed in China: one for urban workers, based on social insurance principles, and one for civil servants and others of similar status, based on the employer's liability approach. Together, they covered under 250 million people (including pensioners), about 23% of the population aged 15 and above in 2008.

In 2009 and 2011, two new voluntary old-age pension schemes were introduced for the uncovered rural and urban population. To encourage people to join, the Government employed a number of measures, including contribution subsidies and immediate pension payments to the elderly parents of adults registered with a rural pension scheme. Pensions consist of two components: a social pension paid by the Government, and an individual savings account pension financed jointly by contributions from the insured persons, collective entities (if any) and the Government. A minimum level is set for the social pension, which can be higher if local governments so wish and are able to fund it: this provision partially explains the differences in the levels of pension payments across different regions. For contributions to the individual savings account, a minimum level of subsidy from the Government is fixed, and personal contribution scales are established to allow each of the insured to choose the level of contribution he or she wants to make. At the end of 2013, 850 million people, nearly 75% of the population aged 15 and above, were covered under the four pension schemes, of which 498 million were covered under the two new schemes, accounting for 59% of the total number covered. Essential expansion has also been made within the pension system for urban workers, in particular to cover rural-to-urban migrant workers, the overall number of whom exceeded 260 million in 2012.

To consolidate the progress achieved so far and to address issues of adequacy, equality, portability and sustainability in a more coherent, effective and efficient manner, in 2013 China began the process of overhauling the entire old-age pension system, now comprising the four components outlined above. The first outcomes of this process include the policies announced in early 2014 on the merging of the two new pension schemes to equalize their rights and opportunities; the portability of pension entitlements between the merged scheme and others; and the conversion of employers' liability for civil servants into a social insurance pension scheme.

Sources: Transcribed from ILO (2014: 84).

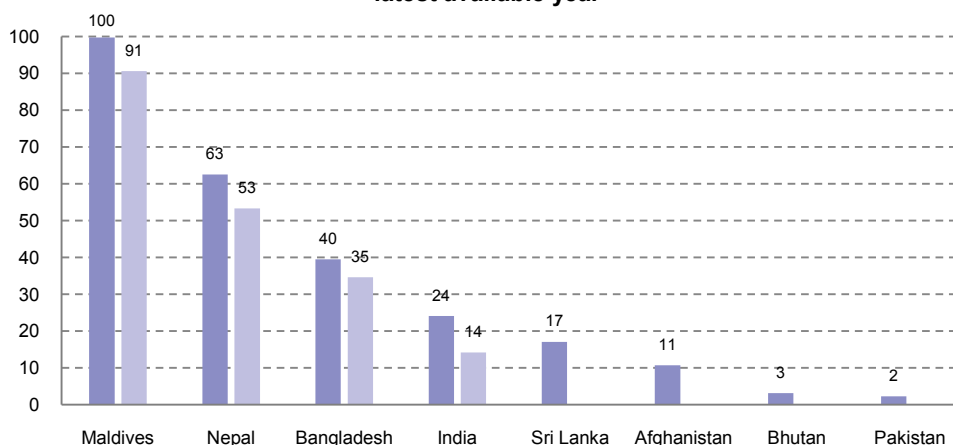
Southern Asia and Southern Central Asia present dismal rates of effective coverage of the active population and of coverage of the elderly (see figure 23), with the exceptions of Maldives and Nepal, who both reach more than half of the elder population with a pension scheme. The case of Maldives is particular, given its 100% coverage rates, of which 91% of it corresponds to the non-contributory scheme ("Old-Age Basic Pension"), which gives a flat amount of around US\$150 to all those 65 and above (with some income restrictions³¹), although the benefit is reduced if the person receives another pension.

Bangladesh and India, despite some recent improvements through non-contributory and voluntary schemes, remain largely laggards in terms of basic coverage. India's social security scheme is quite complex, having diverse programs for different sectors of the workforce (tending to favour civil servants and organized, formal workers). According to ILO data, only 2% of the working age population forms part of the contributory mandatory pensions (around 10% of the population above 58 -age of retirement-receive this type of pension). Through the Indira Gandhi National Old Age Pension, all those 60 and above who are below the poverty line receive, as of 2011, a monthly benefit of US\$4, or 3.2% of the average wage (ILO, 2014). This covers almost 20% of this population³².

³¹ Pension income must be less than twice the amount of the Old Age Basic Pension.

³² In Figure 24, coverage is shown for those above the mandatory pensionable age (58), so these numbers do not fully coincide.

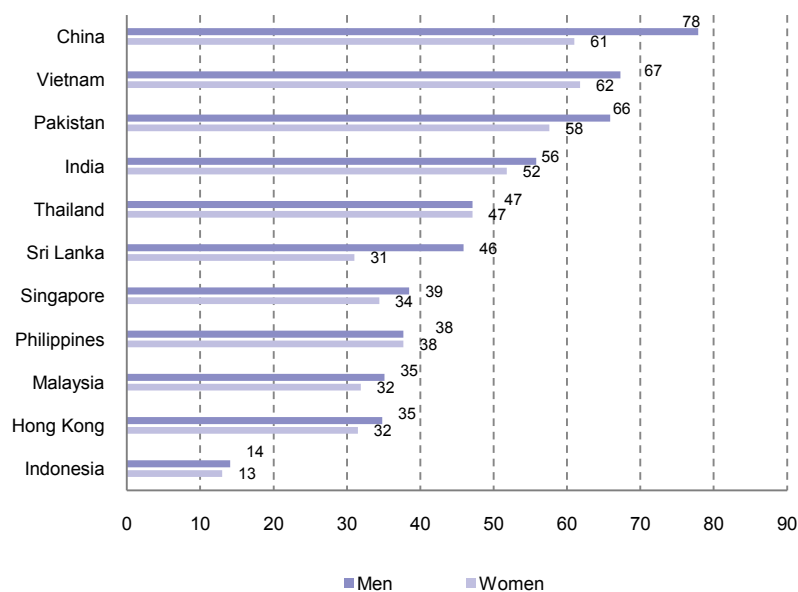
Figure 23
South Asia: old age pension coverage (percentages of those above pensionable age), latest available year



Source: Authors elaboration based on ILO (2014).

On average, the net replacement rates in this region are approximately 40% of a worker's salary. Although most countries' stand in a 30-50% range, there are a few outliers. China stands as the country with the highest replacement rates: an average male worker can expect to receive a pension worth 78% of his salary, while a female worker can expect to receive 61% of it. On the other end of the spectrum, workers in Indonesia receive a benefit equal to 13-14% of their wage. Among OECD countries, replacement rates for men and women are 54.4% and 53.7%, respectively (OECD, 2013, see figure 24).

Figure 24
Selected Asia/Pacific countries: net replacement rates for average earners (percentages of wages), latest available year^a



Source: Adapted from OECD (2013).

^a Latest available year for Asian countries refers to years between 2008 and 2013.

Besides the issue of coverage, there are other problematic features in many Asia/Pacific countries. The first regards pension withdrawal. In the region, people tend to retrieve their pensions early, and so little is left for retirement. In addition, many systems pay lump-sum benefits instead of a regular retirement income. For example, both in Malaysia and in Sri Lanka benefits are paid as a lump sum at the time of retirement, in Hong Kong workers have this option, and in Indonesia retirees are attributed either a single lump sum or an annual payment for 5 years. A certain minimum amount has to be taken as annual payments over 20 years in Singapore, but the rest can be taken as a lump sum. On the contrary, most pensions around the world are given in a regular basis, as annuities. In this sense, it is questionable whether these benefits are actually pensions (OECD, 2013).

Secondly, the region's social security systems are faced with problems regarding indexation. Adjusting the value of pensions guarantees that they will "keep up" with rising costs of living, and will continue to provide elders with some welfare. Although most developed countries have introduced automatic indexation of pensions, this has not been the case in Asia. Instead, except for a few exceptions (China, Philippines, and Viet Nam), adjustments have been set in a discretionary fashion.

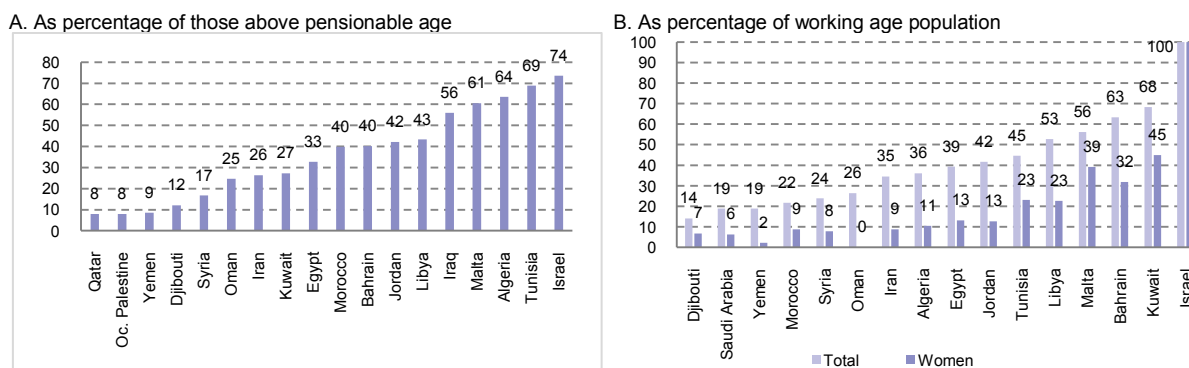
These two features suggest that such systems rely to a large extent on other sources of income and support for longevity. Allowing for withdrawals and lump sum payments and eroding pension values due to the risk of inflation over retirement income, in addition to the issue of coverage mentioned above, leaves the elderly and very especially the very old in high risk of poverty (OECD, 2013).

F. Western Asia and Northern Africa

Despite relatively high levels of GDP per capita in many of the Western Asian and North African countries, old age pension coverage remains low. In fact, relative to its GDP, the Middle East and North Africa (MENA) have the lowest coverage rates in the world, both of its active population and of those above pensionable age. With the exception of Israel, no country is close to a universal coverage on either indicator, and many countries have virtually no real general income retirement system for the population (see figure 25).

For the most part, countries in this region have mandatory public pension schemes. This was pioneered in this region by Algeria, who, in 1949, inherited a DB public pension model. Few countries have private pension schemes, mainly because the largesse of the public system dissuades any competition (Demarco, 2010).

Figure 25
Western Asia and North Africa: old age pension coverage (percentages), latest available year



Source: Authors elaboration based on ILO (2014).

There are four explanations for this state of affairs: (i) a high percentage of migrant labor in oil rich countries that have no real social security systems; (ii) low coverage of contributory systems –in some cases mainly focused on civil servants and privileged groups–; (iii) absence of non-contributory

systems (with a few exceptions); and iv) extremely low coverage of women (consistent with low labour participation rates and absence of non-contributory regimes). Low coverage exists for a few reasons. First, the informal and agricultural sectors are usually not contemplated in the social security laws, meaning that large proportions of the workforce are not entitled to the right to contribute for their old age. Second, migrant laborers compose the majority of the workforce in several oil rich countries in these regions. These workers are also excluded from social security. Third, some analysts have pointed to governments' weak monitoring and enforcement of the law. This implies that even workers who are obliged to contribute fail to do so, either because of personal preferences (myopic behaviour, or mistrust of institutions) or because of ignorance of the law (they are unaware of their eligibility to a pension) (Robalino, 2005; Loewe, 2009). In Egypt, for example, only half of those workers obliged to contribute do so (Demarco, 2010).

Those that do access pensions, however, access them at relatively good conditions. Replacement rates tend to be unusually high in the MENA region. For example, for 40 years of work, replacement rates average 80% (compared to an average 57% in OECD countries). Some countries have even higher replacement rates, such as Iran, where it surpasses 100% (Loewe, 2009). Even considering 30 years' worth of contributions, replacement rates are quite generous, standing at around 75%.

Retirement age is also lower than in most OECD countries. The majority of countries have the age set at 60 for men and 55 for women. In addition, the conditions to access early retirement are generally favourable, and some even discourage long lasting careers, encouraging workers to retire even before the statutory pensionable age. For example, in Bahrain, if a male worker begins contributing at the age of 35, his returns will be higher than if he would've contributed since he was 25 years old. In Jordan, if a member of the military begun his career at 17, he can retire as early as 33 years old.

The value of minimum pensions in this region is also known to be above average. In comparison to the poverty line, the minimum pension tends to be considerably higher (average 30% of earnings). Again, some countries exceed this number: in Iran, the amount of the minimum pension reaches 66% of the average wage, 42% in Egypt, and 37% in Jordan (Loewe, 2009; Robalino, 2005).

As mentioned, most countries in this region do not have non-contributory schemes, which is yet another explanation for the scant coverage. The exceptions are Algeria, Egypt, and Israel. Israel, which tends to be an exception to all the aforementioned characteristics of old age pensions, has the most important non-contributory pension in the region. It is given to those who either contributed but did not reach a certain minimum, or have never contributed. This pension is means tested and residence tested and covers around 86% of the population above 65 (ILO, 2014).

In Algeria, the *Allocation forfaitaire de solidarité* is an unconditional cash transfer given to certain vulnerable groups, among which are elders (60 or above) who either live alone and have no income or live in a poor household. Other beneficiaries include people with disabilities or poor households with children. Beneficiaries are given a monthly pension and health insurance (as well as maternity benefits for mothers) (Cirillo and Tebaldi, 2016). According to ILO (2014), 18.4% of the population of 65 and over receives this pension. Similarly, Egypt introduced a Social Solidarity Pension in 1980, a non-contributory pension for vulnerable households: divorced and abandoned women, orphans, elders, and, in general, households where the male provider is unable to work (Cirillo and Tebaldi, 2016). Approximately 19% of elders (60 and above) are beneficiaries of the Social Solidarity Pension³³.

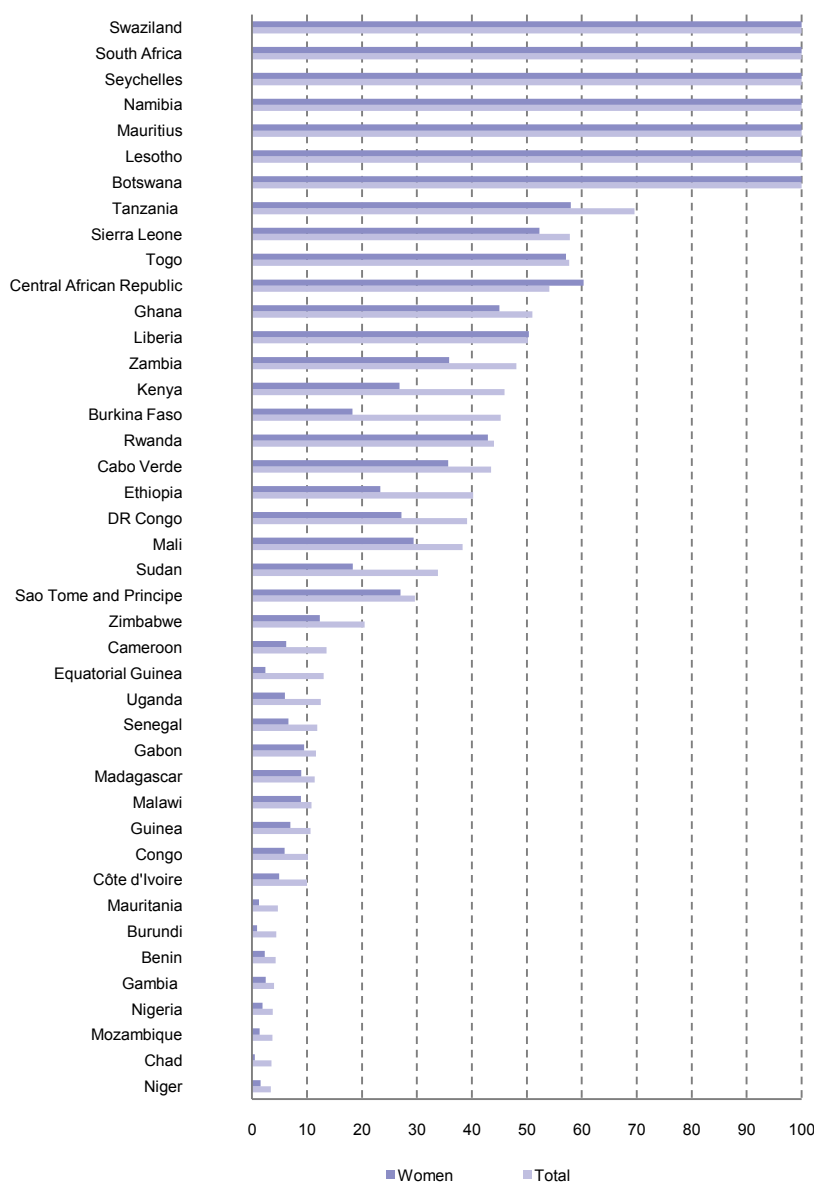
G. Sub-Saharan Africa

Pensions may not appear to be the most urgent matter for Sub-Saharan Africa. One may well ask why to address this topic at all, given more critical policy priorities for the region such as education, health, poverty alleviation or agricultural development, and given the lack of demographic pressure coming from an ageing population. The urgent issue for pension reform in Sub-Saharan Africa is not only the

³³ See <http://www.pension-watch.net/country-fact-file/egypt/>.

need to introduce social protection systems to help alleviate demographic pressures, poverty amongst the elderly and provide support for households headed by grandparents following the HIV-AIDS pandemic and regional conflicts. In addition, there is a vital need for reform of existing pension systems in the region, the cost of which is often crowding out spending on other key areas (such as health and education). Coverage of these systems is low (under 20% and in some countries under 5% of the population, see figure 26) and usually only for civil servants or a minority of relatively highly paid workers in formal sector employment, making for highly regressive systems, with cross-subsidies required from indirect taxes (usually VAT) as pension payments from these systems frequently exceed contributions. The need for efficient pension arrangements in the region is undoubted –though the challenges for introducing them remain great (notably the large informal sector of workers).

Figure 26
Sub-Saharan Africa: effective old age pension coverage
(percentages of working age population), latest available year

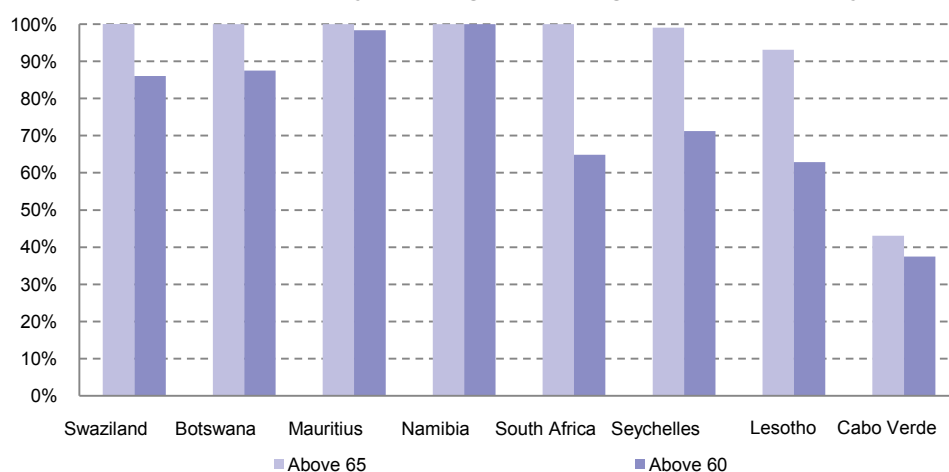


Source: Authors elaboration based on ILO (2014).

There are a number of countries that escape these deficits in coverage. All of them have done so by putting in place robust and wide non-contributory systems or outright flat rate universal models. Nine countries in Sub-Saharan Africa have implemented some sort of non-contributory pension. On the one hand, Botswana, Mauritius, Namibia, and Seychelles have universal pensions (note that there are only a few other countries worldwide that have universal old age pensions: New Zealand and the Plurinational State of Bolivia). On the other, Cape Verde, Mozambique, and South Africa have means-tested pensions, while pensions in Lesotho and Swaziland are pension-tested (Dorfman, 2015). Most of these countries, with the exception of Cape Verde and Mozambique, have reached coverage rates surpassing 85% of the population 65 and above, which is a stark contrast with what is observed in the rest of the region (ILO, 2014, see figure 27).

In Mauritius and Seychelles, non-contributory pensions formed part of the social security schemes since their advent (in 1950 and 1979, respectively). The same occurred in South Africa, although this benefit was only fully extended to all races in the 1990s, with the end of the apartheid. Botswana, Mozambique, and Namibia implemented them in the nineties, while Cape Verde and Swaziland did so in the early 2000s.

Figure 27
Sub-Saharan Africa: effective non-contributory coverage of population above 60 and above 65 years of age (percentages), latest available year



Source: Authors elaboration based on ILO (2014).

For those for which there is available comparative data, three parameters are worth considering: how much pensions cost as a percentage of GDP, what they represent in terms of the average wage, and its dollar value in PPP terms (see table 5).

Table 5
Africa: cost and amount of non-contributory old age pension, selected countries, latest available year

	Cost as % of GDP	Amount: as % of average salary	Monthly Dollar Amount (PPP)
Botswana	0.3%	5%	59
Cabo Verde	0.4%	--	70
Lesotho	2.0%	41%	90
Mauritius	1.7%	16%	185
Mozambique	0.2%	21%	8
Namibia	1.4%	--	82
South Africa	1.1%	10%	220
Swaziland	0.6%	--	19

Source: Authors elaboration based on ILO (2014) and Dorfman (2015).

Measured as a proportion of the average salary, Lesotho has, by far, the most generous non-contributory pensions among these countries (although the age of eligibility is 70 years old, while for the majority of the remaining countries it is set at 60). Measured in terms of PPPs, though, the cases of South Africa and Mauritius have a reasonable pension value and cost between 1.4 and 1.7% of their GDP. Recall that in a rich country as New Zealand, pension value is almost 40% of the average wage, has universal coverage, and costs 3.9% of its GDP. In Mauritius, if pensions were doubled in value (to 30% of average value), they would cost 3.4% of GDP. Of course, one of the problems with such calculations, is that Mauritius still has a very small elderly population, compared to New Zealand.

South Africa's Old Persons' Grant (OPG) is recognized as one of the strongest in the region. It provides elders 60 and above with an unconditional cash transfer given they do not surpass a certain income and asset level. The OPG has gone through reforms that provide stronger institutionalization of the pension and that guarantee a transparent process. More specifically, the South African Social Security Agency was created as a neutral institution to manage the pension. Also, OPG beneficiaries undergo a biometric identification process and are given a magnetic card, through which they can cash the pension. Some studies have shown that the OPG has significant effects on poverty alleviation and inequality reduction. Poverty among elders was reduced from 55.6% in 2006 to 36.2% in 2011 (ILO, 2016), and the Gini index falls from 0.77 to 0.6 when the Grant is considered (OECD, 2015b).

All in all, social pensions thus seem to be an interesting form of dealing with basic coverage in poor countries with a large agricultural and informal labor force.

VI. Recent trends in pension system reform

A. The adjustments of DB systems in mature systems and demographically advanced countries: parametric reforms, points systems and notional systems

Defined benefit systems in demographically mature countries have undergone major reforms aimed at providing sustainability and alleviating the burden on the active population. Besides the move to fully funded capitalization systems that we shall see in the point below, three major reforms have taken place: (i) parametric reforms; (ii) points systems; and (iii) notional systems.

Parametric reforms remain within the traditional PAYG or partially funded DB systems but they modify one of the following aspects of benefits: retirement years, contributory requirements in years, replacement rates and indexation criteria. In other cases, they have increased the rate of contributions. Some of these factors have a relative immediate effect on both the quality and sustainability of pension regimes, others take longer to produce an effect and are meant for long term sustainability.

The OECD Pensions at a Glance (2015) mentions the following major actions to improve financial sustainability in mature systems and demographically advanced countries:

- The most popular measure was to strengthen the incentives to work by increasing the minimum retirement age and/or the main retirement age, thereby enlarging the contribution base while preserving adequacy for those who are able to work longer.
- Almost no country resorted to direct nominal benefit cuts. When benefits were directly reduced, this only happened by switching to a narrower targeting, or by introducing adjustments in the initial pension benefit for new retirees.
- A much larger number of countries changed the indexation of pension benefits to less generous mechanisms, moving from real wage indexation to inflation or a combination of those. In some cases even allowing for indexation to fall below index prices.

- Many countries raised revenues by increasing taxes or contribution rates in defined-benefit systems.
- Measures to curb pension administration costs were quite common.

As mentioned, the most frequent modification in OECD countries has been the increment of retirement age. Currently, the average retirement age for the OECD is 64, while the estimated average for 2050 is 65.5, and the most frequent retirement age will be 67. Countries have not only increased (and will continue to increase) the minimum retirement age, but will also set them equal for both sexes- if they have not already done so. Differences between men and women's retirement age will be eliminated in all countries except Israel, Chile and Switzerland. In Italy, for example, retirement age will be set to 67 by 2018; in the UK, women's retirement age will converge with men's by 2018 (from 62 to 65 years of age). Another strategy consists in linking age with life expectancy or the country's dependency ratio (OECD, 2015a).

In addition, more restrictions have been set on the possibility of obtaining an early retirement. These measures generally imply raising the minimum age for early retirement or increasing the minimum length of contributions. For example, Austria has raised the age from 60 to 62 for men and from 55 to 57 for women; Belgium from 60.5 to 62; Denmark from 60 to 64 (by 2023). Finland, on the other hand, has eliminated the possibility of retiring early for certain groups of workers (OECD, 2015a).

Other measures have been created to stimulate workers to remain in the job market for a longer period of time. Australia and Ireland offer economic incentives to employers who retain older workers. Canada, Norway, Spain and Switzerland, on their side, have increased the possibility to continue working while receiving an old age pension. Finally, France and Germany encourage an earlier entrance to the labor market (OECD, 2015a).

Some parametric reforms have consisted in modifying taxes on pensions, generally by increasing the contribution levels or by reducing the rate of deductions on these taxes. In France, the tax on old age pensions will rise 0.3 percentage points in 2017. In Finland, retirees who receive a pension above a determined level will pay an additional 6% of tax (OECD, 2015a).

The ILO has worried that many of such reforms have not taken into account the protection of adequate benefits. This is not always the case, but what tends to be true across the board, is that when protection of benefits has taken place, it has been for those with less earning capacity, while replacement rates of higher income earners have suffered.

Notional and point systems (see box 1 above) have been another way to mimic DC systems, coming from a DB system. In rigour, what such changes do is take away as many redistributive components from DB systems as possible –both inter-generationally and intra-generationally-. Thus they do not allow for regressive DB systems, but also they take away their progressive components when they had them –such the case of Sweden-.

Yet the real question is not just about the distributional implications of notional systems, but of the pension system as a whole. If minimum pensions are guaranteed and if non-contributory flat rate benefits are factored in, the overall system can very well be progressive. While notional systems take out redistributive mechanisms, better minimum pensions and non-contributory pensions can increase progressivity. Even considering only notional systems they can sometimes be less regressive than previous PAYG systems. This is probably the case of Italy, but not of Sweden.

B. Capitalization systems: promises, failures and the backlash to reform

Between 1981 and 2008, 11 Latin American countries completely or partially privatized their public pay-as-you-go pension systems. Such reforms also spread at the end of the 1990s and the beginning of the new millennium in most of the countries of Central and Eastern Europe, where a proportion of social security contributions (up to one third in some countries, such as in Hungary, Poland and Slovakia) were channeled out of public social security pensions into mandatory, privately managed individual accounts.

However, during the past few years these privatizations have come to a halt, and in some countries have been reversed, while public provision was reintroduced or strengthened.

In Chile, where the “new paradigm” was introduced as early as 1981, enough time elapsed to show that the new system not only did not enhance coverage and compliance as expected, but was also unable to provide adequate income security in old age, especially to those with low earnings and shorter, interrupted careers (and in particular to women). Chile was thus also the first country to initiate a re-reform. In 2008 the existing mandatory, privately managed fully funded scheme was complemented by two new public schemes: a basic solidarity pension for the 60% of the population on lower incomes without pension provision (Pensión Básica Solidaria, PBS) and, alternatively, a government-funded supplement to those with very low pensions (Aporte Previsional Solidario, APS)³⁴. Other countries in the region have also implemented substantial re-reforms of their pension systems: Argentina in 2008, the Plurinational State of Bolivia in 2010 and Uruguay in 2013. While Argentina completely eliminated the private pillar, the Plurinational State of Bolivia and Uruguay, like Chile, retained it, but improved supervision and strengthened the public pillars. The main objectives of all these reforms are to improve coverage and adequacy by expanding (Argentina), universalizing (Plurinational State of Bolivia) or introducing (Chile) non-contributory schemes and/or providing subsidies for eligibility and benefit level for workers with low contributory density (Uruguay, Chile).

One of the aspects of the re-reforms was to scale down the size of mandatory individual account schemes. This scaling down has two main objectives: first, to make pensions more secure, and, second, to ease the pressure on the public finances from the need to fill the gap in funding for public provision after a proportion of contributions was channeled into private funds. Full or partial re-nationalizations of assets accumulated in mandatory private pension schemes took place in Argentina and the Plurinational State of Bolivia, and elsewhere in Hungary, Kazakhstan and Poland. A number of countries (including Lithuania, Poland, the Russian Federation, Slovakia and, for some categories of workers, Uruguay) made the privately managed sector voluntary for some, allowing people to opt out and return to public provision. During the years following the 2008 crisis, most countries with mandatory private pension schemes in Europe either temporarily or permanently reduced or froze the stream of contributions allocated to private pension funds, keeping them for the public system, which was in most cases in significant deficit.

While the Chilean re-reform was clearly done with the objective of building a floor of protection so that everybody on reaching old age will have a guarantee of at least minimum income security (an objective that also played a strong role in the Plurinational State of Bolivia), other countries, in particular those of Central and Eastern Europe, were to a large extent motivated by public finance concerns, with a view to reducing budgetary deficits and public debt. In countries such as Poland, Hungary and Slovakia, privatization of social security pensions has been adding about 1.5% of GDP every year to national deficits. As private pension funds invested most of their assets in bonds issued by governments³⁵ to cover –among other things– deficits caused by channeling contributions to private pension funds, one can understand the radical decisions taken by some governments to stop this circular flow of money which seemed to benefit only the incomes of private pension administrators. The Polish Government, for example, not only cut contributions to the funded tier from 7.3% to 2.9% of wages and made participation voluntary (and required current members to reconfirm they want to continue rather than be transferred, with their assets, to the public tier), but in 2014 it transferred all assets kept in government bonds to a social insurance institution and banning any further investments by the remaining funded tier (OECD, 2015).

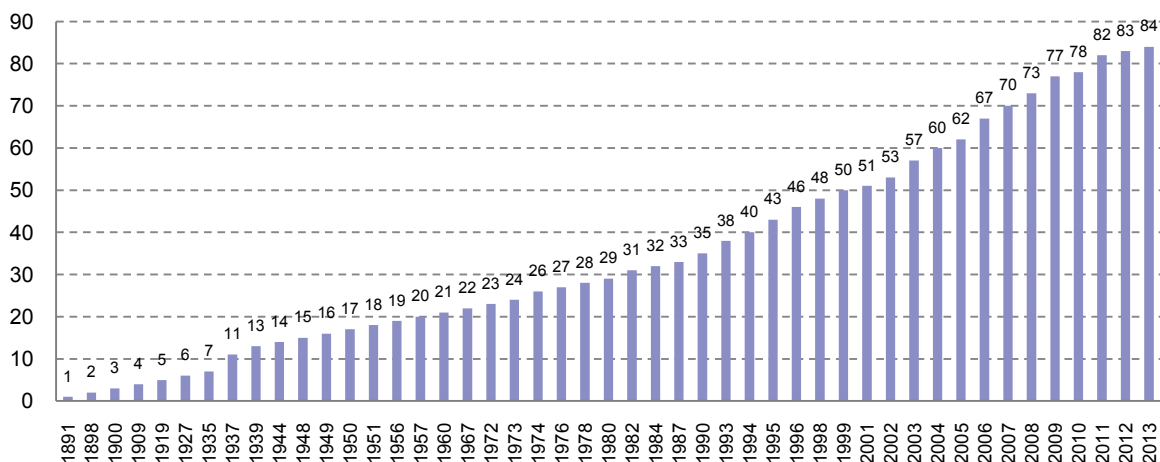
³⁴ Similar versions of these two programs existed prior to the reform but were less generous and had more stringent entry rules.

³⁵ This is true of the Eastern European countries just mentioned, but also in the cases of Uruguay, México and Peru.

C. Non-contributory social pensions: increasing coverage and the balance between pension level and fiscal pressure

Non-contributory social pensions have made important advances in the last 25 years around the world (see figure 28).

Figure 28
Year of first non-contributory pension scheme, Cumulative frequency of countries, 1891-2013



Source: Authors elaboration based on ILO (2014).

In 1990 only 35 countries had social pensions on a non-contributory basis. In less than 25 years, almost 50 countries created some form of non-contributory pensions. However, this data underestimates the actual number of non-contributory benefits, since many countries have included other income for old age that does not fall under the category of pensions. Because of the expansion in coverage, its simplicity and its capacity to be upgraded with strong control over how much resources can be allocated to such programs, they have become either in their means tested format or universal form a preferred reform in developing countries, both in low a low middle income countries and in middle-high income countries. In contrast to PAYG systems, fiscal pressure from non-contributory systems always entails pressure on the general treasury and can be easily projected considering population covered (eligibility rules) and pension value.

VII. Challenges and options for developing countries

Some stylized conclusions of the analysis carried out in this document are the following:

- (a) Mature systems of income retirement in OECD countries in Europe, Oceania and North America prove beyond a reasonable doubt that strong first non-contributory pillars work best for coverage, adequacy of replacement rates for low income earners and sustainability in inter-temporal terms. DB systems in these same countries had to be adjusted to gain sustainability by increasing ages of retirement, required value and length of contribution records, or by moving to notional or point systems. Fully funded capitalization systems proved to be inadequate to meet, either, distributional concerns, adequacy or sustainability. But a third tier of fully funded individual accounts or earning related DB and DC systems (voluntary, mandatory or semi-mandatory) in countries with robust non-contributory systems and with DB actuarially sound systems, can contribute to increase adequacy for high income earners.
- (b) Countries in the developing world will face a steeper increase in their ageing population than did developed countries in their past. The faster drop in fertility rates will increase the pace of aging in the future.
- (c) Countries in the developing world will not have the strong positive elasticity between GDP growth and increases in wages, stable work histories that European and other developed countries enjoyed between the 1950s and 1980s. This is due to the fact that the technological revolution and the emergence of the new service economy favors other work agreements that have less stability and are less likely to be *waged*.
- (d) Many upper-middle income countries and some low middle income countries combine low coverage, high flat replacement rates, low contributions and early retirement ages in DB systems. These combinations in DB are both regressive and unsustainable.

Thus some broad recommendations to promote coverage, equality and sustainability are:

- (a) Advance in the creation of non-contributive pillars. Adjust with coverage and value to the fiscal possibilities of the countries, and evaluate carefully how costs will evolve. In highly

unequal societies claw back clauses make sense³⁶. Yet in both poorer and richer countries slightly smaller values, for wider coverage seems to be a reasonable trade off.

- (b) DB pillars have to be reformed. Replacement rates should not be homogeneous but inversely stratified, retirement ages should be reviewed and incentives to remain in the labor force should be integrated into replacement rates, contributions in many cases need to increase, and indexation criteria should consider a fiscally sound combination of preserving purchasing power and actuarial sustainability. Notional and points systems are an option. The other option which is to do away with DB pillars altogether and move directly to fully funded capitalization systems might help on issues of sustainability but have demonstrated to be wanting on the goals of both coverage and redistribution.
- (c) Capitalization systems can still play a third pillar role and be mandatory or voluntary, or a combination. For example a minimum contribution might be required, but larger ones can also be available on a voluntary basis. The state can subsidize the system insofar as such subsidies are to induce more savings for low income earners.

³⁶ Claw back clauses take away benefits at the top. They are not targeted to the poorest, but rather untargeted to the richest.

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