Chapter 3

The public pension system in Mexico

This chapter first describes the public pay-as-you-go defined benefit pension system. It presents and discusses the eligibility criteria for the contributory schemes and the benefit levels for both private and public-sector workers. It gives an overview of the financial prospects of pension provision and highlights the strong fragmentation of the pension system in Mexico. Secondly, the chapter focuses on issues related to the design of the minimum contributory pensions and of the elderly safety nets. It concludes with pension policy options to improve the design of the public provision.
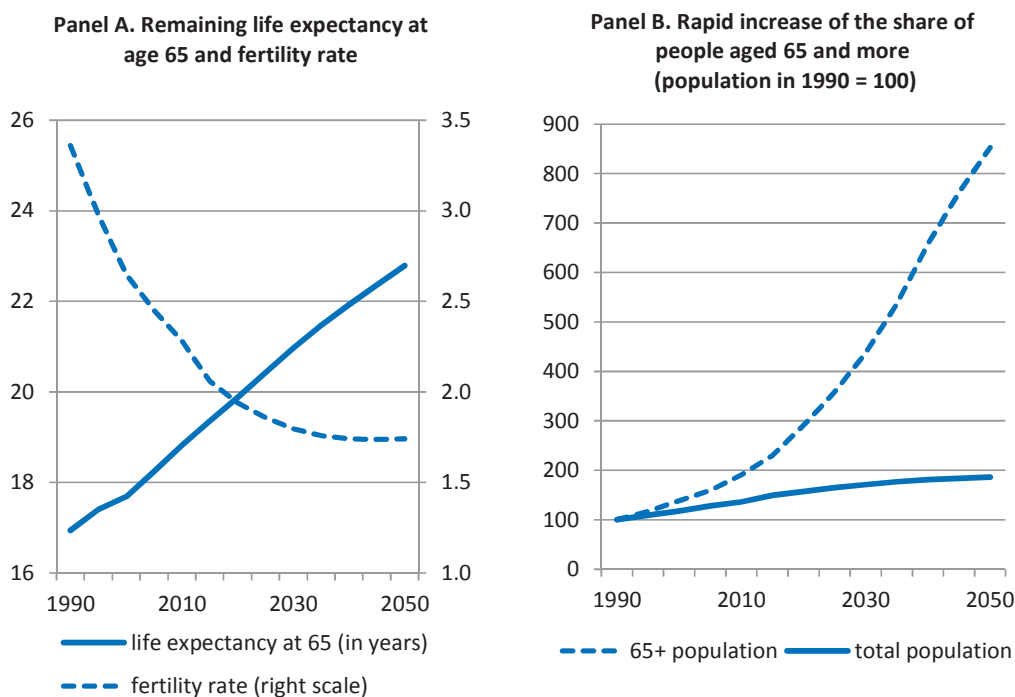
The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

3.1. Introduction

The preceding chapter laid out the main changes the Mexican pension system has been going through over the last two decades, in 1997 for the private sector and in 2007 for the public sector. Financial sustainability issues have been the main drivers of these structural reforms. Retirement-income adequacy will be reduced over time as a result, though safety nets for the most vulnerable older workers have also been provided albeit to a limited extent.

Overall, substantial demographic changes (Figure 3.1) will put fiscal pressure given the long transition of the past reforms and the numerous schemes that have not been reformed yet (see section 3.5). Mexico has been experiencing, as many other countries, continuous improvements in life expectancy and a very steep decline in birthrates over the last decades. The population aged over 65 years has been approximately doubling every 20 years although its growth is expected to slow after 2030. Overall it is projected to increase from 3.7 million in 1990 to 31.5 million in 2050, which implies an average annual growth rate of 3.6% compared to 1.0% for the total population. Hence, the Mexican population is expected to age at a much faster pace than OECD countries on average (Figure 3.2). While today the old-age dependency ratio is still below the OECD average level, it is projected to catch up fully by 2070.

Figure 3.1. **Demographic projections in Mexico**

Panel A. Remaining life expectancy at age 65 and fertility rate

life expectancy at 65 (in years)

fertility rate (right scale)

Panel B. Rapid increase of the share of people aged 65 and more (population in 1990 = 100)

65+ population — total population

Source: United Nations data, World Population Prospects – 2012 Revision.

Figure 3.2. **Old-age dependency ratio, %**

Population aged over 65 divided by the 20-64 population
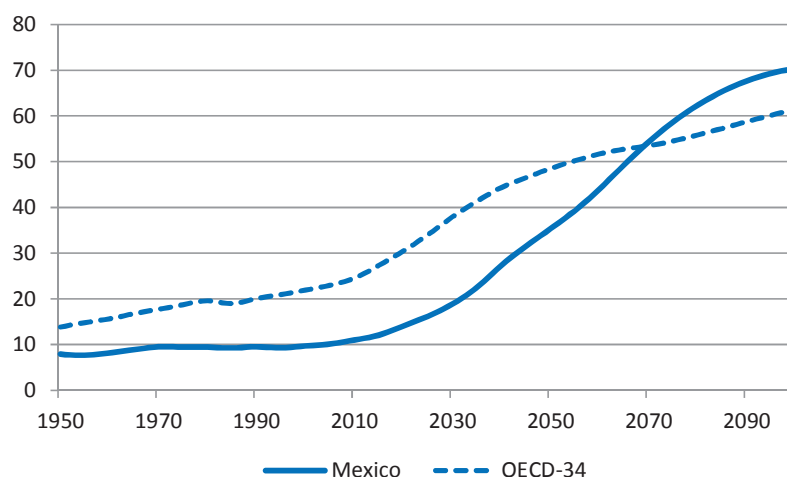
Source: United Nations data, World Population Prospects – 2012 Revision.

Addressing labour market informality is the biggest challenge for pension systems in Latin-American countries overall (OECD, 2014a), and it is also crucial for Mexico in order to ensure adequate pensions. As the contributory pension system covers formal sector workers who are in dependent employment and registered, a large part of the working-age population is not reached. According to the official definition of informality provided by the Statistical Office (INEGI) (which includes all employed population who work in unregistered economic units, workers in paid domestic work without social security, self-employed workers in subsistence agriculture, unpaid workers and subordinates who work without the protection of social security in registered economic units), 58% of the labour force worked in the informal economy in December 2014. Moreover, mobility between the formal and informal sectors is high, which generates significant contribution gaps.

As a result, only 25% of the population aged over 65 received an old-age contributory pension in 2010 (Villagómez and Ramírez, 2013). Informality generally means that transfers (including pension) are typically less redistributive, especially if safety nets are weak. Reducing the size of the informal sector is a policy challenge that goes far beyond the reach of pension reforms and needs to be addressed by a range of labour market, tax and structural economic policies. This report does not discuss the full range of policies needed but focuses on reforms to improve both the functioning of the contributory pension system and the safety nets for the protection of elderly Mexicans who remain outside of the formal pension system.

The pension system remains strongly fragmented as discussed below in more detail even though, according to Aguirre (2012), about 30% of the country's pension schemes have been reformed. As discussed in Chapter 2, the main components of the Mexican multi-tier pension system are:

- A means-tested safety net (65+ programme) financed by general taxation;

- Two main and significantly different systems which are mandatory and contributory. They are administered by IMSS (*Instituto Mexicano de Seguro Social*) and ISSSTE (*Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado*) covering private-sector and public-sector workers, respectively. Even the contribution rate and minimum pension schemes differ between IMSS and ISSSTE. Both systems were subject to a major structural reform replacing the pay-as-you-go defined benefit system by individual funded defined-contribution accounts which are phased in during a long transition period. The reform took place in 1997 for IMSS and 2007 for ISSSTE;

- Individual and occupational voluntary plans.

In addition, some states, local authorities and public universities, other public entities and various professions run their own independent pension systems. Overall, depending on data sources, between 40 and 45% of the economically active population are covered by the main contributory systems: 31-35% by IMSS, 5-6% by ISSSTE and 3-5% by state governments, municipalities, public universities and state-owned companies (Alonso et al., 2014; AMIS, 2014). Beyond its direct impact on public finance, such fragmentation is an obstacle to the optimal management of the overall system, to transparency, equity and the efficient labour mobility.

Since 1997 all private-sector workers have to choose an investment management company (AFORE) in order to open individual pension accounts (Chapter 2). Yet, anyone who had contributed at least once to the system prior to July 1997 can still decide at the time of retirement whether their benefit is paid according to the rules and formula of the old DB scheme, i.e. subject to the 1973 Law, based on their contributions made over their entire career or from their DC assets accumulated since 1997. This explains why individuals who started to contribute in the private sector before 1997 are generally referred to as "transitional workers".

Faced with financial difficulties in the parametric design of its public pension systems, Mexico made the choice of entirely replacing a (public) mandatory DB scheme by a (private) mandatory DC scheme, as Chile had done in 1981. In doing so, longevity risks have been shifted from the Mexican government to the annuity providers and to those retirees who choose to withdraw their pension as programmed withdrawals or who are not eligible to a pension. When introducing DC plans, other countries have often – although much less so in Latin America - reduced the generosity of the DB schemes, thus opting for a more balanced approach to diversify the sources of financing and to benefit from the complementarity of various schemes.

This chapter focuses on the public defined-benefit pension system, which will still be in place for a long period. The next section presents the eligibility criteria for the contributory schemes. Section 3.3 discusses the benefit levels for both the private and the public sectors. Section 3.4 gives an overview of the financial prospects of pension provision while section 3.5 highlights the strong fragmentation of the pension system in Mexico. Section 3.6 focuses on the minimum contributory pensions and on the elderly safety nets, and the last section concludes with some pension policy options currently available to improve the design of the public provision.

3.2. Age parameters and contribution periods

The normal retirement age to access a full pension is 65 years. The minimum contributory period to be entitled to a pension in the old private-sector system, which still

applies to transitional workers, is only 500 weeks (about 10 years). The 1997 reform increased it to 1 250 weeks (about 24 years) for new entrants (in the defined-contribution system). Under the 1973 Law, contributions made for less than 500 weeks do not lead to any pension entitlement and are thus lost for the individual.

Early retirement is possible from age 60 for both men and women in the old system with a 5 percentage-point penalty for each year of anticipation. Despite this, in December 2014, about 80% of pensioners receiving a pension from IMSS based on the 1973 Law had retired before the age of 65. Working an extra year beyond the age of 65 increases the replacement rate by 0.6 percentage point at the minimum wage level, and by 2.5 points for wages exceeding 6 times the minimum wage.[1] Financial incentives to prolong the working life beyond 65 are thus very weak and far from actuarial neutrality.[2][3]

Moreover, in the old system, survivor's benefits (i.e. benefits paid to the surviving spouse) amount to 90% of the deceased's pension, which is much higher than the OECD average of 64% and second only to the United States (100%) (OECD, 2014b). When one spouse dies, total household expenditure falls by about 25% due to household economies of scale (see e.g. James, 2009). While the primary goal of survivor pensions is to maintain or protect the survivor's standard of living on bereavement, 90% of their deceased partner's pension is awarded to the survivor, a proportion which tends to increase the survivor's standard of living substantially.

In the DB public-sector scheme, ISSSTE, the retirement age is not the key parameter for the decision to retire. Civil servants are eligible to a full pension after 28 years of contributions only for women and 30 years only for men. This implies that a male civil servant who had started his career at age 20 could retire with a full pension, i.e. with 100% of his final salary at age 50. Age requirements were added in 2010, starting from 49 years for women and 51 years for men. This age threshold will be increasing by one year every two years to 58 and 60 years respectively in 2028. While this is a fast adjustment pace, the retirement age will remain very low in 2028 given the starting point.

Each missing contribution year in the old ISSSTE scheme progressively reduces the replacement rate down to 50% with a 15-year contribution period. The age requirement was 56 until 2010 and has been increasing by one year every two years to reach 60 in 2018 onward. Early retirement is possible at age 60 with 10 years of contribution and a 40% replacement rate. The early-retirement replacement rate increases by 2 percentage points per year of anticipation up to 50% at age 65. Since 2010, the 60 age limit has been increasing by one year every two years and will reach 65 from 2018 onwards, which implies that this early-retirement route will be shut.

3.3. Pension benefits

3.3.1. Private-sector workers

Given that transitional workers can choose the system from which benefits are drawn upon retirement, it is crucial to compare the replacement rates provided by the old and the new systems.

Retirement benefits and conditions in the old system are very generous relative to the level of contributions paid (see Box 3.1 for a description of the rules for the old DB formula for private-sector workers). Figure 3.3, Panel A shows projected gross replacement rates at age 65 across various earnings levels for a worker having contributed during 45 years ("full career"), 35 years and 25 years. The reference wage is the average

nominal wage of the last 250 weeks (about 5 years) capped at 25 times the minimum wage. The DB pension amount rises with the contribution period. Accounting for an 11% bonus which applies to all pensioners older than 60 years, the replacement rate is 100% for a full-career worker with earnings below the threshold of 25 times the minimum wage (about 6 times the average wage). At low-wage levels, it remains high, close to 100% for a worker having contributed for 25 years. However, for higher wages, the replacement rate declines more steeply with shorter contribution periods. Thus, for a worker with a reference wage equal to 3 times the average wage, the replacement rates are 100%, 83% and 56% with a 45-year, 35-year and 25-year contribution period, respectively. In 2010, the Supreme Court ruled that the reference-wage ceiling should be lowered to 10 times the minimum wage or about 2.5 times the average wage, which would reduce replacement rates of high-wage earners and lower public spending. The decision of the Supreme Court has, however, not been enforced yet. The ceiling of 10 times the minimum wage would be in line with the ceiling in the disability and death insurance scheme. The legislative response so far, which is now pending in the Senate, has been to try to harmonise these ceilings but at 25 times the minimum wage instead.

Under the 1973 Law, for a minimum contribution period of 500 weeks, workers can retire on minimum pension, which is equal to the minimum wage thus providing a high replacement rate. The implicit internal return on past contributions is thus very high especially given the low level of the contribution rates (Chapter 4). Moreover, a gross replacement rate of 100% actually implies a higher disposable income in retirement relative to income while working, as pensioners save on contributions and benefit from some tax exemptions.

Workers who started to contribute before 1997 can opt if they are eligible: either for the DB pension including the minimum pension; for the DC pension; or, if their cumulated DC assets are not enough to buy an annuity equivalent to the minimum guaranteed pension (PMG), for the PMG under the 1997 Law, which requires 1 250 weeks of contributions but generates a higher benefit level than the 1973 minimum pension (see sub-section 3.6.2 for more detail). That is why some pensioners have chosen the new regime. In December 2014, there were slightly more than 1.7 million of old-age pensions paid by IMSS, 43% of which were minimum pensions under the 1973 Law and less than 1% were the PMG.

Under the new scheme, the projected replacement rates are much lower even under the assumption that the accumulated assets yield very high returns (Figure 3.3, Panel B). Pensioners with earnings close to the minimum wage and who will have contributed enough to be eligible to the PMG are projected to have replacement rates around 60-70%. But as earnings increase, the gross replacement rate falls steeply below 35% for earnings above half the average wage and to 26% for the average-wage worker. Based on OECD pension model projections, a full-career worker earning below 0.65 times the average earnings (or about 2.5 times the minimum wage) throughout the whole career would receive the PMG. When the total 5 percentage-point INFONAVIT contributions (see Chapter 2) are taken into account (assuming the same return as in the DC accounts), the replacement rate increases by 15-20 percentage points beyond average earnings (Panel B).
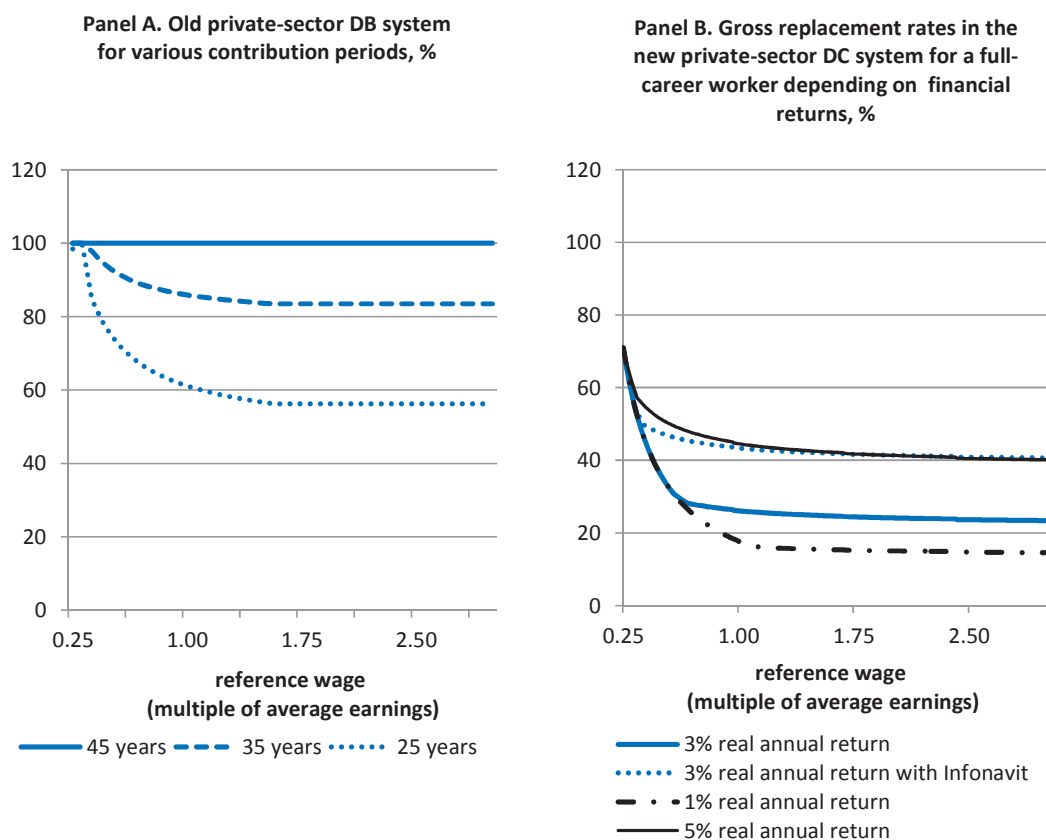
Box 3.1. **Rules for the calculation of private-sector workers' pension when choosing the old DB formula**

A minimum of 500 weeks of contributions is required to get a pension under the old DB formula. The annual pension is composed of a basic amount and annual increments calculated according to the number of weeks of contributions in excess of the minimum 500 weeks. The basic amount and the increments are calculated by applying the following percentages to the average salary over the last 250 weeks of contributions:

Salary expressed as multiple of the general minimum wage in Mexico City	Basic amount (% of the salary)	Annual increment (% of the salary)
Up to 1	80.00	0.563
From 1.01 to 1.25	77.11	0.814
From 1.26 to 1.50	58.18	1.178
From 1.51 to 1.75	49.23	1.430
From 1.76 to 2.00	42.67	1.615
From 2.01 to 2.25	37.65	1.756
From 2.26 to 2.50	33.68	1.868
From 2.51 to 2.75	30.48	1.958
From 2.76 to 3.00	27.83	2.033
From 3.01 to 3.25	25.60	2.096
From 3.26 to 3.50	23.70	2.149
From 3.51 to 3.75	22.07	2.195
From 3.76 to 4.00	20.65	2.235
From 4.01 to 4.25	19.39	2.271
From 4.26 to 4.50	18.32	2.302
From 4.51 to 4.75	17.30	2.330
From 4.76 to 5.00	16.41	2.355
From 5.01 to 5.25	15.61	2.377
From 5.26 to 5.50	14.88	2.398
From 5.51 to 5.75	14.22	2.416
From 5.76 to 6.00	13.62	2.433
6.00 and above	13.00	2.450

For an incomplete year of contributions, half of the annual increment is taken into account between 13 and 26 weeks and the full increment for more than 26 weeks. The salary used to determine the income group and to which the percentages are applied to calculate the basic amount and the annual increment corresponds to the average salary over the last 250 weeks of contribution. Thus, for example, an individual with a 45-year career with an average salary over the last 250 weeks of contributions equal to four times the minimum wage has contributed 1 840 weeks (i.e. 35 years and 20 weeks) in excess of the 500 weeks and will get a replacement rate of 100% (20.65 + 35.5 × 2.235).

Figure 3.3. **Gross replacement rates for private-sector workers**

Panel A. Old private-sector DB system for various contribution periods, %

Panel B. Gross replacement rates in the new private-sector DC system for a full-career worker depending on financial returns, %

reference wage
(multiple of average earnings)

— 45 years – – 35 years ······ 25 years

reference wage
(multiple of average earnings)

— 3% real annual return
······ 3% real annual return with Infonavit
– · – 1% real annual return
— 5% real annual return

Note: For Panel B, the projected replacement rate applies for a private-sector worker entering the labour market at age 20 in 2014.
Source: OECD calculations.

This comparison shows that the old DB system yields higher benefits for everyone than what an actuarially fair scheme would deliver, and is therefore heavily subsidised by general government revenues.[4] Indeed, severe financial unsustainability was the prime reason for the 1997 reform, with future financial difficulties being compounded by expected demographic changes. The relative generosity of the old regime goes beyond the replacement rate levels. The eligibility conditions for a pension, including the minimum pension, are much tighter in the new regime. The reform is phased in over a long transition period and workers who entered just before 1997 might retire as late as in 2042 (if they joined the labour market at age 20) with the generous DB formula. Consequently, the reform introduced huge inequalities across cohorts.

Unsurprisingly, a vast majority of people who retired since 1997 chose to receive their benefits according to the old DB formula. This raises a number of problems. First, the long transition period means that the public finance pressure will still be felt over an extended period even though implicit liabilities for the post-transition workers have been substantially reduced. Second, as a result of flawed incentives there is an insufficient sense of ownership of their individual pension fund (AFORE) account by contributors who started to contribute before 1997, as many of them know they will end up choosing the DB pension. In that case, their individual accounts help finance the benefits through

the transfer of resources to IMSS, but any gaps between the funds necessary to finance the pension promise and the value of the assets are borne by the federal government and of no consequence neither for the individual nor for the AFORE. This generates inadequate financial investment incentives for workers (especially in terms of the choice of the AFORE), induces poor discipline for the pension fund industry and transfers the costs of these inefficiencies to the public purse as the government has the responsibility to fund such gaps.

Third, the reform created huge inequalities between the transitional workers who can opt for the old system and those who entered after 1997 (see Chapter 4). Fourth, as expected replacement rates for new entrants are low, even for full-career workers due to the small mandatory contribution rate, the trust in the new system is undermined despite actuarial fairness. This feeling is further fuelled by generally poor financial literacy among the population (see e.g. Hastings and Tejeda-Ashton, 2008). In cross-country comparison, the projected replacement rates are the lowest across countries according to the OECD pension model (Figure 3.4). Even when taking into account the *cuota social* (a contribution subsidy up to 15 times the minimum wage in the private sector, see Chapter 2), the contribution rate for private-sector workers would have to increase from its current level of 6.5% to about 14.5% to raise the net replacement rate of full-career average-wage workers to the OECD average.

Figure 3.4. **Net replacement rate for the full-career average-wage worker, %**
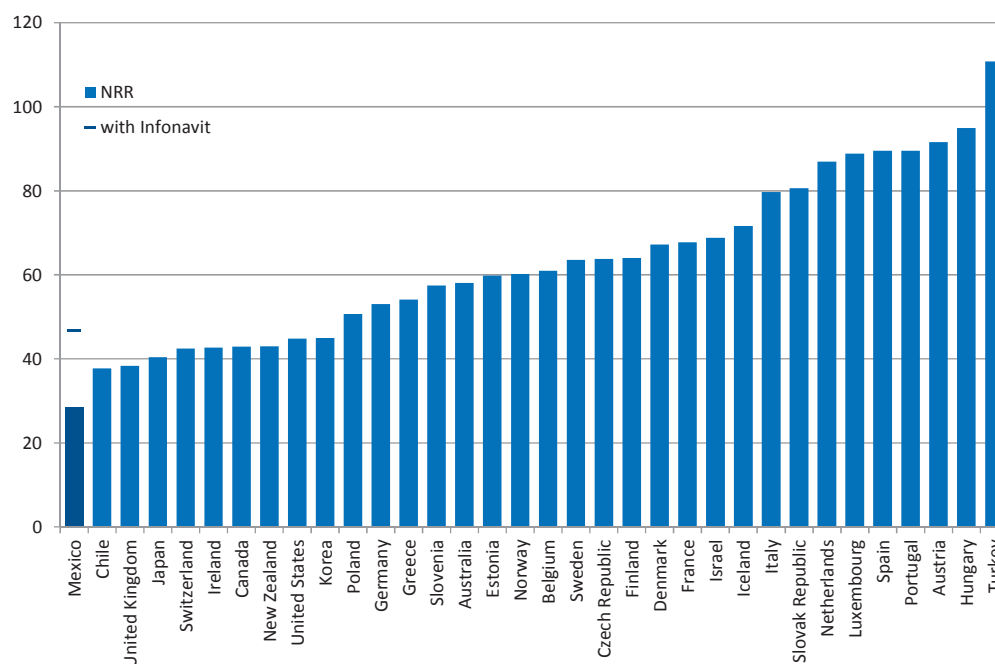
Note: Projected net replacement rates are expressed as a percentage of average lifetime earnings assuming that individuals enter the labour market at age 20 in 2014 and work until the retirement age.

Source: OECD (2015a).

3.3.2. Public-sector workers (main scheme)

In 2014, the number of ISSSTE retirees represented about one quarter of IMSS retirees. The number of active contributors to the ISSSTE pension system in the same year, however, was only about 6% of the contributors to the IMSS scheme. Beyond the downsizing of the public sector, the difference likely reflects the large employment flows between the formal private sector and the informal economy.

The 2007 reform modifying the pension system for civil servants avoided some of the weaknesses highlighted above in the 1997 IMSS pension reform. As with the IMSS reform, new entrants had to open individual DC accounts. But contrary to the IMSS reform, those who had contributed before were given six months to choose whether when retired their benefits will be paid according to the old DB pension formula or from their individual accumulated assets under the rules of the DC system. Those who opted for the new DC system received a recognition bond based on their past contribution, which was then deposited in their individual accounts. The contributions of those who remained within the DB scheme continue to directly finance the PAYG system (see Box 3.2 for a description of the rules for the old DB formula for public-sector workers). Yet, the recognition bond did not account fully for the option that was left to civil servants to remain in the old system until they retire; hence only 14% of pre-2007 civil servants chose to migrate to the new system. In any case, the choice that was given to them implies that the accrued and future pension liabilities of the civil servants who started their career before 2007 have thus not been reduced substantially.

Even for a full career (45 years) the replacement rates projected in the new DC scheme for civil servants are substantially lower than 100% of the final salary, which the old DB scheme pays after a 28 and 30 year career, for women and men respectively, except for low-wage earners (Figure 3.5). Low-wage full-career civil servants benefit from the PMG; its level is about 60% higher than the PMG in effect for the private-sector regime. While this represents a high gross replacement rate at the minimum wage, it falls just below 45% at two-thirds of the average wage, a level beyond which earnings are projected to be high enough to purchase an annuity greater than the PMG. Then the replacement rate declines slightly as the social quota is flat-rate for public-sector workers (and thus decreases relative to wages); the projected replacement rate reaches about 38% when earnings equal 10 times the minimum wage, beyond which the social quota does not apply and contributions are topped. From that point, the replacement rate falls more steeply towards less than 25% at 4 times the average earnings.

Box 3.2. **Rules for the calculation of public-sector workers' pension for those who chose to stay in the DB system**

Public-sector workers who left the public service voluntarily or were precluded from working after age 60 are entitled to a pension for severance at old-age if they have contributed at least 10 years. This pension corresponds to a fraction of the average basic salary of their last year of service, from 40% to 50% depending on the age at which they claim their benefits.

Public-sector workers aged at least 55 years old and who have at least 15 years of service are entitled to a retirement pension equivalent to a percentage of the average basic salary of their last year of service. This percentage varies from 50% to 95% for men for 15 to 29 years of service and from 50% to 85% for women for 15 to 27 years of service. Men with at least 30 years of service and women with at least 28 years of service are entitled to a full retirement pension, equivalent to 100% of the average basic salary of their last year of service. Starting 1 January 2010 there are new retirement age requirements for the pension benefits described above. This is summarised in the table below:

Number of years of contribution	Retirement age	Pension (as a % of basic salary)
≥ 10 and < 15	Increasing from 60 in 2009 to 65 as of 2018	40
≥ 10 and < 15	Increasing from 61 in 2009 to 66 as of 2018	42
≥ 10 and < 15	Increasing from 62 in 2009 to 67 as of 2018	44
≥ 10 and < 15	Increasing from 63 in 2009 to 68 as of 2018	46
≥ 10 and < 15	Increasing from 64 in 2009 to 69 as of 2018	48
≥ 10 and < 15	Increasing from 65 in 2009 to 70 as of 2018	50
15	Increasing from 55 in 2009 to 60 as of 2018	50
16	Increasing from 55 in 2009 to 60 as of 2018	52.5
17	Increasing from 55 in 2009 to 60 as of 2018	55
18	Increasing from 55 in 2009 to 60 as of 2018	57.5
19	Increasing from 55 in 2009 to 60 as of 2018	60
20	Increasing from 55 in 2009 to 60 as of 2018	62.5
21	Increasing from 55 in 2009 to 60 as of 2018	65
22	Increasing from 55 in 2009 to 60 as of 2018	67.5
23	Increasing from 55 in 2009 to 60 as of 2018	70
24	Increasing from 55 in 2009 to 60 as of 2018	72.5
25	Increasing from 55 in 2009 to 60 as of 2018	75
26	Increasing from 55 in 2009 to 60 as of 2018	80
27	Increasing from 55 in 2009 to 60 as of 2018	85
28 (men)	Increasing from 55 in 2009 to 60 as of 2018	90
29 (men)	Increasing from 55 in 2009 to 60 as of 2018	95
≥ 30 (men) ≥ 28 (women)	Men: increasing from 50 in 2009 to 60 as of 2028 Women: increasing from 48 in 2009 to 58 as of 2028	100

Figure 3.5. **Gross replacement rate in the reformed systems for full-career workers, %**
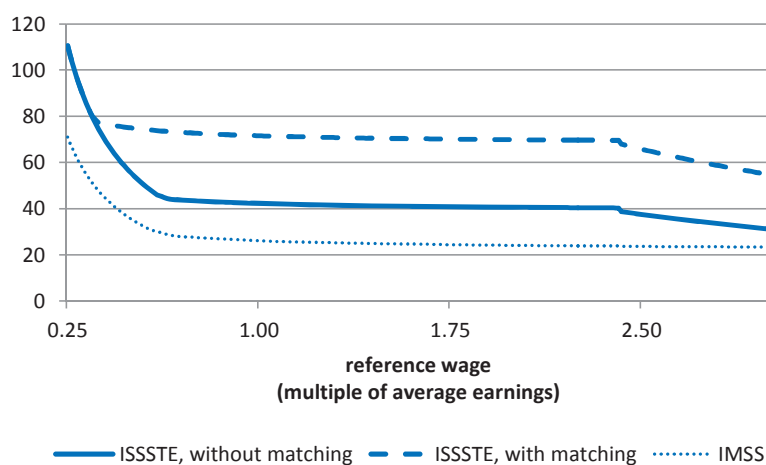
Source: OECD calculations.

In the reformed system, public-sector workers will continue to benefit from a higher old-age pension than private-sector workers with the same wage and career length, due to higher contribution rates, beyond the differential in the PMG. This not only is a source of inequality between the two groups of workers but also presents an obstacle to labour mobility between the public and the private sectors. These differences in expected benefits are exacerbated by the generous matching contributions scheme for voluntary pension savings which is available to public-sector workers: employees contribute voluntarily between 1 and 2% of their earnings up to 10 times the minimum wage and for each peso contributed, the government adds 3.25 pesos.[5] Accounting for this boosts the projected replacement rate by about 30 percentage points for the average-wage public-sector worker (Figure 3.5).

3.4. Financial pressure will grow

The current deficit of the overall pension system, excluding old-age safety nets (see below) beyond minimum pensions, slightly exceeds 0.5% of GDP, with pension expenditure amounting to about 3% of GDP and revenues to 2.5%. The schemes for private-sector workers account for slightly less than half of the spending, while they cover 77% of all retirees. Several smaller regimes, such as that applying to the Armed Forces, are paid directly by the federal government. Public pension spending is expected to increase to 3.4% of GDP by 2020, driven by a fast rise in ISSSTE pension spending.[6]

Overall, the governance of pension financing lacks consistency. For example, IMSS has been drawing down its financial pension reserves to cover operational deficits of its health accounts (Hernandez and Vernon, 2012), thus increasing net implicit pension debt through asset depletion (OECD, 2013).[7] This calls for a clearer legal and financial separation between health social security institutions and pension institutions (Vasquez Colmenares, 2012).

While the IMSS and ISSSTE pension systems should reach financial sustainability thanks to the reforms once the long transition period is completed, many of the unreformed local pension systems could face severe financial difficulties. According to
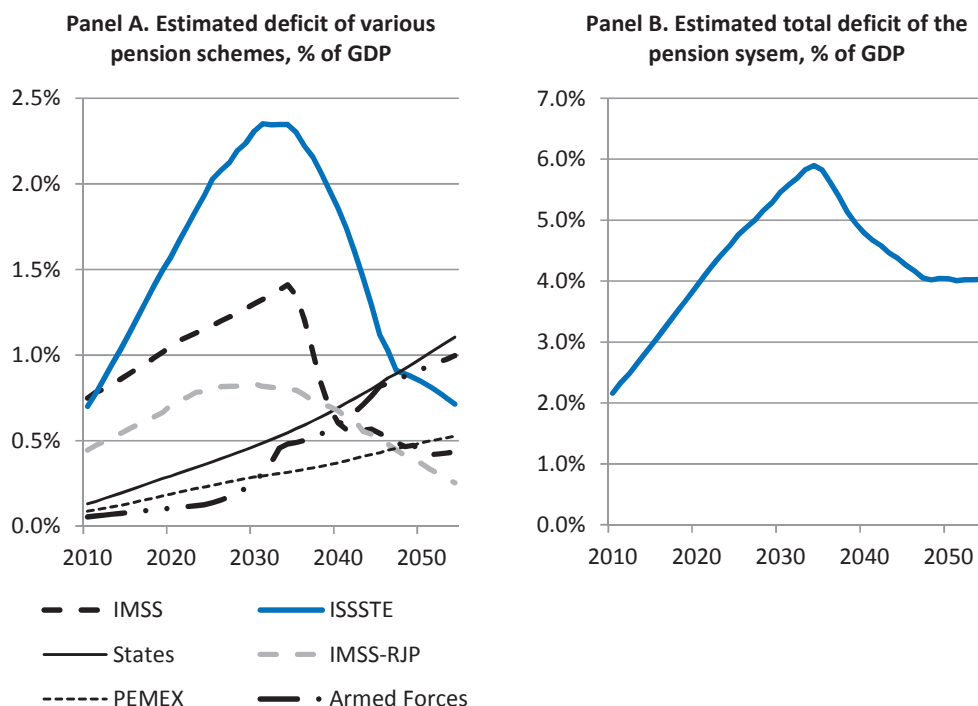
Fitch (2011), implicit pension liabilities are high in about half of the Mexican states. Moreover, about one third of all states have recently introduced non-contributory pension schemes, which are financed through taxes. Besides, states and municipalities have become heavily dependent on federal transfers to finance a growing share of overall public spending (OECD, 2013).

While the 1997 and 2007 pension reforms succeeded in reducing public implicit liabilities for the post-transition generations substantially, they opened a long transition period which has been generating explicit current costs for the public finance. Those transition costs include the payment of the pensions computed based on the previous regimes, the minimum pension guaranteed by the new laws and the public subsidies including the social quota (Alonso et al., 2014). Moreover, the 1997 reform increased the wage cap used in the DB formula to 25 times the minimum wage instead of 10 times before the reform, thus increasing both benefits and implicit liabilities. As the current contributions fund individual accounts, transition costs have to be financed outside the pension system through taxes and transfers.

There are various estimates of the transitional cost of the 1997 reform, i.e. for the private-sector system. The financial deficit of the regime applied to private-sector workers is generally projected to increase from its current level (slightly more than 0.5% of GDP) and peak at 1 to 1.4% of GDP in the 2040s from which it would decline steadily after 2070 (see for example Alonso et al. (2014), Casal and Hoyo (2007) and Tapen (2012)). For ISSSTE and the special regime benefiting workers in IMSS itself (IMSS-RJP), Tapen (2012) projects that the deficit will grow from about 1.2% of GDP in 2010 to almost 3% of GDP in the mid-2030s (Figure 3.6, Panel A). In addition, for the non-reformed systems of States, the Armed Forces and PEMEX alone, the current deficit would grow from about 0.25% of GDP in 2010 to 2.5% of GDP in 2055.

Under unchanged policies the combination of the transition costs of the reformed systems and the growing financial imbalances of the non-reformed systems will exert strong pressure on public finances for a long period, with an expected cumulative deficit of this subset of the overall pension system of about 6% of GDP in the mid-2030s according to Tapen (2012) (Panel B). This is likely to prove unsustainable. The public sector will be representing a disproportionate share of these growing imbalances relative to its size in the economy and even to its share of formal employment. Without further or new reforms to the old systems those costs will turn explicit as most PAYG schemes are too generous in Mexico, i.e. far from what contributions can finance, and because new contributions are used to finance individual accounts rather than the pensions of current retirees. Increasing the contribution rate would improve the financial sustainability of the old regimes and the income prospects of pensioners in the new systems. In any case, policy action is needed to reduce both the transition costs and the generosity of the unreformed systems.

Figure 3.6. **Projected deficit of the pension system**

Panel A. Estimated deficit of various pension schemes, % of GDP

Panel B. Estimated total deficit of the pension sysem, % of GDP

Source: Tapen (2012).

3.5. Deep-seated fragmentation

The fragmentation of the Mexican pension system is deeply entrenched and goes far beyond the striking differences between the IMSS and ISSSTE schemes; different professional groups are treated very differently in terms of retirement conditions and benefits. It is a source of large inequalities. There is no coordination across the various plans which are run by different institutions, thus generating overlaps. Special regimes include those covering the Armed Forces, the oil company PEMEX, the Federal Electricity Company (CFE), IMSS itself for its employees (IMSS-RJP), teachers, Courts (e.g. the Supreme Court and the Federal Council of Justice), the Central Bank and the development banking institutions, which are entities of the federal public administration. The pension schemes were reformed for new IMSS-RJP and CFE workers in 2008 to reduce implicit liabilities.

Some local governments, i.e. those of 31 sovereign states, one federal district and about 2 450 municipalities, and the 55 public universities have their own pension schemes, mostly of the DB type, with no portability of entitlements between them. In particular, there is no interaction between the federal and the local systems. According to the Office of the Auditor General, there are more than 250 identified pension schemes either operated directly or subsidised by the federal government (Tapen, 2012), and little is known about what is taking place in the small municipalities. Most of them lack a formal pension system, and pension obligations for municipal employees are paid through current expenditure (OECD, 2013). Among the 2 450 municipalities, about 1 100 are estimated to have their own scheme. Over the last two decades, 14 states reformed their

pension system, as well as 27 public universities, one of which adopting a DC regime. Some states and public universities have agreements with ISSSTE or IMSS, so that they are covered by them.

Some pension programs might come under strong financial pressure (Villagómez, 2014). Although exact information is lacking, the level of financial solvency of the pension schemes appears to be very heterogeneous across states and universities. According to IMCO (2012), pension projections indicate dire financial prospects in more than half of the states. Moreover, the sovereign autonomy enjoyed by municipalities over their political and fiscal development feeds the fragmentation of the pension system. Indeed, municipalities while playing a small role compared to what happens in other OECD countries, focusing on the provision of local services such as waste management or water supply (see OECD, 2013, and especially Figure 3.3 therein), increasingly depend on transfers from the federal government. This creates a disconnection between revenues and expenditures and damages accountability, in particular in the pension area.

3.6. Minimum social benefits for the elderly

3.6.1. Relative old-age income

The old-age poverty rate (at half of median equivalised income) in Mexico was above 30% in 2013 and the second highest in the OECD (Figure 3.7). Old-age poverty is also high compared to the poverty rate for the total population, which stood at about 20%. On the other hand, the relative income of those over 65 was fairly high on average in the late 2000s compared with other OECD countries. It reached on average 96% of the mean income of the total population compared with 87% on average across OECD countries (Figure 3.8); this places Mexico among OECD countries with the highest average relative income of the elderly. Overall, the combination of these indicators implies considerable inequalities among the elderly in Mexico.

At the same time, there is room to expand the budget allocated to old-age safety nets provided that financial resources are raised. Indeed, among OECD countries Mexico spends the lowest share of its GDP on old-age and survivors: recipients received a total of 1.8% of GDP in 2011 compared with an OECD average of 8.4% (Figure 3.9, Panel A). Moreover, the non-contributory safety net (called *70 y más* then) represented about 6% of this small spending in 2011 (Panel B) but has since been expanding at a fast pace (see below).

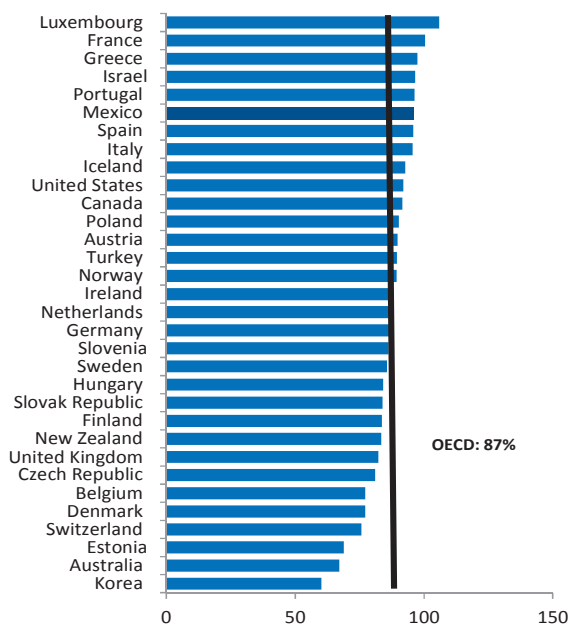Figure 3.7. **Old-age poverty rate, %, 2013**

Percentage of those aged 65 and over with income lower than half median equivalised income
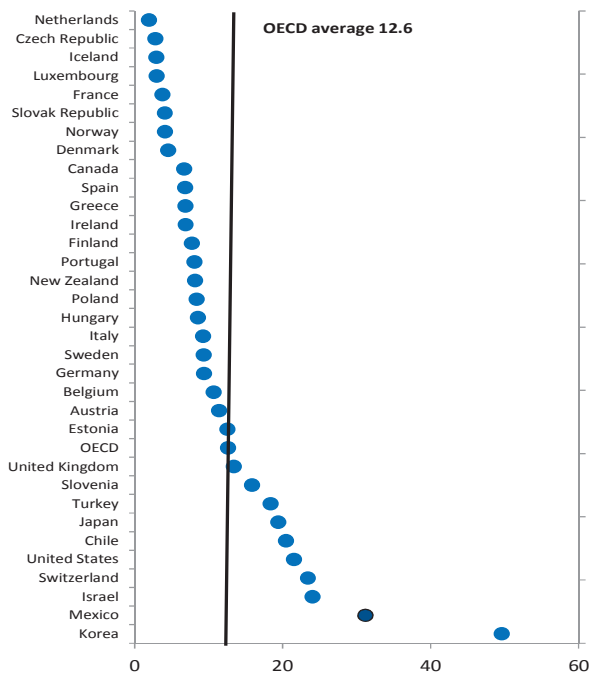
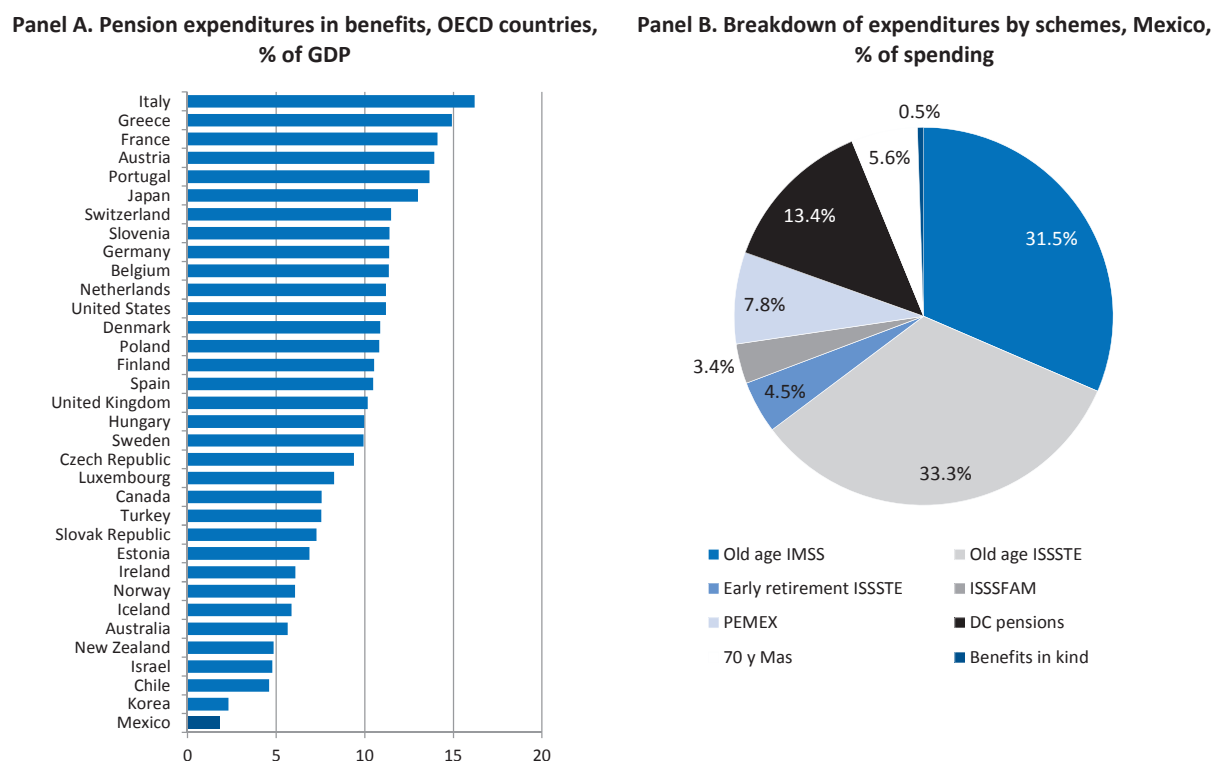*Source:* OECD Income Distribution Database, *www.oecd.org/social/income-distribution-database.htm.*

Figure 3.8. **Relative income of the over 65s, late 2000s**

Income of individuals over age 65 in % of the mean income of the total population

Source: Authors' calculations: OECD Income Distribution Database, *www.oecd.org/social/income-distribution-database.htm.*

Figure 3.9. **Old-age pension spending**

Panel A. Pension expenditures in benefits, OECD countries, % of GDP

Panel B. Breakdown of expenditures by schemes, Mexico, % of spending

Source: OECD SOCX database.

3.6.2. *Minimum pensions*

Private-sector workers having reached the retirement age of 65 are entitled to a minimum pension, provided they have contributed for a minimum period. Under the 1973 Law, its level is equal to the Federal District minimum wage subject to 500 weeks of contribution. For individuals covered by the 1997 Law, the *pension minima garantizada* (PMG) was fixed at the 1997 minimum wage level, is price-indexed and subject to a much longer contribution period of 1 250 weeks. Receipt of the minimum pension also gives access to health care. In December 2014, about 740 000 private-sector retirees were receiving the 1973 minimum pension and about 15 000 the PMG, which in total represented 44% of the 1.7 million IMSS retirees (out of 8.2 million people aged over 65, or 21%).

The minimum wage has not kept pace with consumer price inflation since 1997 while the PMG is price indexed.[8] Therefore, the 1973 minimum pension is currently about 20% lower than the private-sector PMG. For ISSSTE, the PMG was set at twice the minimum wage level in 2007 and is CPI indexed. As a result, it was worth about 60% higher than the PMG for private-sector retirees in 2014. Retirees eligible to the PMG but whose assets are insufficient to buy an annuity equivalent to the PMG receive the PMG, which is paid by the AFORE until the individual account is depleted and then by the social security system financed by general taxation.

On the one hand the ratio of the minimum pension to the minimum wage is very high. On the other hand Mexico has the second lowest minimum wage in relative terms among

OECD countries: in 2013, the minimum wage was equal to 37% of the median wage compared with an OECD average of about 50% (ranging from 36% in the Czech Republic to 69% in Turkey). About 13% of the employed population earn the minimum wage. Since the mid-1970s the minimum wage has fallen by almost 70% in real terms (Tapen, 2012). This implies that some pensions covered by the 1973 Law, in particular those closely related to the minimum pension, also fell by 70%. The close connection between the minimum pension in the old regimes and the minimum wage limits the growth of the minimum wage inefficiently as any upside is costly for public finances. Compared with other OECD countries having a minimum contributory pension, the length of the required period and the benefit level relative to average earnings are intermediate for the reformed system. For workers under transition rules, however, the period is very short and the benefit relatively low (Figure 3.10).

The relatively high level of the minimum pension (in relation to contributions paid and wage conditions) might provide a disincentive to contribute further once the eligibility period is fulfilled, especially for low-wage workers. In 2015, remaining life expectancy at 65 is 19.4 years in Mexico. For those who started their career before 1997, having worked for 500 weeks (about 10 years) at the minimum wage gives access with limited past contributions to a pension benefit equal to the minimum wage for 19.4 years on average. While the increase in the minimum contributory period to 1 250 weeks in the new system improves the situation, despite the long transition period, the PMG entitlement after 1 250 weeks remains overly generous. On the other hand, 24 years is a very long period to be eligible to any pension.

Figure 3.10. **Eligibility and benefit level of the minimum pension**

Panel A. Years required for full minimum pension

Panel B. Value of the minimum pension
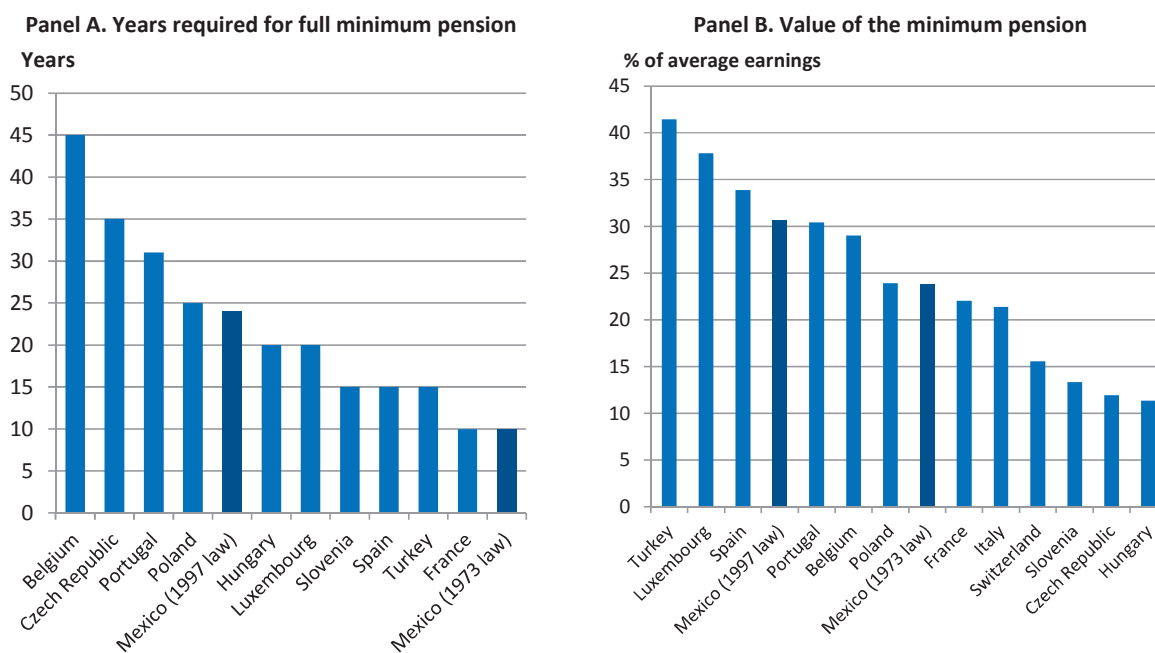
Source: OECD (2015a).

However, to be entitled to a pension, the defined-benefit system requires that at retirement the individual has not been inactive for more than a fourth of her past contribution period. For example, if the worker left the workforce at age 55 with 20 years of past contributions, she has to wait 5 years to obtain a pension at age 60, which is the minimum retirement age. However, if she only had 12 years of contribution, she then loses the right to a pension. Maintaining the latter requires to restart contributing. As a result, many workers, especially women, lost their pension rights in the defined-benefit scheme. In the defined-contribution system, below 1 250 weeks of contributions, the individual account balance is recovered as a lump sum even if there is a large period without contributions before retirement.

According to the standard economic and financial assumptions used in the OECD pension model, a man (woman) entering the labour market in the private sector in 2015 at age 20 would have to work a full career at about 60% (65%) of average earnings, i.e. about 2.3 (2.6) times the minimum wage, in order to receive a pension greater than the PMG.[9] If the contribution period is limited to 1 250 weeks instead of the full career, a man (woman) would have to earn 220% (250%) of the average wage to start getting more than the PMG.

The current rule with the 1 250 weeks cut-off creates a large discontinuity even when taking into account that individuals receive a lump sum when they have contributed for less than 1 250 weeks. With the actuarial conversion of the lump sum, moving just above the cut-off would about double the benefit (from about half to one PMG) for someone earning twice the minimum wage (i.e. about half the average wage) (Figure 3.11). On top of that, when the contribution period is shorter than 1 250 weeks individuals are subject to longevity risks when managing their lump sum. Beyond the cut-off period there is no incentive in terms of pension benefit to continue contributing as the half-average-wage worker will never be able to finance more than the PMG. For the average-wage worker, the benefit jumps from about three quarters to one PMG, and the contribution period has to reach 37 years for the benefit to exceed the PMG. This implies that workers could be contributing for about 13 additional years without any added benefit. For high-wage workers, working a few years beyond the 1 250 cut-off generates a lower amount because of eligibility to the non-contributory safety net is lost. This last point is discussed in greater detail in the following sub-sections, which suggest an integrated approach that avoids the damaging impact of these discontinuities.

Figure 3.11. **Benefit level as a function of the contribution period
for different levels of earnings throughout the career**
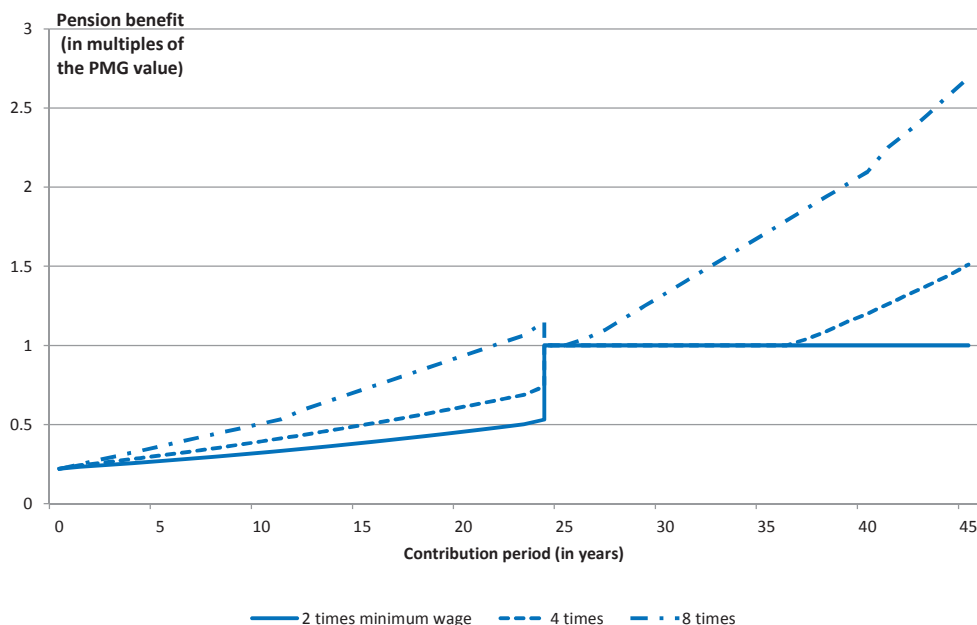
Note: The simulations are run by taking into account the non-contributory component (*Pensión para Adultos Mayores*, PAM; see section 3.6.3) and are based on the case of a private-sector male worker born in 1995 contributing for a given period at the end of his career in 2060. For individuals having contributed less than 1 250 weeks, the lump sum is assumed to be annuitized in order to facilitate comparison, thus ignoring longevity risks.

Source: OECD calculations.

This suggests first that minimum pension levels should be reduced relative to the minimum wage. Ideally, in the case of Mexico (see above), that should probably occur via an increase in the minimum wage and a looser connection between the two in the old regimes. Second, the price indexation of the PMG raises complex issues. On the one hand, in the long term the price indexation of first-tier pensions is not the best strategy because it induces a declining trend in the minimum pension replacement rate towards zero provided the economy generates real wage gains. On the other hand, the price indexation of the PMG should help reduce its level relative to wages. Also, given fast population ageing, price indexation is likely to generate a higher level of public spending on minimum pensions in Mexico as a percentage of GDP (OECD, 2015b). Combined with the high PMG-to-minimum-wage ratio, this implies that over the medium term price indexation should probably be maintained on top of increases in the eligibility age in relation with life expectancy gains. Finally, the first-tier benefit scheme should avoid a cut-off period (see below).
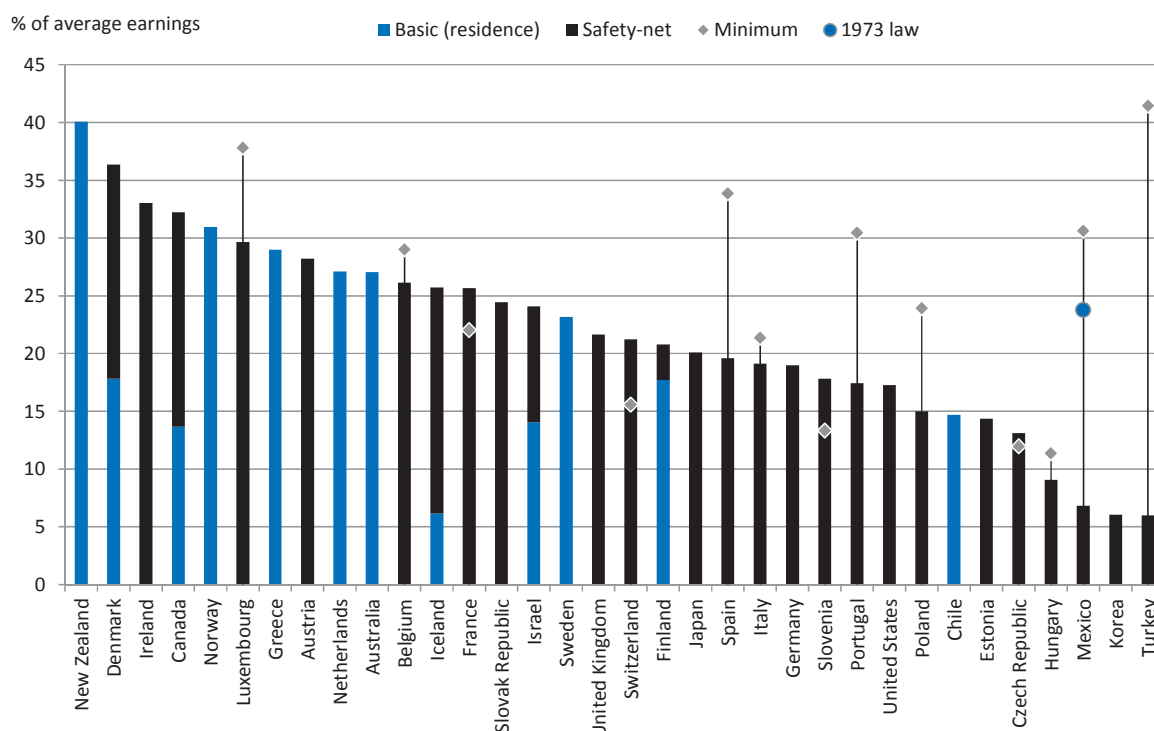
3.6.3. Safety nets

The combination of low coverage, low contribution density and low replacement rates in a country where poverty rates are already high raises social challenges (Villagómez, 2014). Efforts to close the coverage gap have generally led to the development of non-contributory pensions in Latin American countries including Mexico. While such schemes can help reduce old-age poverty, especially in countries

with large informal sectors, it is important to design them in a way which is fiscally sustainable (OECD, 2014a).

The most important nationwide non-contributory scheme in Mexico is the *Pensión para Adultos Mayores* (PAM). In 2014, PAM had about 5.4 million of beneficiaries which represented more than 60% of the population aged over 65, compared with 3.0 million for *70 y más* in 2012. The related public expenditure, financed by general taxation, has been increasing at a fast pace albeit from a low level, and reached 0.25% of GDP compared to 0.11% in 2012 and 0.05% in 2007. The PAM applies to people who are at least 65 and do not receive another old-age or disability pension from a social security institute above a certain threshold currently equal to about half of the minimum wage. This mean-tested benefit extended the *70 y más* programme in 2013 by lowering the eligibility age from age 70 to 65. *70 y más* itself had replaced in 2007 a scheme created in 2003 which targeted rural residents. The means-test largely disconnects the PAM from the contributory schemes since minimum pension levels are above the PAM eligibility income threshold.

The amount of the benefit is about equal to 22% of the private-sector PMG or less than 15% of the median wage. This places Mexico along with Korea and Turkey amongst the OECD countries offering the lowest level of old-age protection for individuals not covered by contributory pensions (Figure 3.12). While most developed countries have the means to finance higher safety net benefits (Figure 3.13), it seems that the level of economic development alone cannot explain the low degree of protection in Mexico, which is insufficient to alleviate poverty.

Figure 3.12. **Value of basic and minimum pensions, 2014**

Source: OECD, (2015a).

Figure 3.13. **Old-age safety net level and economic development, 2014**
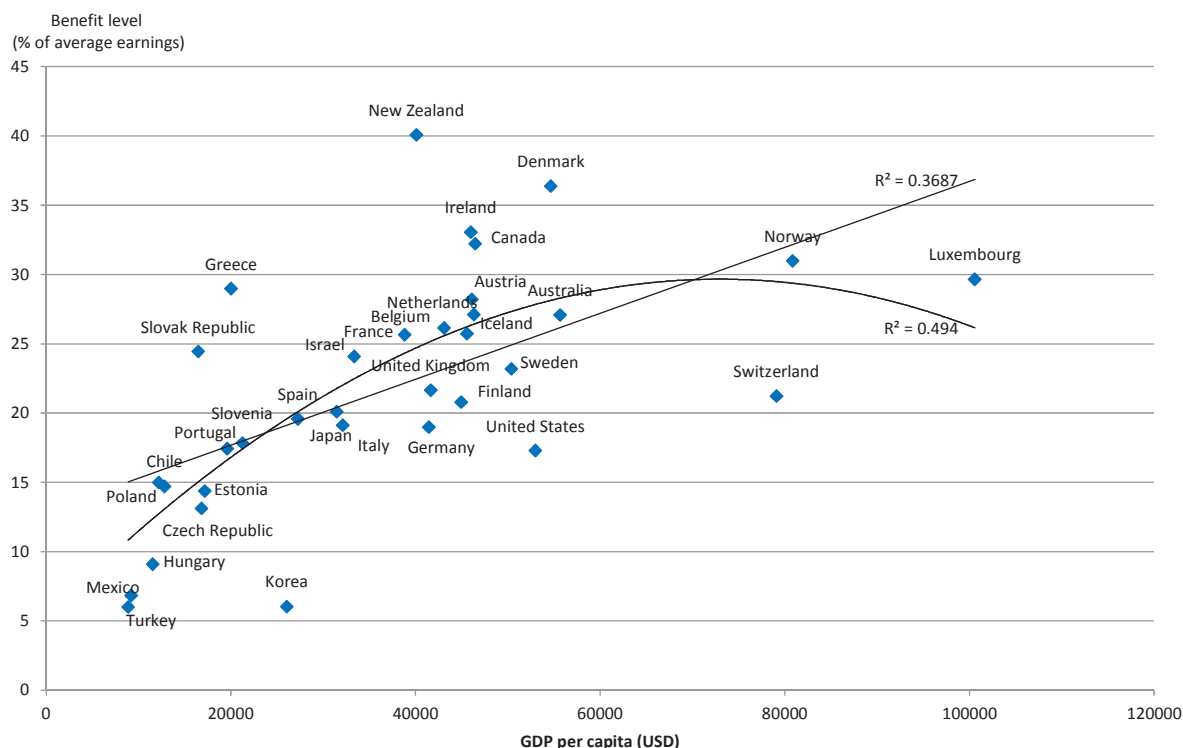
Source: OECD calculations.

Since 2000, several states have been creating their own old-age non-contributory benefit programs (Rofman et al., 2013). The Federal District first implemented a scheme (*Pensión Alimentaria para Adultos Mayores*) for elderly who have been residents in the area for more than 3 years and who are aged over 70, a threshold which was reduced to 68 years in 2008. The benefit, which is equal to 50% of the minimum wage and is not means-tested, had 480 000 beneficiaries in 2013 for an annual cost of 0.03% of GDP. In 2012, there were at least 13 state programs with age thresholds between 60 and 70 years and benefits varying between about 10% and 50% of the minimum wage covering about 930 000 people in total (including *Pension Alimentaria para Adultos Mayores)* for a total cost of 0.06% of GDP (Villagomez, 2014).

One important concern is that the rules governing the national and local safety nets are de facto independent from each other. There is no coordination between state and federal programs and no national database, even though in principle those receiving minimum pensions are not eligible to non-contributory benefits. Combining local and national safety nets makes access to the minimum pension less attractive (if the loss of the non-contributory safety nets is enforced), which in turn might reduce incentives to contribute to the pension system. This situation generates opacity, inefficiencies, possible duplications and therefore inequalities. As in the case of contributory pensions, it paints a very fragmented landscape.

3.6.4. The draft Universal Pension Law

Access to a universal pension was introduced in the Mexican constitution as a principle but it is so far not operational. In October 2013, the President presented draft legislation, the Universal Pension Law, to the Congress. It was voted by the House of Representatives in March 2014 but remains to be approved by the Senate; at this stage, there appears to be no plans for such a debate.

The draft legislation removes the means test in the strict sense and replaces it with a pension test. It stipulates that: i) the universal pension would be financed by taxation at the federal level; ii) through a transition period the PAM would converge towards the universal pension; iii) the benefit would increase from 580 pesos in 2015 (the PAM level) to 1 092 pesos by 2030 and then be indexed to price inflation; iv) the eligibility age threshold is initially set at 65 years, and would then increase every five years by 87% of the change in life expectancy at birth – as a result it would reach 67 in 2024 and 70 in 2054 ; v) eligibility conditions would also include 25 years of residence in the country and no contributory pension.

This last condition implies that this benefit would not strictly qualify as a universal old-age non-contributory pension. Moreover, one substantial limitation comes from the missed opportunity to reduce fragmentation: there is no provision about the consolidation and replacement of non-contributory local pensions. The fiscal cost of a fully universal pension, i.e. paid to everyone aged over 65, would amount to about 0.35% of GDP in 2015 and would roughly double to 0.7% of GDP in 2030 due to population ageing. Given the importance of fighting old-age poverty, these orders of magnitude are manageable. However, they would add up to the public finance pressure induced by the remaining financial difficulties of the contributory schemes which are highlighted above.

The planned increase of the benefit level is equal to 4.3% per year on average between 2015 and 2030 in nominal terms, compared with the central inflation target of 3% by the Central Bank. If the Bank of Mexico succeeds in its mandate, this would imply a cumulated rise in real terms of just over 20% throughout the period, raising the safety-net level from 22% of PMG with the PAM today to 27% in 2030. Other measures proposed in the same draft legislation, which might be responsible for its setting aside, include assigning a share of the INFONAVIT contributions to finance retirement and unemployment benefits.

3.6.5. Towards an integrated structure of first-tier pensions within the overall pension system

There are concerns that non-contributory pensions may have unintended consequences. In theory, non-contributory pensions create an incentive to go informal and save less because, by increasing retirement income, the safety net modifies the decisions that determine the trade-off between saving and consumption through the lifetime. A universal pension encourages more consumption today as the access to that benefit later is not affected by less saving today. A non-contributory pension that is gradually withdrawn as retirement income rises amplifies this effect, as such a withdrawal increases the effective marginal taxes. This suggests using relatively low withdrawal rates to minimise crowding-out effects on labour supply and contributory pensions. Indeed, the cliff due to the loss of the non-contributory subsidies in case of a full abrupt withdrawal (as in Mexico for PAM) or even large withdrawal rates could lower contribution density (Beyer and Valdés-Prieto, 2004).

On the other hand, there is a trade-off between a lower level of distortions thanks to small withdrawal rates and the cost for public finances of not tightly targeting, which tends to reduce the level of the safety net for a given level of spending allocated to the programme. Based on the Universal Pension Law individuals who do not comply for a contributory pension would get a lump sum from their accumulated assets in their individual accounts and be eligible to the "universal" pension. It might be more appropriate to use their account to partially finance an integrated benefit. Taking into account the public finance cost, Valdés-Prieto (2009) suggests that it is optimal to opt for a scheme with a relatively low but strictly positive withdrawal rate.

To avoid the detrimental effects of the discontinuities highlighted in Figure 3.11 on incentives and equity, policy makers in Mexico should aim at better aligning the non-contributory component with the first-tier contributory pension, i.e. minimum pensions, as Chile did for example in 2008. This should be done in a way that provides a smooth benefit pattern as a function of either contributions or contribution periods in order to reduce the incentives not to contribute to the formal system. In Mexico, there is some evidence that the *70 y mas* programme lowered labour force participation of beneficiaries and of younger individuals who live with them through income effects (Juarez and Pfutze, 2014). Such a strategy might require adjusting both the level of the safety net and the minimum pensions.

An integrated framework would be consistent with the proposal of Villagómez and Ramírez (2014), who recommend the implementation of a proportional pension based on the length of the contributory period. While their proposal has the advantage of smoothing the benefit pattern, Valdés-Prieto (2009) highlighted that a benefit that is withdrawn based on the length of the contribution period is less efficient than one based on contributory pensions (and other income). The reasons are that the former could create disincentives to contribute and generate vertical inequities for example between part-time and full-time workers who could have the same contribution period but with very different contributed amounts.

3.7. Policy options to improve the public pension provision

The priorities for the Mexican pension system are twofold. Reforms should aim at ensuring financial sustainability and improving the governance and transparency by streamlining the numerous schemes. Another key objective should be to raise the old-age benefits of the most vulnerable and better align the old-age safety net and the contributory first-tier pension scheme.

3.7.1. Improve financial sustainability

Financial sustainability challenges for pension provision arise in Mexico from the long transition periods of the schemes that have been reformed since the mid-1990s and from the implicit liabilities in non-reformed systems. Chapter 4 provides several options to reduce the transition costs of old schemes.

Some parametric changes could also generate significant net public saving, which in turn would create fiscal space to expand the non-contributory pension scheme. While the increase in contribution rates in the private DC schemes is needed to raise retirement-income adequacy, it would also increase the revenues of the public DB schemes. Moreover, the matching contribution for civil servants is overly generous (for each peso voluntarily contributed, between 1 and 2% of earnings below 10 times the minimum

wage, the government adds 3.25 pesos) and exacerbates the differences between public-sector and private-sector pensions; it should be drastically reduced. The way the benefits are computed could be modified beyond changes in the DB formula. For example, the 2010 Supreme Court ruling, according to which the reference-wage ceiling for DB pensions should be lowered from 25 to 10 times the minimum wage, could be enacted, thereby lowering public spending. In addition, the survivor's pension should be scaled back, given that the current replacement of 90%, the second highest in the OECD, goes way beyond protecting the standard of living of the survivor. The saving potential is limited though as survivors' pension expenditure amount to only 0.3% of GDP given low pension coverage more generally.

Given the fast projected pace of population ageing in Mexico, policy makers should strive to increase the effective retirement age down the road. First, the statutory retirement age should be linked to gains in life expectancy. Second, exiting the labour market early should be discouraged. Early retirement rules should be tightened by increasing the age limit (60 years both in the private sector and in case of dismissals in the public sector) and, in the old system, the benefit penalty for retiring early (5 percentage points for each year of anticipation in the private sector). Moreover, in the public sector (old law), the contribution period of 28 years for women and 30 years for men for a full pension should be substantially increased. It is conditional on reaching an age threshold which will reach 60 in 2028. This age limit should increase at a faster pace and continue beyond 2028 (before the old public-sector system expires at the beginning of the 2050s) while the gender gap should be closed.

Finally, numerous pension schemes at different levels of governments and sectors should be reformed with a view to harmonising the rules and ensuring portability to remove obstacles to labour mobility. Ultimately, establishing a truly national pension system should be the key objective. Hence, the fragmentation of the pension system should be reduced and its governance and financial prospects upgraded by: conditioning part of the transfers to local governments on the adoption of the national scheme in order to replace existing schemes; eliminating special regimes benefiting firms and universities among others; and starting the gradual convergence of IMSS and ISSSTE parameters. In particular, the eligibility period in the old private-sector scheme is very short (500 weeks) and should be raised to get the minimum pension in full (see below). There should also be a convergence between the minimum pension level under the 1973 Law and the PMG, both in the private and public sectors, with the converged benefit level being delinked from the minimum wage. Moreover, pension and health social security institutions should be clearly separated both legally and financially.

3.7.2. Increase safety net levels, and better link the non-contributory with contributory first-tier components

The level of the non-contributory benefit (PAM) is too low to efficiently fight old-age poverty. With high poverty rates, the low level of social expenditures in Mexico leaves some room to progressively improve safety nets for the elderly.

Moreover, the non-contributory safety net should be integrated within the first-tier scheme:

- The PAM would be topped-up by a new contribution-based minimum pension benefit;

- The minimum pension benefit would grow steadily with the contributions paid up to a ceiling or with the contribution period, and the full rate be reached after more than 1 250 weeks. This would broaden the access to the first-tier contributory benefit;

- Accumulated assets in individual accounts of pensioners who cannot finance a pension higher than the full-rate minimum would be used to finance the new integrated benefit rather than to provide lump sums;

- Continuity between the non-contributory and first-tier schemes would be ensured by progressively withdrawing the non-contributory component against the new progressive minimum pension. The withdrawal rate should be relatively low to limit disincentives to contribute. With the current levels of the PMG and the PAM, the withdrawal rate would be equal to the PAM / PMG ratio which is currently 22%. Chile uses a withdrawal rate of 30% and Finland 50% while Norway and Sweden have two large rates instead of a unique rate (Valdés-Prieto, 2009);

- The coordination of minimal old-age protection between the federal and local governments should be enhanced via financial transfer incentives and improved monitoring.

Notes

1. In this chapter the minimum wage refers to that applied in the federal district as this is the reference used in pension parameters.

2. Actuarial neutrality is a central concept to work incentives around retirement ages. There are two main interrelated but different definitions, capturing changes in pension benefits at the margin. According to the first (se e.g. Duval, 2003), the pension system is neutral if the cost in terms of foregone pensions and contributions paid for working an additional year is exactly offset by an increase in future benefits. According to the second (see e.g. Queisser and Whitehouse, 2006), the system is actuarially neutral if the present value of accrued pension benefits for working an additional year is the same as in the year before (meaning that benefits increase only by the additional entitlement earned in that year). The main difference between the two definitions is that contributions paid or benefits earned during the additional year are not considered in the second one. In any case, although that depends on the pension parameters, including mortality rates, actuarial neutrality is typically associated with an increase of 6-8% in future annual pensions for working an extra year.

3. As explained in sub-section 3.6.2 below, the level of minimum pension under the 1973 law is well below that under the 1997 law. This creates some incentives to contribute up to 1 250 weeks.

4. Actuarially fairness means that the present value of lifetime contributions equals the present value of lifetime benefits (Queisser and Whitehouse, 2006).

5. A recent reform proposal would provide a matching contribution for private-sector workers. The proposed terms are much less generous though than those applied to the public sector as the matching would be 20 cents for each peso that is contributed up to a 300-pesos annual limit, corresponding to less than 1% of the minimum wage.

6. *Source:* Criterios Generales de Política Económica 2015.

7.   According to Hernandez and Vernon (2012), financial pension reserves had been drawn also to subsidise theatres and a football team, but this does not happen any longer since the reform to the Social Security Law in 1995.

8.   In addition, in 2002, both the 1973 and 1997 Law minimum pension were revalued by 11% in real terms.

9.   According to the standard economic and financial assumptions used in the OECD pension model, the PMG would at retirement be equal to 18% of the average wage compared to 32% today as the PMG is price indexed while productivity gains translate into real wage growth.

References

Aguirre, F.M. (2012), *Pensiones … y con qué?*, Fineo (ed.).

Alonso, J., C. Hoyo and D. Tuesta (2014), "A model for the pension system in Mexico: diagnosis and recommendations", *Journal of Pensions, Economics and Finance*, Vol. 14, No. 1.

AMIS (2014), "Evolucion de los seguros de pensiones derivados de la seguridad social", *mime*o, Marzo 2014.

Beyer, H. and S. Valdés-Prieto (2004), "Proposal to increase the density of contribution", *Report for the national Office of Women (SERNAM)*, March, Santiago.

Casal, J. and C. Hoyo (2007), "Costo fiscal de la reforma a Ley del Seguro Social en Mexico", *document interno*, CONSAR.

Duval, R. (2003), "The retirement effects of old-age pension and early retirement schemes in OECD countries", *OECD Economics Department Working Papers*, No.24, Paris.

Fitch (2011), "Marco Institucional de los Gobiernos Subnacionales en México", Fitch Ratings, International Public Finance Mexico, September.

Hastings J.S. and L. Tejeda-Ashton, "Financial literacy, information, and demand elasticity: survey and experimental evidence from Mexico. 2008", *NBER Working Papers*, No. 14538.

Hernandez, A. and A. Vernon (2012), "The Reformed Mexican Social Security System: 15 years of experience", mimeo.

James, E. (2009), "Rethinking Survivor Benefits", World Bank, *Social Protection and Labour Discussion Paper*, No. 928.

Juarez, L. and T. Pfutze, "The Effects of a Non-Contributory Pension Program on Labor Force Participation: The Case of 70 y Mas in Mexico", *Banco de México Working Papers*, No 2014-12.

IMCO (2012), "Pensiones estatales: Otra bomba de tiempo", *http://imco.org.mx/indice_estatal_2010/PDFS/Pensionesestatales.pdf.*

OECD (2013), *OECD Economic Surveys: Mexico 2013*, OECD Publishing, Paris. DOI*: http://dx.doi.org/10.1787/eco_surveys-mex-2013-en.*

OECD/IDB/The World Bank (2014a), *Pensions at a Glance: Latin America and the Caribbean*, OECD Publishing, Paris.
DOI: *http://dx.doi.org/10.1787/pension_glance-2014-en.*

OECD (2014b), *OECD Economic Surveys: Poland 2014*, OECD Publishing, Paris.
DOI: *http://dx.doi.org/10.1787/eco_surveys-pol-2014-en.*

OECD (2015a), *Pensions at a Glance*, forthcoming, OECD Publishing.

OECD (2015b), *OECD Urban Policy Reviews: Mexico 2015: Transforming Urban Policy and Housing Finance*, OECD Publishing, Paris.
DOI: *http://dx.doi.org/10.1787/9789264227293-en.*

Queisser, M. and E. R. Whitehouse (2006), "Neutral or Fair?: Actuarial Concepts and Pension-System Design", *OECD Social, Employment and Migration Working Papers*, No. 40, OECD Publishing, Paris.
DOI: *http://dx.doi.org/10.1787/351382456457.*

Tapen, S. (2012), "Estimating future pension liability of the Mexican Government", *Study commissioned by the Inter-American Development* Bank.

Valdés-Prieto, S. (2009), "The 2008 Chilean Reform to First-Pillar Pensions", *CESIfo Working Papers*, No. 2520.

Vasquez Colmenares, G. (2012), "Nueva seguridad social y la crisis de las pensiones", *ECONOM/Aunam*, Vol. 10, No. 28.

Villagomez, F .A. (2014), "Mexico : un esquema multiplar fragmentado", *Como fortalecer los sistemas de pensiones latinoamericanos*, Estudio internacional de SURA Asset Management.

Villagomez, F .A. and D. Ramirez (2014), "Pension universal proporcional. Una propuesta para Mexico", *El Trimestre Economico*, Vol. LXXXI (4), No. 324.

Villagomez, F .A. and D. Ramirez (2013), "Mas alla de las pensiones contributivas : Mexico", T.Rofman, I. Apella and E. Vezza (eds), *Mas alla de las pensiones contributivas*, Banco Mundial.