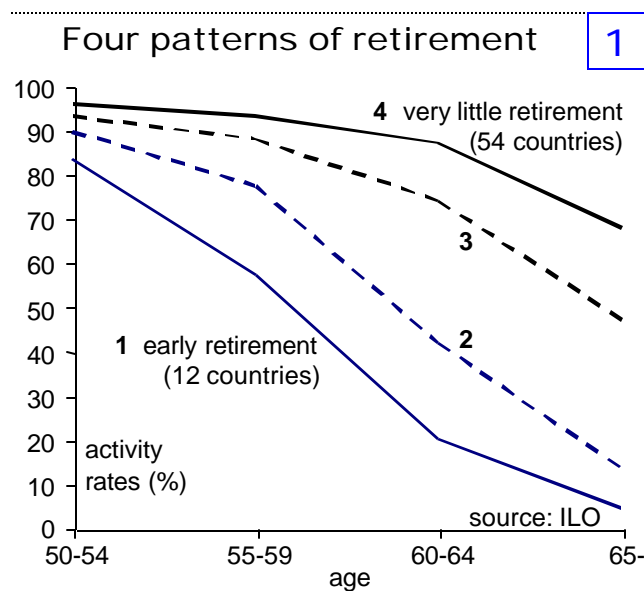


Retirement

Can pension reform reverse the trend to earlier retirement?

Retirement is a fairly recent invention in richer countries and, in many poorer countries, it remains a rarity. To illustrate global patterns of retirement, we have divided the world into four groups (Figure 1). The chart shows the proportion of older men that are 'economically active': either in paid work or unemployed and looking for work.

The 12 countries with the earliest retirement are all in Europe. They include France, Italy and the Netherlands in the west and Hungary, Romania and Slovenia in the east. Here, only a little over half of 55-59 year old men are still active and just one in five men in their early 60s. Virtually no one over 65 is in work.



At the other end of the spectrum lie 54 countries where retirement is rare. They are mainly in Africa, with some in East Asia and Latin America. Activity rates are 90 per cent or more for under 65s and even average 70 per cent for over 65s.

We have also separated out two intermediate patterns. The group of 30 countries marked 2 includes most of the OECD and former socialist countries that are not in the early retirement category. Activity rates are 20 points higher in both the 55-59 and 60-64 age ranges than in the earliest retirement countries, group 1. Again, however, very few people are active beyond age 65.

In group 3—made up of 30 mainly low-to-middle income economies—many people retire, unlike the poorest countries in group 4. But over 45 per cent of people over 65 are still active.

Trends in retirement

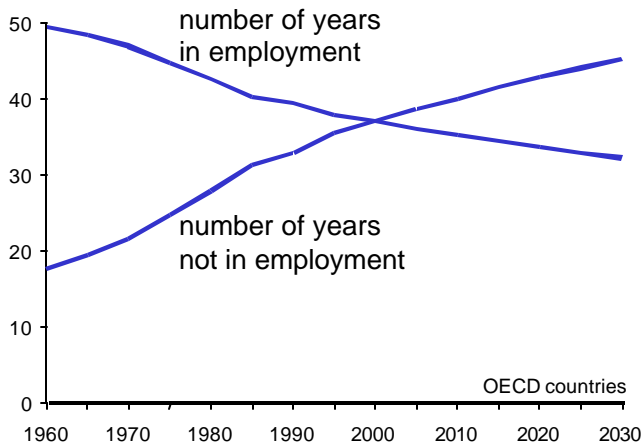
As recently as the 1960s, men in the OECD countries worked, on average, for 50 years of their 68 year life-span (Figure 2). Now, they can expect to spend just 38 years in paid employment, according to the OECD. The number of years not working have increased from 18 to 35.

This is partly due to growing participation in further education and higher unemployment. But earlier retirement is the main cause. The OECD expects this trend will continue, so soon men will spend more years out of than in work.

This briefing is part of the World Bank's Pension Reform Primer: a comprehensive, up-to-date resource for people designing and implementing pension reforms around the world. For more information, please contact Social Protection, Human Development Network, World Bank, 1818 H Street NW, Washington, D.C. 20433; telephone +1 202 458 5267; fax +1 202 614 0471; e-mail socialprotection@worldbank.org. All Pension Reform Primer material is available on the internet at www.worldbank.org/pensions

Looking at all countries, 60 have seen significant declines in older men's activity rates in the last 15 years, according to the ILO. In contrast, there has been little change in the age structure of participation since the 1970s in 30, mainly middle-income nations. In most poorer countries, there has been little decline in older workers' activity in the last 30-40 years.

Men spend fewer years in work 2



As countries become richer, their citizens tend to retire earlier: compare groups 1 and 4 in Figure 1. Early retirement in these countries can be seen as a great welfare success story, especially to its benefi-

ciaries and hopeful younger future recipients. The majority of people can now look forward to many years of leisure to be enjoyed in good health. But these leisure years have a cost.

The price of earlier retirement

The most obvious burden is on the pension system, already faced with the cost of an aging population. Each one-year reduction in a country's average retirement age increases the number of pensioners by more than 5 per cent. And earlier retirement also means fewer workers: 2 per cent or more for every year earlier people retire. These twin effects raise the contribution rate to pay for pensions by at least 8½ per cent. And even if early retirees cannot claim a pension, they often rely on other benefits—for unemployment or disability—putting a similar burden on the public finances.

Aging populations and early retirement have broader economic consequences than just for pension financing. The costs of supporting a larger number of retirees could cut growth rates in Europe and the United States by half a percentage point a year, again according to the OECD. This cumulates to a fall in living standards of over 10 per cent after 25 years.

Recent policy initiatives to promote employment of older workers

Earlier retirement and poor work incentives in pension systems are widespread policy concerns. Four out of five OECD countries have recently reformed their pension systems with the goal, at least in part, of promoting employment of older workers. There are four key kinds of change.

- **Increasing pension ages.** Nine OECD countries will raise the age at which public pensions can be claimed. Finland, Italy and the United States plan to raise the age by two years, New Zealand by three years and Japan, Korea and Spain by five years. When these changes are implemented, more than two out of three OECD countries will have a standard pension age of 65 and in five it will be higher, usually 67.

- **Equalizing pension ages.** Eight further OECD countries will increase pension ages for women to equalize them with men's pension ages, usually at 65.
- **Discouraging early retirement.** This is the most popular policy, with 12 OECD countries taking action. Six will raise the number of years' contributions needed to qualify for early retirement while five will raise the minimum early retirement age.
- **Encouraging work after pension age.** Five countries aim to promote later than normal retirement, usually by introducing or increasing increments for deferring taking the state pension.

Outside the OECD, a dozen countries, mainly in eastern Europe and Latin America have increased pension ages since 1992.

Some governments, particularly in Europe, explicitly encouraged earlier retirement to try and increase job opportunities for younger workers. But high youth unemployment rates have persisted. Most governments now recognize that it is a fallacy to think that economies simply have a fixed number of jobs that can be divided among their citizens: the so-called 'lump-of-labor' fallacy.

More than half of OECD governments report low effective retirement ages and poor work incentives in the pension system among their key social policy concerns. And four out of five of these richer countries have introduced reforms to promote the employment of older workers (see box).

Why are people retiring earlier?

Today's older workers benefited from better education, enjoy better health and can expect to live longer than their parents did. And work is now less physically demanding. Why, then, are so many leaving the workforce?

One reason is high and persistent unemployment, especially in Europe. Few older workers who lose their job find new work. And, some governments encouraged earlier retirement in the mistaken belief that this would reduce unemployment (see above).

Early retirement is a positive choice for many people, rather than forced on them by ill health or redundancy. Current generations are, on average, richer than their parents, and it is unsurprising that they want to spend some of this wealth on additional leisure time.

But a major reason why early retirement has become more attractive is the growth in public and, in some countries, private pension benefits. And many of these pension systems are biased against continued paid employment at older ages.

Valuing pension benefits

This briefing aims to show how and why pension systems tend to favor early retirement using a basic model of pension benefits in different types of system.

We begin with a simple, mandatory retirement savings plan. People save ten per cent of their earnings each year from age 20. These contributions then earn a return, net of administrative charges, of five per cent a year. When the individual chooses to retire, he or she converts the fund to an annuity. By providing an income stream until pensioners die, this annuity prevents them outliving their resources if they live longer than they expect.

This kind of retirement savings plan is often called a 'defined contribution' pension, because the benefit is determined by the value of contributions and the returns they earn.

To explore work incentives, we look at how the pension builds up in the savings account. Each extra year's work adds to the pension in three ways. First, an extra year's contributions are paid into the fund. Secondly, the accumulated balance in the fund continues to earn investment returns. These two effects work in every year from when the plan is started to retirement. The third effect is important when we think about the choice between work and retirement. Each year's delay in claiming the pension increases the value of the annuity that the fund will buy, because the likely period of retirement is shorter.

Earnings and pension by age

3

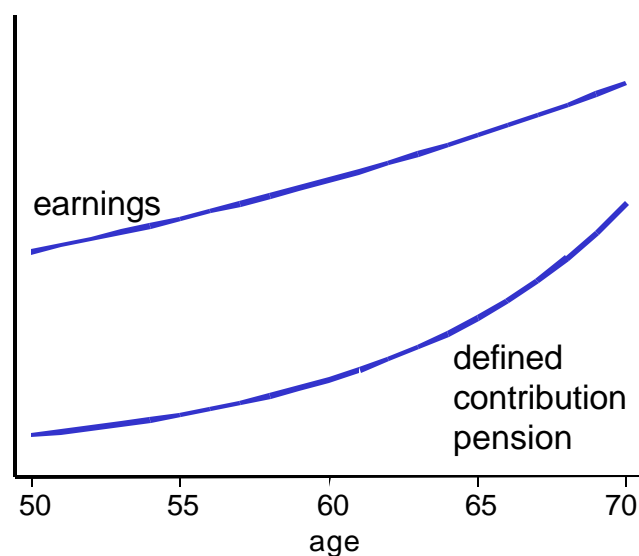
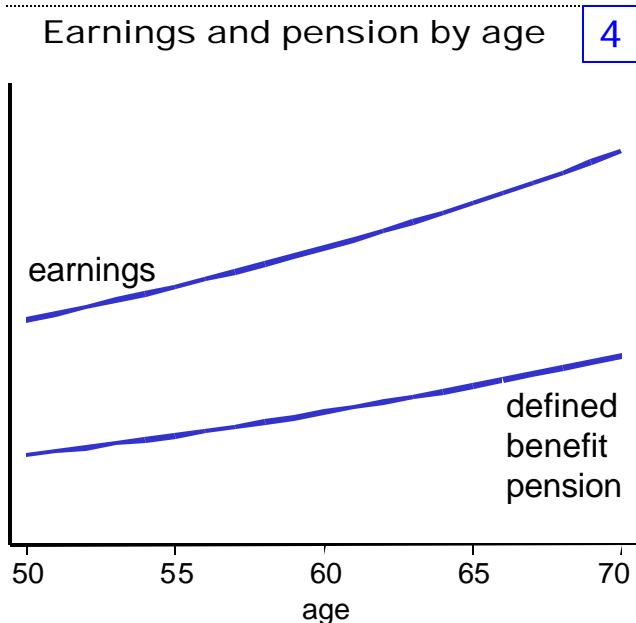


Figure 3 shows calculations of the pension value at different ages, focusing on the final years around likely retirement ages. Earnings are assumed to rise with age, by three per cent a year. The pension value increases much more rapidly than pay—around 12 per cent a year—as extra contributions and investment returns accumulate and the delay in drawing the pension means a shorter retirement to finance.

Public pension plans

Mandatory retirement savings plans of the sort modeled in Figure 3 are an increasingly popular form of pension provision. But public pension schemes—still the dominant source of retirement income in most countries—provide what is termed a ‘defined benefit’. The pension value is related either to some measure of individual earnings (or is sometimes flat-rate). Many private plans are also defined benefit: examples can be found among employer-run schemes in the Netherlands, the United Kingdom and the United States.

We have modeled a simple, generic plan, which pays $1\frac{3}{4}$ per cent of average lifetime earnings for each year’s contribution to the scheme. Public pension plans vary enormously in their generosity, but this rate of pension accrual is not atypical.



Each year of contributions obviously increases the pension by adding to the number of years in the benefit formula. A second effect comes through any change in average lifetime earnings as an extra year’s pay enters the average.

Figure 4 shows the pattern of pension and earnings by age in this benchmark defined benefit plan.

The profile of the defined benefit plan is very different from the relation between defined contribution pensions and age shown in Figure 3. Now, the pension rises much more slowly with age, from a higher base: by around 5 per cent a year, compared with 12 per cent a year in the defined contribution scheme.

Retirement incentives

What are the implications for retirement behavior? The financial incentive to work can be measured by comparing income in work (earnings minus contributions) and income out of work (pension). The higher their pension, relative to earnings, the more likely people are to retire. Of course, there are other powerful influences on the retirement decision such as health, partner’s labor market status and the value of non-pension assets. People’s preferences for leisure differ and they may simply derive pleasure from their work.

A simple measure of the financial returns to working compares in and out of work incomes directly. This is the ‘replacement rate’: the ratio of the pension to earnings. The basic interpretation of this measure is that the higher the replacement rate, the less is the financial reward to working.

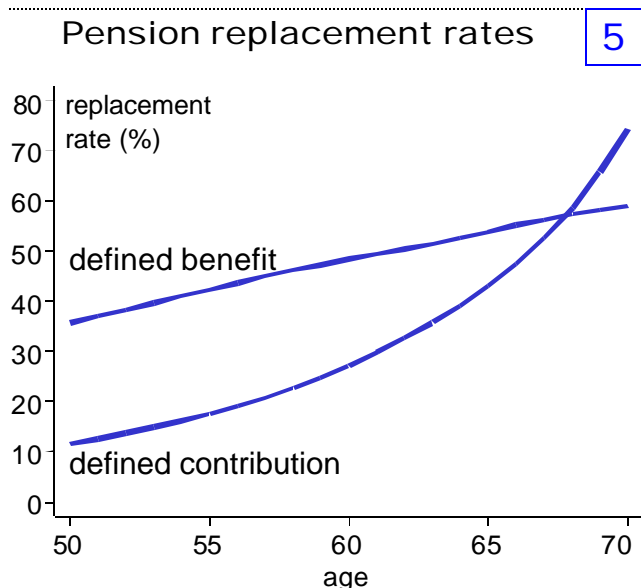
Comparisons of the pension value and earnings, however, do not capture the dynamic effects of the pension system. Each extra year of work not only brings in earnings but changes the pension value. So the total financial return to working must also include the present value of the change in pension wealth to earnings less contributions.

We have already described how the value of the two different sorts of pension is affected by an extra year’s work. In defined benefit schemes, we need to add the loss of a year’s benefits for an ex-

tra year's work. (This is captured in the annuity calculation for the defined contribution scheme.)

Figure 5 shows replacement rates—the value of the pension divided by earnings less contributions plus the change in pension wealth—which adjusts for the dynamic impact of the pension system.

This picture highlights the inherent differences in the labor market incentives in a defined benefit scheme compared with a simple retirement savings plan. At age 50, the gross replacement rate is over 35 per cent in the defined benefit scheme, compared with just 12 per cent in the defined contribution plan. By age 60, the retirement savings plan would accumulate enough to buy an annuity worth around a quarter of earnings. The defined benefit plan would then offer a replacement rate of over 45 per cent. Only at age 68 or more does the defined contribution pension exceed the defined benefit.



The impact of taxes

These replacement rates are gross, so they ignore the effect of taxes other than the pension contribution. Personal income tax systems are 'progressive', which means that the proportion of income paid in tax increases as income increases. Net replacement rates, taking account of income tax, are higher than gross, because the tax levied

on (lower) pension income will be lower than on (higher) earnings.

Some countries also give a more favorable tax treatment either to pensions or to pensioners. These twin effects mean that net replacement rates can be 10-15 percentage points higher than gross, although the outcome varies with income.

Pensions and retirement

Figure 5 makes no assumptions about retirement ages in the two different regimes. But the chart clearly shows that people are likely to retire at the earliest possible opportunity in the defined benefit scheme. In contrast, the defined contribution pension provides a powerful, continuing incentive to work until advanced ages.

'Real-world' pension systems

Analysis of pension systems must always be careful to distinguish between the inherent characteristics of different kinds of system and features which arise from imperfect implementation of these theoretical benchmarks. The simple defined benefit plan we explored above indeed abstracts from many of the complexities of real-world schemes. And many of these features have important incentive effects.

Final and best earnings systems

First, we assumed that the defined benefit pension formula is based on average real earnings. But, in practice, most systems use a subset of lifetime earnings. For example, two-thirds of developing countries and 40 per cent of OECD countries use a measure of final earnings, ranging from the last month's pay to the last ten years'. And best years' earnings periods are used in around a fifth of countries. Only a third of OECD countries' pension systems and less than 15 per cent of developing countries' are based on average earnings. But there has been a clear trend in countries with best and final earnings formulae to lengthen the number of years that count. And some countries have moved to an average earnings base.

The effect on incentives of formulae based on final or best years (compared with the benchmark, average earnings scheme) is complicated. It de-

depends on the pattern of earnings with age, and there is no consensus in empirical studies. Final-pay schemes discourage people from working once real earnings have passed their peak. Partial retirement—reducing working hours or taking a different, part-time job—is inhibited.

Maximum pensions

The effect of other features of public, defined benefit schemes is less ambiguous. Thirty-eight countries pay no more pension after 30 or fewer years' contributions and in another 19 countries the limit is between 30 and 35 years. This provides a strong incentive to retire once the ceiling has been reached. And 50 countries vary the pension accrual rate so that the first years' contributions (usually between 10 and 20 years) earn more pension than subsequent contributions. So the increment to pension for older workers with a full contribution record is relatively small. Again, this encourages earlier retirement than a scheme that pays the same accrual rate for all contributions.

Adjusting early and late pensions

Some public, defined benefit schemes adjust pension benefits with the age at which the pension is drawn. Nearly half of the OECD countries and 18 lower-income countries have these adjustments.

Most common are increments awarded when people retire later than the normal pensionable age and defer claiming their pension. Many countries reduce pensions drawn earlier than the standard age. The size of the adjustments varies significantly: between 1 and 12 per cent for each year the pension is drawn early or late. In OECD countries they average 6½ per cent a year compared with less than 3½ per cent a year in outside the OECD.

These adjustments naturally improve work incentives, but there are two caveats.

First, the actuarially fair adjustment is generally larger than the rate applied. The neutral adjustment depends critically on life expectancy (and the assumed discount rate). So the actuarially fair level varies with age—from around 7 per cent at age 50 to 12 per cent at 70—and sex—it is around 2 percentage points higher for women. And this neutral

rate is substantially higher than the adjustments applied in nearly all lower-income countries and more than half of the OECD countries.

Secondly, the adjustments do not seem to have much of an effect on retirement behavior. Most people retire early if given the opportunity, even when the pension is reduced. And few people seem take advantage of pension increases for later retirement. About 2 per cent of people of pension age in the United Kingdom and 8 per cent of 65-69 year olds in the United States defer their pension.

A final issue is the fiscal consequences of these adjustments. If they are actuarially fair, then people retiring later will receive the same net present value of pension benefits. So there is no saving in pension costs from delayed retirement. There may be some fiscal gain from any extra taxes paid on earnings and on the higher pension in payment. But other policies to remove the incentive to retire early bring this gain plus lower pensions costs, which will typically be more valuable.

Combining work and pensions

Some countries require people to give up work completely to be able to draw a public pension, although a pension claim is compatible with a limited amount of paid work in the majority of countries. Usually, some pension is withdrawn once a relatively low earnings threshold is reached. These earnings tests can impose very high effective tax rates on working, ensuring that very few people work beyond a certain age.

Some countries have either eliminated or substantially diluted pension earnings tests as a way of encouraging older people to work. As with the actuarial adjustments, these reforms do not seem to have had much effect, usually because they apply at ages well after the majority has retired. But there is a risk these schemes can, in a way, become too effective. People continue working with the added bonus of a pension on top of their earnings.

Allowing people to combine work and pensions is costly when effective pensionable ages are low. But if pension ages are high enough to avoid abuse

of the system, flexibility avoids discouraging later retirement.

'Parametric' reforms

Retirement is often perceived as an 'institutional' phenomenon in countries where public or private pension systems have broad coverage. Yet most people in these countries retire before the standard pensionable age, sometimes well before. In most OECD countries, for example, the normal pension age is now at least 65. But under half of 60-64 year olds are economically active in 48 of the 175 countries summarized in Figure 1.

Similarly, the trend to earlier retirement is common across countries over the past three decades, especially the OECD and former socialist countries. Yet only a few countries reduced normal pension ages in this period. A few have even increased pension age while effective retirement ages have fallen.

Both of these facts imply that it would be too optimistic to assume that any increase in pension age would automatically deliver later retirement.

Incentives and retirement behavior

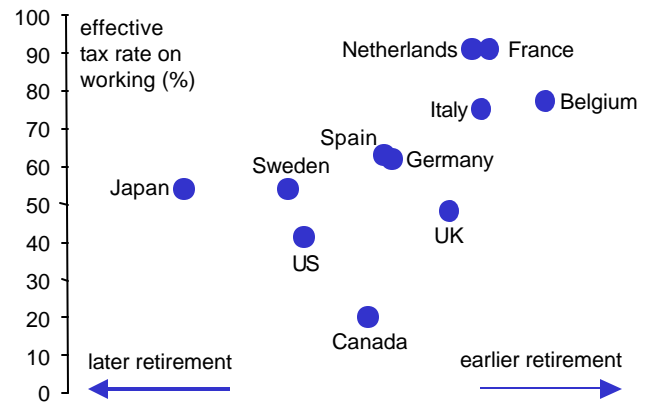
We have shown how the incentive to retire varies hugely between different pension systems. But it is, of course, also important to demonstrate that people's retirement behavior responds to these incentives. Figure 6 summarizes an international study of retirement. The study of 11 countries, coordinated by the National Bureau of Economic Research, looked at the effective tax rate on continuing to work (which is related to the replacement rate). The Figure plots this measure of incentives against the degree of early retirement: the total number of years people retire before the standard pension age. Countries to the right of the chart have earlier retirement than countries on the left.

There is a clear relationship between early retirement and incentives in the pension system, a result confirmed by other international studies and by more detailed econometric analysis of individual countries' systems.

Retirement depends on many other factors, such as individual health or the level of unemployment. But financial incentives in the tax and pension system have important effects on the retirement decision.

Pension replacement rates

6



Further reading

- Disney, R.F. and Whitehouse, E.R. (1999), 'Pension plans and retirement incentives', Pension Reform Primer Series, Social Protection Discussion Paper no. 9924, World Bank.
- Gruber, J. and Wise, D.A. (1999), *Social Security Programs and Retirement around the World*, University of Chicago Press for National Bureau of Economic Research. (Survey chapter—no. 6134—and country chapters—nos 6097, 6135, 6136, 6137, 6153, 6155, 6156, 6169, 6214, 6308—also available as NBER Working Papers. Internet: www.nber.org)
- Blöndal, S. and Scarpetta, S. (1998), 'The retirement decision in OECD countries', Ageing Working Paper no. 1.4, OECD, Paris. (Country studies available as Economics Department Working Papers nos 203-207. Internet: www.oecd.org)
- OECD (1999), 'Workforce ageing in OECD countries', *Employment Outlook*, pp. 123-151. (Also available as Ageing Working Paper no. 4.1)

The box on recent policy reforms is based on:

Kalisch, D.W. and Aman, T. (1998), 'Retirement income systems: the reform process across OECD countries', Ageing Working Paper no. 3.4, OECD, Paris.

Schwarz, A.M. and Demirgüç-Kunt, A. (1999), 'Taking stock of pension reforms around the world', Pension Reform Primer series, Social Protection Discussion Paper no. 9917, World Bank.

Conclusions and recommendations

- ❑ defined benefit pension schemes encourage early retirement in a number of different ways
- ❑ higher pension accruals for early years' contributions and maximum pensions mean the increase in pension from working at older ages is low or zero
- ❑ some systems still levy contributions even when no extra pension is earned
- ❑ early retirement is often allowed with no reduction or a less than actuarially fair reduction in benefits
- ❑ schemes that use final or best earnings to calculate the pension encourage retirement once earnings have peaked
- ❑ they also discourage partial retirement, where people cut their hours of work or take a part-time job
- ❑ late retirement is discouraged, either by earnings tests which prevent work or by less than fair pension increments for deferring the pension claim
- ❑ retirement savings plans based on defined contributions are neutral over the choice of retirement age
- ❑ many of the problems of defined benefit plans can be mitigated with fair actuarial reductions in pension benefits for earlier retirement
- ❑ but defined benefit plans still tend to encourage earlier retirement relative to defined contribution schemes

