

PART I
Chapter 5

Relative Pension Levels

The relative pension level is the individual pension divided by economy-wide average earnings, rather than by individual earnings as in the replacement-rate results in the previous chapter. Figure 5.1 shows relative pension levels in OECD member countries on the vertical axis and individual pre-retirement earnings on the horizontal. Countries have been grouped by the degree to which pension benefits are related (or not) to individual pre-retirement earnings.*

In the first set of seven countries (Figures 5.1A and 5.1B), there is little or no link between pension entitlements and pre-retirement earnings. In Ireland and New Zealand, pension benefits are purely flat rate. In Canada, the relative pension level varies little: from 36% for low earners to 42% for those on average earnings and above. Although Canada has an earnings-related pension scheme, its target replacement rate is very low, its ceiling is set at average economy-wide earnings and a resource-tested benefit is withdrawn against additional income from the earnings-related scheme. Thus, the relative pension level changes little with individual pre-retirement earnings although the composition of the pension package varies (between targeted, basic and earnings-related benefits). In Denmark, basic and targeted schemes dominate the mandatory retirement-income regime.

In the Czech Republic and the United Kingdom, the earnings-related schemes have strongly progressive formulae; both countries also have basic pension programmes. The result, again, is a curve of relative pension level against individual earnings that is almost flat. In Australia, the relatively flat curve results mainly from the means-tested public pension programme. There is also a limit to the earnings for which employers must contribute to the DC scheme and the tax system reduces the amount going into DC plans for higher-income workers.

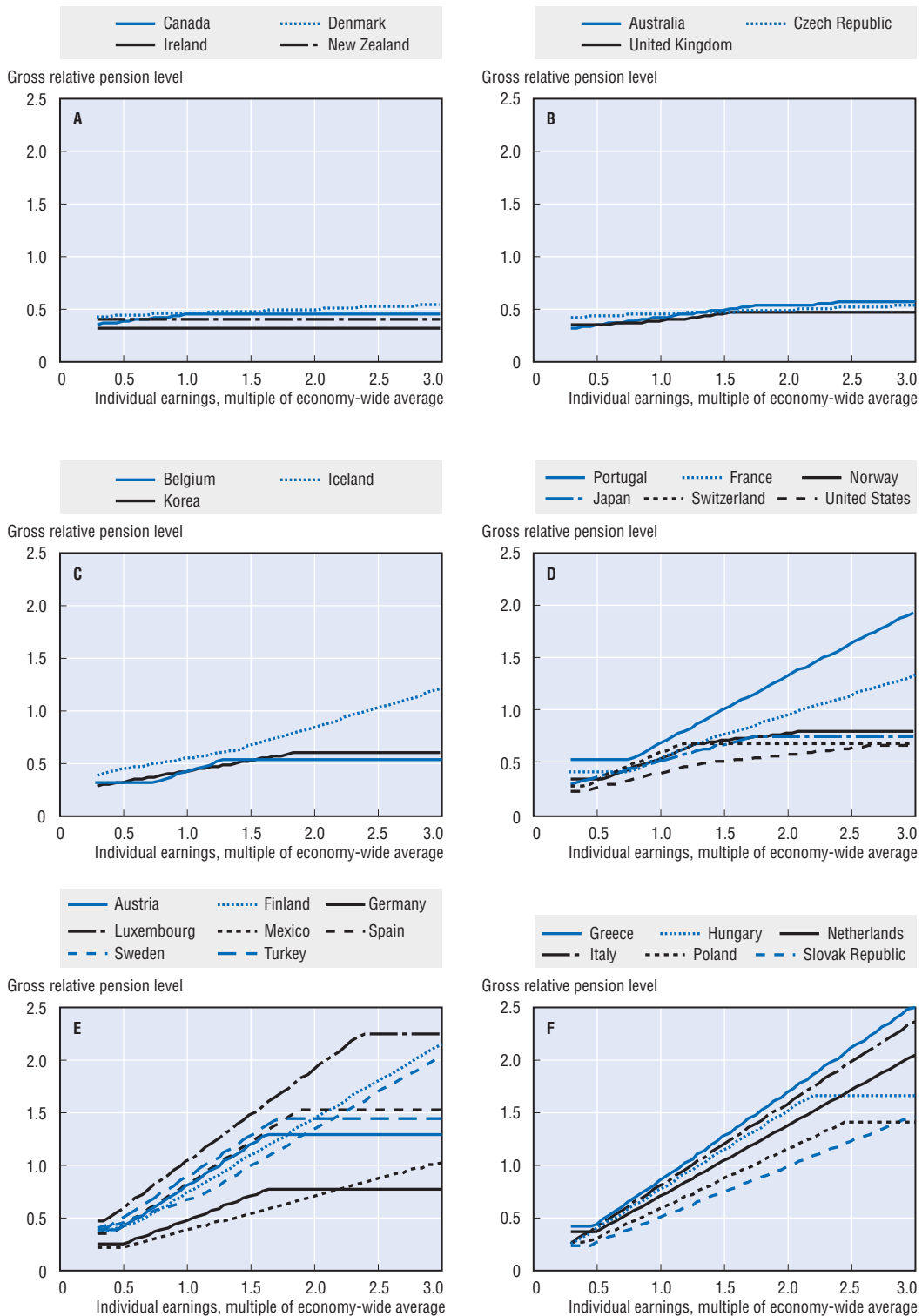
At the other end of the spectrum lie six countries with a very strong link between pension entitlements and pre-retirement earnings (Figure 5.1F) and eight countries with a strong link (Figure 5.1E). In the Netherlands, there is no ceiling to pensionable earnings in the quasi-mandatory occupational schemes. In the Slovak Republic and Italy, ceilings on pensionable earnings are set at three times or more average economy-wide earnings. For low-paid workers, top-ups from the minimum pensions in the Slovak Republic and Poland and the basic pension in the Netherlands are apparent in the charts. But apart from this narrow earnings range (and the impact of the ceilings in Hungary and Poland), relative pension levels increase with individual earnings in a linear way. The contrast with the seven countries in Figures 5.1A and 5.1B – where pension values were constant or close to flat and so replacement rates decline with earnings – is stark.

The eight countries in Figure 5.1E have a slightly weaker link between individual pre-retirement earnings and pensions than those in Figure 5.1F. There are two main explanations. First, Austria, Luxembourg, Spain and Sweden have redistributive programmes

* Categorisation is based on the value of the Gini coefficient of the distribution of pension levels across the earnings range weighted by the OECD average distribution of earnings. The calculation method and results are set out in Annex I.3 on progressivity of pension benefit formulae.

Figure 5.1. **The link between pre-retirement earnings and pension entitlements**

Gross pension entitlement as a proportion of economy-wide average earnings



Source: OECD pension models.

targeting a relatively high minimum income (of around one third of economy-wide average earnings). Secondly, Austria, Germany, Spain and Turkey have ceilings to pensionable earnings (of around 160-185% of economy-wide average earnings) that weaken the link between pay and pensions compared with the countries shown in Figure 5.1F.

The other nine OECD countries are intermediate cases (between those with little or no link between individual earnings and pensions and those with a strong or very strong link). The three countries in Figure 5.1C exhibit a weak link between pensions and pre-retirement earnings. Although benefits are not as flat as in the first group of countries, their pension systems have much more progressive formulae than those of the six countries shown in Figure 5.1F. These three countries all provide relatively generous benefits for workers with low earnings. In Belgium, the redistribution happens mainly through a minimum credit in the earnings-related scheme; in Iceland, through targeted retirement-income programmes; and, in Korea, through a progressive formula in the earnings-related plan (akin to a basic scheme).

Figure 5.1D shows six countries that lie towards the middle of the OECD countries in terms of the link between pension entitlements and pre-retirement earnings. In Switzerland, Norway and the United States, this results mainly from progressive formulae in earnings-related schemes. Redistributive programmes – minimum and targeted schemes in France and Portugal, the basic scheme in Japan – explain these other countries' presence in this group.

Bibliography

- Aldrich, J. (1982), "The Earnings Replacement Rate of Old-age Benefits in Twelve Countries: 1969-1980", *Social Security Bulletin*, Vol. 45, No. 11, pp. 3-11.
- Blanchard, O.J. (1993), "The Vanishing Equity Premium", in R. O'Brien (ed.), *Finance and the International Economy* 7, Oxford University Press.
- Bodie, Z. (1995), "On the Risk of Stocks in the Long Run", *Financial Analysts' Journal*, May-June, pp. 18-22.
- Casey, B., H. Oxley, E.R. Whitehouse, P. Antolín, R. Duval and W. Leibfritz (2003), "Policies for an Ageing Society: Recent Measures and Areas for Further Reform", Economics Department Working Paper No. 369, OECD, Paris.
- Cichon, M. (1999), "Notional Defined-contribution Schemes: Old Wine in new Bottles?", *International Social Security Review*, Vol. 52, No. 4, pp. 87-105.
- Constantinides, G., J. Donaldson and R. Mehra (1998), "Junior Can't Borrow' A New Perspective on the Equity Premium Puzzle", Working Paper No. 6617, National Bureau of Economic Research, Cambridge.
- Dang, T.T., P. Antolín and H. Oxley (2001), "Fiscal Implications of Ageing: Projections of Age-related Spending", Working Paper No. 305, Economics Department, OECD, Paris.
- Diamond, P.A. (1997), "Insulation of Pensions from Political Risk", in S. Valdés-Prieto (ed.), *The Economics of Pensions: Principles, Policies and International Experience*, Cambridge University Press.
- Disney, R.F. (1999), "Notional Accounts as a Pension Reform Strategy: an Evaluation", Pension Reform Primer Series, Social Protection Discussion Paper No. 9928, World Bank, Washington, D.C.
- Disney, R.F. and P.G. Johnson (eds.) (2001), *Pension Systems and Retirement Incomes Across OECD Countries*, Edward Elgar, Aldershot.
- Disney, R.F. and Whitehouse, E.R. (1994), "Choice of Private Pension and Pension Benefits in Britain", Working Paper No. 94/2, Institute for Fiscal Studies, London.
- Disney, R.F. and E.R. Whitehouse (1996), "What are Pension Plan Entitlements Worth in Britain?", *Economica*, Vol. 63, pp. 213-238.
- Disney, R.F. and E.R. Whitehouse (1999), "Pension Plans and Retirement Incentives", Pension Reform Primer Series, Social Protection Discussion Paper No. 9924, World Bank, Washington, D.C.
- Disney, R.F. and E.R. Whitehouse (2001), *Cross-Country Comparisons of Pensioners' Incomes*, Report Series No. 142, Department for Work and Pensions, London.
- Eurostat (1993), *Old Age Replacement Ratios*, Vol. 1, *Relation between Pensions and Income from Employment at the Moment of Retirement*, Statistical Office of the European Communities, Luxembourg.
- Finkelstein, A. and J. Poterba (2002), "Selection Effects in the United Kingdom Individual Annuities Market", *Economic Journal*, Vol. 112, No. 476, pp. 28-50.
- Finkelstein, A. and J. Poterba (2004), "Adverse Selection in Insurance Markets: Policyholder Evidence from the UK Annuity Market", *Journal of Political Economy*, Vol. 112, No. 1, pp. 183-208.
- Förster, M.F. and M. Mira d'Ercole (2005), "Income Distribution and Poverty in OECD Countries in the Second Half of the 1990s", Social, Employment and Migration Working Paper, No. 22, OECD, Paris.
- Hernanz, V., F. Malherbert and M. Pellizzari (2004), "Take-up of Welfare Benefits in OECD Countries: a Review of the Evidence", Social, Employment and Migration Working Paper No. 17, OECD, Paris.
- Ippolito, R. (1991), "Encouraging Long Tenure: Wage Tilt or Pensions", *Industrial and Labor Relations Review*, Vol. 44, No. 3.

- Jagannathan, R. and N. Kocherlakota (1996), "Why Should Older People Invest Less in Stocks than Younger People?", *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 20, No. 3, Summer.
- Johnson, P.G. (1998), *Older Getting Wiser*, Institute of Chartered Accountants in Australia.
- Keenay, G. and E.R. Whitehouse (2002a), "Taxing Pensioners", in *Taxing Wages*, OECD, Paris.
- Keenay, G. and E.R. Whitehouse (2002b), "The Role of the Personal Tax System in Old-age Support: a Survey of 15 Countries", Discussion Paper No. 02/07, Centre for Pensions and Superannuation, University of New South Wales, Sydney.
- Keenay, G. and E.R. Whitehouse (2003a), "Financial Resources and Retirement in Nine OECD Countries: the Role of the Tax System", Social, Employment and Migration Working Paper No. 8, OECD, Paris.
- Keenay, G. and E.R. Whitehouse (2003b), "The Role of the Personal Tax System in Old-age Support: a Survey of 15 Countries", *Fiscal Studies*, Vol. 24, No. 1, pp. 1-21.
- Lazear, E. (1981), "Agency, Earnings Profiles, Productivity and Hours Restrictions", *American Economic Review*, Vol. 71, pp. 606-620.
- Lazear, E. (1985), "Incentive Effects of Pensions", in D. Wise (ed.), *Pensions, Labor and Individual Choice*, University of Chicago Press for National Bureau of Economic Research.
- McHale, J. (1999), "The Risk of Social Security Benefit Rule Changes: Some International Evidence", Working Paper No. 7031, National Bureau of Economic Research, Cambridge, Mass.
- Mehra, R. and E.C. Prescott (1985), "The Equity Premium: a puzzle", *Journal of Monetary Economics*, Vol. 15, pp. 145-161.
- Mitchell, O.S. and E.L. Dykes (2000), "New Trends in Pension Benefit and Retirement Provisions", Working Paper No. 2000-1, Pension Research Council, Wharton School, University of Pennsylvania, Philadelphia.
- OECD (1995), *Private Pensions in OECD Countries: Canada*, Social Policy Studies No. 15, Paris.
- OECD (2001), *Ageing and Income. Financial Resources and Retirement in Nine OECD Countries*, Paris.
- OECD (2003), *Taxing Wages*, Paris.
- OECD (2004), *OECD Classification and Glossary of Private Pensions*, Paris.
- OECD (2005), *Taxing Wages*, Paris.
- Palacios, R.J. and E.R. Whitehouse (2000), "Guarantees: Counting the Cost of Guaranteeing Defined Contribution Pensions", Pension Reform Primer briefing note, World Bank, Washington, D.C.
- Palacios, R.J. and E.R. Whitehouse (2005), "Civil-service Pension Schemes Around the World", Pension Reform Primer series, Social Protection Discussion Paper, World Bank, Washington, D.C., forthcoming.
- Pennachi, G.G. (1998), "Government Guarantees on Funded Pension Returns", Pension Reform Primer series, Social Protection Discussion Paper No. 9806, World Bank.
- Turner, J.A. and D.M. Rajnes (2000), "Limiting Worker Financial Risk Through Risk Sharing: Minimum Rate of Return Guarantees for Mandatory Defined Contribution Plans", International Labour Organisation, Geneva.
- United Kingdom, Department of Work and Pensions (2003), "Income Related Benefits Estimates of Take-up – 2000-2001", London.
- United Kingdom, Government Actuary's Department (2003), *Occupational Pension Schemes in 2000: Eleventh Survey by the Government Actuary*.
- United States, Department of Labor (1999), *Private Pension Plan Bulletin: Abstract of 1996 Form 5 500 Annual Reports*, Pension and Welfare Benefits Administration, Washington, D.C.
- Viscusi, W.K. (1985), "The Structure of Uncertainty and the Use of Pensions as a Mobility-reduction Device", in D. Wise (ed.), *Pensions, Labor and Individual Choice*, University of Chicago Press for National Bureau of Economic Research.
- Vordring, H. and Goudswaard, K. (1997), "Indexation of Public Pension Benefits on a Legal Basis: Some Experiences in European Countries", *International Social Security Review*, Vol. 50, No. 3, pp. 31-44.
- Weaver, R.K. (1988), *Automatic Government: The Politics of Indexation*, Brookings Institution, Washington, D.C.
- Whiteford, P. (1995), "The Use of Replacement Rates in International Comparisons of Benefit Systems", *International Social Security Review*, Vol. 48, No. 2.

- Whitehouse, E.R. (1998), "Pension Reform in Britain", Pension Reform primer series, Social Protection Discussion Paper No. 9810, World Bank, Washington, D.C.
- Whitehouse, E.R. (2000), "Administrative Charges for Funded Pensions: Measurement Concepts, International Comparison and Assessment", *Journal of Applied Social Science Studies*, Vol. 120, No. 3, pp. 311-361.
- Whitehouse, E.R. (2001), "Administrative Charges for Funded Pensions: Comparison and Assessment of 13 Countries", in *Private Pension Systems: Administrative Costs and Reforms, Private Pensions Series*, Vol. 3, OECD, Paris.
- Whitehouse, E.R. (2002), "Pension Systems in 15 Countries Compared: the Value of Entitlements", Discussion Paper No. 02/04, Centre for Pensions and Superannuation, University of New South Wales, Sydney.
- Whitehouse, E.R. (2005a), "Pension Policy Around the World: Vol. 1, High-income OECD Countries", Social Protection Discussion Paper, World Bank, Washington, D.C.
- Whitehouse, E.R. (2005b), "Pension Policy Around the World: Vol. 2, Eastern Europe and Central Asia", Social Protection Discussion Paper, World Bank, Washington, D.C.
- Whitehouse, E.R. (2005c), "Pension Policy Around the World: Vol. 3, Latin American and Caribbean", Social Protection Discussion Paper, World Bank, Washington, D.C.
- Whitehouse, E.R. and R.J. Palacios (2005), "Pension Policy Around the World: Vol. 5, South Asian Civil-service Schemes", Social Protection Discussion Paper, World Bank, Washington, D.C.
- Whitehouse, E.R. and D. Robalino (2005), "Pension Policy Around the World: Vol. 4, Middle East and North Africa", Social Protection Discussion Paper, World Bank, Washington, D.C.
- World Bank (1994), *Averting the Old-Age Crisis: Policies to Protect the Old and Promote Growth*, Oxford University Press.

Table of Contents

Preface: Why Pensions at a Glance?	9
Introduction	11
Executive Summary	15

Part I

Monitoring Pension Policies

Chapter 1. Pension-system Typology	21
1. First-tier, redistributive pensions	22
2. Second-tier, mandatory, insurance pensions	24
Notes	25
Chapter 2. Comparing Pension-system Parameters	27
1. First-tier, redistributive schemes	28
2. Second-tier, earnings-related schemes	28
3. Earnings measures and valorisation in earnings-related schemes	31
4. Defined-contribution schemes	33
5. Ceilings on pensionable earnings	33
6. Pension eligibility ages	34
7. Indexation of pensions in payment	34
8. Taxes and social security contributions	34
Notes	37
Chapter 3. Modelling Pension Entitlements	39
1. Future entitlements under today's parameters and rules	40
2. Coverage	40
3. Economic variables	41
4. Average earnings data	42
5. Taxes and social security contributions	42
6. Indicators and results	42
Notes	45
Chapter 4. Replacement Rates	47
1. Gross replacement rates	48
2. Net replacement rates	51
Notes	53

Chapter 5. Relative Pension Levels	55
Chapter 6. Pension Wealth	59
Notes	63
Chapter 7. Key Indicators	65
1. Weighted averages and the earnings distribution	66
2. Weighted average pension levels and pension wealth	67
3. Structure of the potential resource transfer to pensioners	68
Notes	70
Annex I.1. Differences between Defined-benefit, Points and Notional-accounts Pension Systems	71
Annex I.2. Sensitivity Analyses	73
Annex I.3. Progressivity of Pension Benefit Formulae	81
Bibliography	84

Part II

Country Studies

Introduction	89
Australia	91
Austria	95
Belgium	98
Canada	102
Czech Republic	105
Denmark	108
Finland	112
France	116
Germany	120
Greece	123
Hungary	127
Iceland	130
Ireland	133
Italy	136
Japan	140
Korea	143
Luxembourg	146
Mexico	149
Netherlands	152
New Zealand	155
Norway	158
Poland	161
Portugal	164
Slovak Republic	167
Spain	170
Sweden	173

Switzerland	177
Turkey	180
United Kingdom	183
United States	187
VOLUNTARY, OCCUPATIONAL PENSIONS	191
Canada	193
Denmark	196
United Kingdom	198
United States	200

List of Box

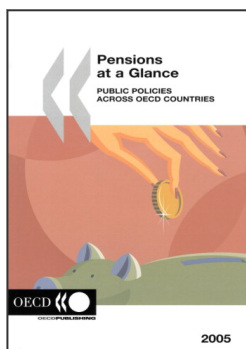
3.1. Modelling pensions	44
-----------------------------------	----

List of Tables

1.1. Structure of pension systems in OECD countries	23
2.1. Summary of pension system parameters	29
2.2. Earnings measure and valorisation: earnings-related schemes	32
2.3. Procedures for adjustment of pensions in payment by country and scheme	35
2.4. Categories of concession available to pensioners	37
3.1. Earnings of the average production worker, 2002	43
4.1. Gross replacement rates by earnings level, mandatory pension programmes, men	49
4.2. Net replacement rates by earnings level, mandatory pension programmes, men	52
6.1. Total life expectancy at age 65, 2040 projected mortality rates	61
6.2. Gross pension wealth by earnings level, mandatory pension programmes, men	63
7.1. Weighted average pension level and pension wealth	67
7.2. Contribution of different components of pension systems to total pension promise	69
I.3.1. Indicators of the progressivity of pension benefit formulae	82

List of Figures

4.1. Gross replacement rates at different earnings levels	50
4.2. Net replacement rates at different earnings levels	51
5.1. The link between pre-retirement earnings and pension entitlements	57
7.1. Distribution of earnings, average of 16 OECD countries	66
I.2.1. Total gross replacement rates for low, average and high earners by rate of return on defined-contribution pensions	74
I.2.2. Total gross replacement rates for low, average and high earners by rate of growth of economy-wide average earnings	77
I.2.3. Total gross replacement rates for low, average and high earners by rate of growth of individual earnings relative to average earnings	78
I.2.4. Total gross replacement rates for low, average and high earners by the number of jobs over the career	80



From:
OECD Pensions at a Glance 2005
Public Policies across OECD Countries

Access the complete publication at:
https://doi.org/10.1787/pension_glance-2005-en

Please cite this chapter as:

OECD (2006), "Relative Pension Levels", in *OECD Pensions at a Glance 2005: Public Policies across OECD Countries*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/pension_glance-2005-7-en

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.