

Key results

The progressivity index is designed to summarise the relationship between pension in retirement and earnings when working in a single number. The results show variation from 100 in pure basic schemes (such as Ireland and New Zealand), through zero in Hungary to a negative result in Sweden (-13), indicating that the overall retirement-income system in Sweden is regressive. The average index across OECD countries is 39. Regional differences are striking, with the index averaging 82 in the Anglophone countries: public pensions are strongly progressive. In Southern European countries, by contrast, it averages 23, indicating a very strong link between earnings and pension benefits.

“Pure-basic” pension systems pay the same benefit regardless both of their earnings history and their other sources of income. The relative pension level is independent of earnings and the replacement rate falls with earnings. “Pure-insurance” schemes, in contrast, aim to pay the same replacement rate to all workers when they retire. Defined-contribution plans generally conform to this pure-insurance model as do earnings-related schemes that offer the same accrual rate regardless of earnings, years of service or age.

These two benchmarks underpin the “index of progressivity” used for cross-country comparison of pension benefit formulae of mandatory schemes. The index is designed so that pure-basic systems score 100 and a pure-insurance schemes, zero. The former is maximally progressive; the latter is not progressive because the replacement rate is constant. A high score is not necessarily “better” than a low score or vice versa. Countries with a high score simply have different objectives than countries with a low score.

The table shows the Gini coefficient for gross pension benefits and the index of progressivity of the benefit formula assuming a synthetic distribution of earnings based on the OECD average. In addition to the two countries with an index of 100, Canada, Israel and the United Kingdom all have highly progressive pension systems where the index is close to 80 or higher. These countries all have significant targeted or basic pensions.

At the other end of the scale, Finland, Hungary, Italy, the Netherlands, Poland, and Turkey have almost entirely proportional systems and so limited progressivity. The index is less than 5. This group includes two countries with notional accounts, which have a close link between contributions and benefits by design. Other countries lie between these two groups. The result for Portugal and Sweden stands out with a negative progressivity index. In the case of Sweden this regressivity can be seen in the gross replacement figure in the “Country profiles” in Chapter 9, which shows both low and high earners have higher replacement rates than average earners.

The final two columns explore whether inequality in pension entitlements is explained by inequality in the national earnings distribution or by differences in benefit formulae. In fact, the index of progressivity averages around 38-39 on both measures for the 29 countries with complete data.

It is important to note that the index of progressivity of pension benefit formulae measures only the mandatory parts of the pension systems. Some countries have extensive private occupational and personal pension provision (see the indicator of “Coverage of private pensions”). Taking these into account would make the distribution of pensioners’ incomes wider.

Definition and measurement

OECD countries’ retirement-income systems place differing emphasis on the roles of insurance and redistribution. The progressivity index is designed so that a pure basic scheme would give 100 and a pure insurance scheme, zero. The calculation is based on Gini coefficients, a standard measure of inequality. Formally, the index of progressivity is 100 minus the ratio of the Gini coefficient of pension entitlements divided by the Gini coefficient of earnings, on both cases weighted by the earnings distribution. Calculations were carried out with both national data (where available) and the OECD average earnings distribution. The indicator is based on the analysis of Musgrave and Thin (1948).

Further reading

D’Addio, A.C. and H. Immervoll (2010), “Earnings of Men and Women Working in the Private Sector: Enriched Data for Pensions and Tax-Benefit Modelling”, *OECD Social, Employment and Migration Working Papers*, No. 108, OECD Publishing, <http://dx.doi.org/10.1787/5km7smt2r7d2-en>.

Musgrave, R.A. and T. Thin (1948), “Income Tax Progression 1924-48”, *Journal of Political Economy*, Vol. 56, pp. 498-514.


4.19. Gini coefficients on pension entitlements and earnings

OECD average and national earnings-distribution data

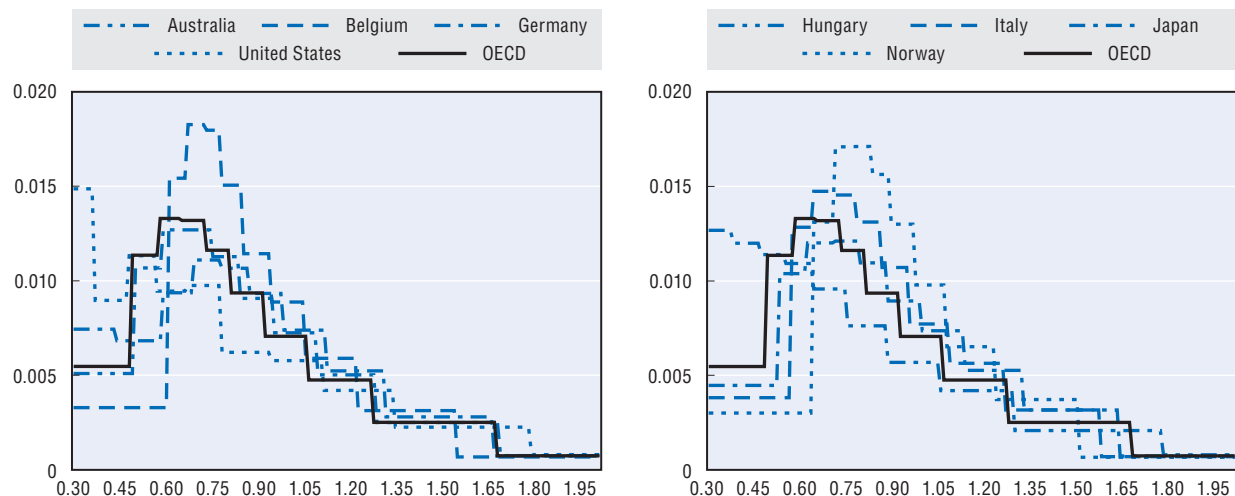
| | OECD average distribution | | National earnings distribution | | | OECD average distribution | | National earnings distribution | | | |
|---------------------|---------------------------|---------------------|--------------------------------|---------------------|-----------|------------------------------|---------------------|--------------------------------|---------------------|-------------|-------------|
| | Pension Gini | Progressivity index | Pension Gini | Progressivity index | Gini wage | Pension Gini | Progressivity index | Pension Gini | Progressivity index | Gini wage | |
| OECD members | | | | | | | | | | | |
| Australia | 7.3 | 71.9 | 7.3 | 71.7 | 25.6 | Poland | 25.8 | 0.9 | 26.1 | 1.0 | 26.3 |
| Austria | 18.9 | 27.5 | 18.2 | 27.9 | 25.3 | Portugal | 26.2 | -0.8 | 29.1 | 1.0 | 29.4 |
| Belgium | 10.3 | 60.6 | 9.8 | 57.0 | 22.9 | Slovak Republic | 22.4 | 13.9 | 22.4 | 13.9 | 26.0 |
| Canada | 2.1 | 92.1 | 1.7 | 93.1 | 25.0 | Slovenia | 12.8 | 50.7 | | | |
| Chile | 18.8 | 27.9 | | | | Spain | 19.7 | 24.1 | 19.8 | 24.5 | 26.2 |
| Czech Republic | 9.8 | 62.2 | 9.8 | 62.2 | 26.0 | Sweden | 29.4 | -13.1 | 26.0 | -18.7 | 21.9 |
| Denmark | 11.2 | 57.0 | 9.5 | 56.8 | 21.9 | Switzerland | 8.6 | 66.9 | 7.5 | 68.0 | 23.3 |
| Estonia | 19.4 | 25.6 | | | | Turkey | 25.1 | 3.5 | 29.3 | 4.4 | 30.7 |
| Finland | 25.0 | 4.0 | 21.3 | 1.5 | 21.6 | United Kingdom | 3.8 | 85.4 | 3.8 | 85.4 | 26.0 |
| France | 18.0 | 30.6 | 17.1 | 30.4 | 24.5 | United States | 14.9 | 42.6 | 14.9 | 42.6 | 26.0 |
| Germany | 19.4 | 25.4 | 18.0 | 26.8 | 24.6 | OECD34 average | 15.8 | 39.2 | | | |
| Greece | 15.9 | 39.0 | 16.2 | 40.2 | 27.1 | OECD29 | 15.9 | 39.0 | 15.7 | 38.5 | 25.5 |
| Hungary | 26.0 | 0.0 | 27.7 | 0.0 | 27.7 | | | | | | |
| Iceland | 21.7 | 16.6 | | | | Other major economies | | | | | |
| Ireland | 0.0 | 100.0 | 0.0 | 100.0 | 26.1 | Argentina | 19.1 | 26.4 | | | |
| Israel | 5.3 | 79.5 | | | | Brazil | 26.5 | -2.0 | | | |
| Italy | 25.7 | 1.4 | 23.4 | 1.4 | 23.8 | China | 19.6 | 24.7 | | | |
| Japan | 13.8 | 46.9 | 13.2 | 46.3 | 24.5 | India | 17.5 | 32.6 | | | |
| Korea | 7.4 | 71.5 | 7.4 | 72.7 | 27.2 | Indonesia | 26.0 | 0.0 | | | |
| Luxembourg | 20.5 | 21.1 | 20.9 | 21.8 | 26.8 | Russian Federation | 19.8 | 23.8 | | | |
| Mexico | 13.7 | 47.4 | 19.3 | 37.2 | 30.7 | Saudi Arabia | 26.0 | 0.0 | | | |
| Netherlands | 25.0 | 3.9 | 23.4 | 3.9 | 24.4 | South Africa | 0.0 | 100.0 | | | |
| New Zealand | 0.0 | 100.0 | 0.0 | 100.0 | 26.0 | EU27 | 18.5 | 29.1 | | | |
| Norway | 14.2 | 45.3 | 12.1 | 43.9 | 21.5 | | | | | | |

Note: OECD29 refers to the countries for which national earnings-distribution data are available.


Source: OECD pension models; OECD Income Distribution Database.

StatLink  <http://dx.doi.org/10.1787/888932907566>

4.20. Distribution of earnings: OECD average and selected countries



Source: OECD Income Distribution Database.

StatLink  <http://dx.doi.org/10.1787/888932907585>



From:
Pensions at a Glance 2013
OECD and G20 Indicators

Access the complete publication at:
https://doi.org/10.1787/pension_glance-2013-en

Please cite this chapter as:

OECD (2013), “Progressivity of pension benefit formulae”, in *Pensions at a Glance 2013: OECD and G20 Indicators*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/pension_glance-2013-21-en

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