GROSS PENSION REPLACEMENT RATES FOR DIFFERENT EARNINGS PROFILES

Key results

The future gross replacement rate shown in indicator 4.2 for the average-wage worker assumes that this worker earns the average wage all along her or his career from age 20 (baseline case). The indicator here assumes a wage-age profile, with the relative wage increases until age 50. It computes the replacement rate assuming that over the whole career the average wage is the same as someone earning the average wage all along. Such a varying relative wage with age has little impact on replacement rates relative to the baseline case, with the average gross replacement rate remaining at 53%.

All the analysis in this publication, and in previous editions, concentrates solely on individuals at the same level of average earnings throughout their careers. This approach generates the results in Table 4.2, which are replicated here for comparison purposes in Table 4.18.

Remaining at the same relative earnings level throughout the career does not account for the fact that relative earnings typically start at a lower level and increase during the career before possibly lowering prior to retirement.

To ensure that the career average earnings remain the same between both cases as well as the final wage the earnings from age 60 onwards are at the average. Age 60 was chosen as this is the earliest long-term normal retirement age for men entering the labour market at age 20 in 2016 amongst OECD countries (Luxembourg and Slovenia).

Within the base case earnings remain at a constant proportion of average earnings whilst in the new earning profile the ratio of earnings relative to the average wage – which is still assumed to grow by 1.25% per year in real terms -increases linearly by about 50% (or more precisely 37 percentage points, corresponding to an increase in the ratio of an additional 1.25% per year) from age 20 to 50 before declining to the average level at age 60. The full profile is show in Figure 4.19 with a starting point around 80% of average earnings and peak earnings around 117% of the average. For low (high)-earners the earnings profile is also based on workers starting the career with 80%*0.5 (*1.5) of average earnings, recording a peak of 117%*0.5 (*1.5) of average earnings at age 50 before finishing the career from age 60 at 0.5 (1.5) average earnings.

As the career average earnings are constant across both in the base case and this earning profile scenario, the replacement rates in Ireland, New Zealand and the United Kingdom are also constant, as the benefit levels are effectively flat rate for full career workers.

On average across the OECD there is no difference in the replacement rates but there is some degree of country variation.

The four countries with the greatest variation in the replacement rate are France, Portugal, Slovenia and Spain. In all apart from Portugal, where the best 40 years are considered, only the last 25 years or best 24/25 years of earnings are used in the calculation of pension benefits. The average of earnings over the last 25 years is 7% above the average in the baseline scenario, hence explaining the higher replacement rates, although ceilings limit the increase in France for average and high earners.

Going in the opposite direction the replacement rates fall most in Denmark as the contributions made at the start of the career to the defined contribution system will have lower value than for an average earner. Although there will be years of contributions at higher than average earnings later in the career they will not completely offset this loss.

In Austria the replacement rates for the highest earners are nearly three percentage points lower than in the base case, as there is a ceiling to contributions which is applicable for the earnings profile cases, thereby reducing the final pension amount. A ceiling also applies in Belgium for average and high earners.

Definition and measurement

The old-age pension replacement rate measures how effectively a pension system provides a retirement income to replace earnings, the main source of income before retirement. The gross replacement rate is defined as gross pension entitlement divided by gross pre-retirement earnings.

Often, the replacement rate is expressed as the ratio of the pension to final earnings (just before retirement). Under the baseline assumptions, workers earn the same percentage of average worker earnings throughout their career. Therefore, final earnings are equal to lifetime average earnings revalued in line with economy-wide earnings growth. Replacement rates expressed as a percentage of final earnings are thus identical to those expressed as a percentage of lifetime earnings. However, if people move up the earnings distribution as they get older, then their earnings just before retirement will be higher than they were on average over their lifetime average earnings are lower than their earnings just before retirement. Total pension entitlements, and therefore pension benefits, are therefore lower than if they had spent the whole career at the final wage.

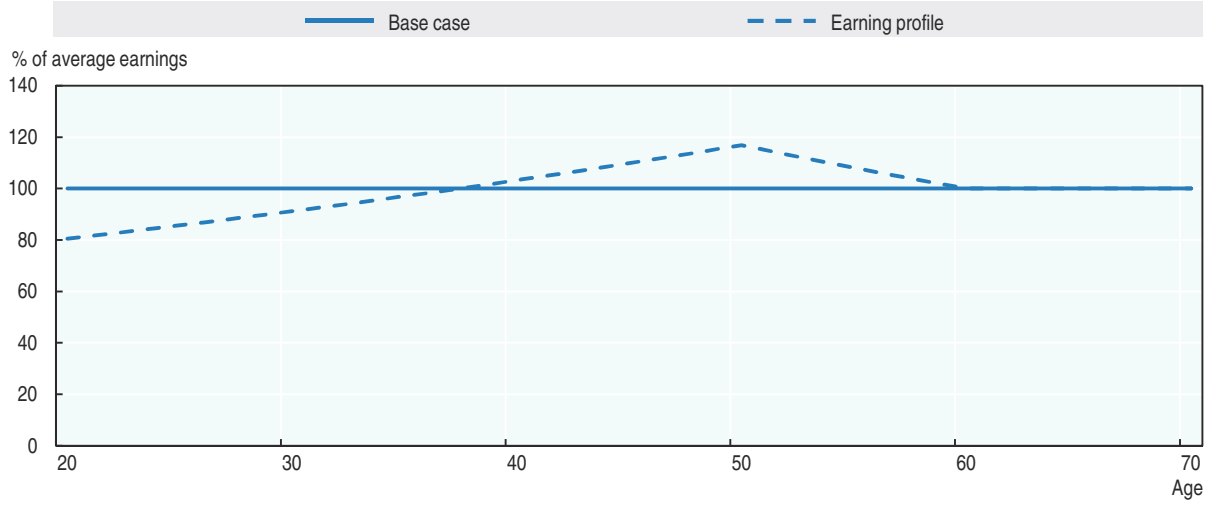
4.18. Gross pension replacement rates for men by earnings

	Base case			Earnings profile				Base case			Earnings profile		
	0.5	1	1.5	0.5	1	1.5		0.5	1	1.5	0.5	1	1.5
Australia	82.8	32.2	32.1	82.2	32.0	31.7	Korea	58.5	39.3	28.7	58.4	39.1	28.7
Austria	78.4	78.4	78.4	77.8	77.8	75.7	Latvia	47.5	47.5	47.5	47.0	47.0	47.0
Belgium	49.1	48.1	37.6	48.5	46.8	36.4	Luxembourg	89.5	76.7	72.5	89.0	76.3	72.0
Canada	54.1	41.0	28.5	53.9	40.3	28.5	Mexico	34.7	26.4	25.1	34.7	26.0	24.6
Chile	39.1	33.5	33.6	38.6	32.7	32.8	Netherlands	98.1	96.9	96.5	97.3	96.1	95.6
Czech Republic	74.1	45.8	36.4	73.8	45.7	36.3	New Zealand	80.0	40.0	26.7	80.0	40.0	26.7
Denmark	123.4	86.4	79.5	122.4	84.9	78.0	Norway	63.6	45.1	36.5	63.3	44.6	36.3
Estonia	62.0	49.7	45.6	61.4	49.1	45.0	Poland	31.6	31.6	31.6	31.6	31.6	31.6
Finland	56.6	56.6	56.6	56.2	56.2	56.2	Portugal	75.5	74.0	72.6	77.2	75.6	74.3
France	60.5	60.5	54.8	63.7	62.3	55.4	Slovak Republic	72.3	64.3	62.2	71.6	63.7	61.6
Germany	45.5	38.2	38.2	45.5	37.9	37.1	Slovenia	44.0	38.1	36.3	46.9	40.6	38.6
Greece	67.4	53.7	49.2	67.0	53.4	48.9	Spain	72.3	72.3	72.3	76.3	76.3	75.5
Hungary	58.7	58.7	58.7	58.2	58.2	58.2	Sweden	55.8	55.8	64.5	55.3	56.1	64.7
Iceland	77.6	69.0	67.9	77.3	68.4	67.4	Switzerland	56.0	42.1	28.5	55.6	42.2	28.5
Ireland	68.2	34.1	22.7	68.2	34.1	22.7	Turkey	69.9	69.9	69.9	68.7	68.7	68.7
Israel	99.4	67.8	45.2	98.0	67.8	45.2	United Kingdom	44.3	22.1	14.8	44.3	22.1	14.8
Italy	83.1	83.1	83.1	82.8	82.8	82.8	United States	48.3	38.3	31.7	48.8	38.8	32.0
Japan	47.8	34.6	30.2	47.6	34.4	30.0	**OECD**	**64.9**	**52.9**	**48.4**	**65.0**	**53.0**	**48.6**

Source: OECD pension models.

StatLink http://dx.doi.org/10.1787/888933634192

4.19. Earnings profile compared to base case



StatLink http://dx.doi.org/10.1787/888933634211

Pensions at a Glance 2017
OECD and G20 Indicators

Chapter 5

Demographic and economic context

Population ageing has been one of the main driving forces behind changes in pension policies and reforms. Ageing is the result of two demographic changes.

The first indicator looks into the number of births and the development over the last 50 years. The second driver of population ageing is increasing life expectancy. Changes in life expectancy – at birth and at age 65 – are shown as the second indicator. There is also a brief discussion about how this might change in the future. The third indicators looks into the degree of ageing measured as the demographic dependency ratio. The number of people aged 65 and above relative to the number of people of working age. The fourth indicator takes a look at the employment rates of older works. The fifth indicator presents calculations for the age that people leave the labour market – the "Effective age of labour market exit". The last indicator measures the expected years following labour market exit by combining life expectancy with the previous indicator.

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.

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