ISBN 92-64-01871-9
Pensions at a Glance
Public Policies across OECD Countries
© OECD 2005

PART I

Chapter 1

Pension-system Typology

There have been numerous typologies of retirement-income systems. The terminology used in these categorisations has become very confusing. Perhaps the most commonly-used typology is the World Bank's "three-pillar" classification (World Bank, 1994), between "a publicly managed system with mandatory participation and the limited goal of reducing poverty among the old [first pillar]; a privately managed mandatory savings system [second pillar]; and voluntary savings [third pillar]". But this is a prescriptive rather than a descriptive typology. Subsequent analysts have allocated all public pension programmes to the first pillar. This has included earnings-related public schemes, which certainly do not meet the original definition of the first pillar. The most recent addition is the concept of a "zero pillar", comprising non-contributory schemes aimed at alleviating poverty among older people. But this is rather closer to the original description of a first pillar.

The OECD has developed a taxonomy that avoids the concept of pillars altogether. It aims, instead, for a global classification for pension plans, pension funds and pension entities that is descriptive and consistent over a range of countries with different retirement-income systems (OECD, 2004).

The approach adopted here follows this line. It is based on the role and objective of each part of the pension system. The framework has two mandatory tiers: a redistributive part and an insurance part. Redistributive components of pension systems are designed to ensure that pensioners achieve some absolute, minimum standard of living. Insurance components are designed to achieve some target standard of living in retirement compared with that when working. Voluntary provision, be it individual or employer-provided, makes up a third tier. Within these tiers, schemes are classified further by their form (public or private, defined benefit or defined contribution). This typology therefore clearly separates form from function, and description from prescription. Table 1.1 summarises the systems of the 30 OECD member countries divided into the redistributive first tier and the insurance second tier.

1. First-tier, redistributive pensions

All OECD countries have safety-nets in place that aim to prevent poverty of the elderly. These schemes, called "first-tier, redistributive schemes" here, can be of four different types: social assistance, separate targeted retirement-income programmes, basic pension schemes and minimum pensions within earnings-related plans. All of these are provided by the public sector and are mandatory.

In basic pension schemes, the benefit is either flat-rate, *i.e.*, the same amount is paid to every retiree, or it depends only on years of work (but not on past earnings). Additional income from other sources does not change the entitlement to the basic pension. Eleven countries have a basic pension scheme.[1]

Targeted plans, in contrast, pay a higher benefit to poorer pensioners and reduced benefits to better-off retirees. The targeting takes three different forms. First, benefits can be pension-income tested (where the value depends only on the level of pension income a

PENSIONS AT A GLANCE – ISBN 92-64-01871-9 – © OECD 2005

Table 1.1. **Structure of pension systems in OECD countries**

Tier: function	First tier: universal coverage, redistributive				Second tier: mandatory, insurance		
Provision	Public				Public	Private	
Type	Social assistance	Targeted	Basic	Minimum	Type	DB	DC
Australia		✓					✓
Austria		✓			DB		
Belgium		✓		✓	DB		
Canada		✓	✓		DB		
Czech Republic	✓		✓	✓	DB		
Denmark		✓	✓		DB/DC		✓
Finland		✓			DB		
France		✓		✓	DB + points		
Germany	✓				Points		
Greece		✓		✓	DB		
Hungary				✓	DB		✓
Iceland		✓				✓	
Ireland		✓	✓				
Italy	✓				Notional ac		
Japan			✓		DB		
Korea			✓		DB		
Luxembourg	✓		✓	✓	DB		
Mexico		✓					✓
Netherlands	✓		✓			✓	
New Zealand			✓				
Norway		✓	✓		Points		
Poland				✓	Notional ac		✓
Portugal		✓		✓	DB		
Slovak Republic				✓	Points		
Spain				✓	DB		
Sweden		✓			Notional ac	✓	✓
Switzerland		✓		✓	DB	Defined credit	
Turkey		✓		✓	DB		
United Kingdom		✓	✓	✓	DB		
United States		✓			DB		

DB: Defined benefit.
DC: Defined contribution.
Notes on first-tier schemes: Social assistance refers to general programmes that also cover older people. Targeted covers specific schemes for older people that are resource-tested. Basic schemes are either universal, flat-rate programmes or pay a flat amount per year of coverage. Minimum pensions are redistributive parts of earnings-related schemes.
Notes on second-tier schemes: Includes quasi-mandatory schemes with broad coverage. France has two programmes: the public scheme and mandatory occupational plans. Denmark's scheme is a hybrid of DB and DC.
Source: Based on information provided by national authorities.

retiree receives), broader-income tested (reducing payments if, for example, a retiree has income from savings) or broader means-tested (reducing the pension to take account of both income and assets). There are 18 OECD countries with this type of pension programme.[2]

Minimum pensions are similar to targeted plans since they also aim to prevent pensions from falling below a certain level. But the institutional set-up and the eligibility conditions are different. Minimum pensions, as they are defined here, are part of the rules of the second-tier, earnings-related pension provision. Usually, retirees must have paid contributions for a minimum number of years in order to receive this benefit. Minimum credits in earnings-related schemes, such as those in Belgium and the United Kingdom,

have a similar effect: benefits for workers with very low earnings are calculated as if the worker had earned at a higher level.

Finally, five countries do not have specific, targeted programmes for older people. In these cases, poor older people are entitled to the same general social-assistance benefits that are available to the whole population.

Half of OECD countries rely on one primary instrument to prevent old-age poverty, but the rest have a combination of two or three schemes.

2. Second-tier, mandatory, insurance pensions

The second tier in this typology of pension schemes plays an "insurance" role. It aims to ensure that retired people have an adequate replacement rate (retirement income relative to earnings before retirement) and not just a poverty-preventing absolute standard of living. Like the first tier, it is mandatory. Only Ireland and New Zealand do not have some form of mandatory, second-tier provision.

Some 17 countries have public, defined-benefit (DB) plans, making them by far the most common form of pension-insurance provision in OECD countries. In DB schemes, the amount a pensioner will receive depends on the number of years of contributions made throughout the working life and on some measure of individual earnings from work.

The next most common form of pension-insurance provision is the defined-contribution (DC) plan. In these schemes, each worker has an individual account in which contributions are saved and invested, and the accumulated capital is usually converted into a pension-income stream at retirement; lump-sum withdrawals are rarely permitted. Typically, the capital has to be used to buy an annuity, *i.e.*, a guaranteed pension payment until death, which meets certain conditions (such as indexation of benefits and provision of survivors' benefits).

There are different ways in which DC schemes are organised. In Australia, employers must cover their workers through an industry-wide fund or a financial-service company. In Hungary, Mexico and Poland, DC plans are strictly individual: workers choose a pension provider without employer involvement. In Sweden, workers pay only a small contribution into the mandatory individual accounts. They have a wide range of choices of how to invest their savings. A public agency acts as a clearing house and intermediary between workers and investment managers. There is additional DC provision for most workers in Sweden under the quasi-mandatory occupational plans. In Denmark, investments under the national retirement-savings plan are managed centrally, but with choice of portfolio from 2005.

Finally, some countries have earnings-related schemes that do not follow the "traditional" DB model. First, there are points systems: the French occupational plans and the German, Norwegian and Slovak public schemes. Workers earn pension points based on their individual earnings for each year of contributions. At retirement, the sum of pension points is multiplied by a pension-point value to convert them into a regular pension payment.

There are also notional-accounts schemes: the public plans of Italy, Poland and Sweden. These are schemes which record each worker's contributions in an individual account and apply a rate of return to the accounts. The accounts are "notional" in that both the incoming contributions and the interest charged to them exist only on the books of the managing institution. At retirement, the accumulated notional capital in each account is converted into a stream of pension payments using a formula based on life expectancy at the time of retirement.

Mandatory contributions to Swiss occupational plans look at first like a DC scheme, since individuals and their employers must pay a contribution rate that varies with age. But the government sets the minimum rate of return that the scheme must pay and a mandatory annuity rate at which the accumulation is converted into a low of pension payments. This means that the system has strong elements of a DB plan.

Notes

1. Note that Korea is included here because the earnings-related pension scheme has a flat component which pays a percentage of economy-wide average earnings for each year of contributions.
2. Some countries, such as Mexico, call part of their pension system a "minimum pension". But since this is a separate scheme from the second-tier plan, it is here classified as a "targeted" plan.

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.

PENSIONS AT A GLANCE – ISBN 92-64-01871-9 – © OECD 2005

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.

PENSIONS AT A GLANCE – ISBN 92-64-01871-9 – © OECD 2005

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

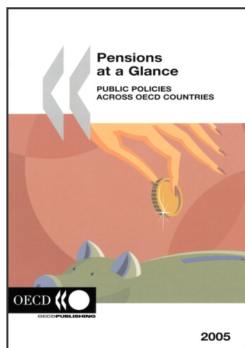
3.1. Modelling pensions 44

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), “Pension-system Typology”, in *OECD Pensions at a Glance 2005: Public Policies across OECD Countries*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/pension_glance-2005-3-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.

OECD