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COPING WITH POPULATION AGEING IN THE NETHERLANDS

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by
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ABSTRACT/RÉSUMÉ

COPING WITH POPULATION AGEING IN THE NETHERLANDS

Population ageing will reduce economic growth and increase the amount of resources that need to be transferred to the elderly, putting pressure on retirement-income- and healthcare insurance systems. The Netherlands is better placed than most OECD countries to meet these pressures because it has a large, funded occupational pension system in place. This advantage will be reinforced if the government adopts the policy that it is considering of pre-funding ageing-related budget outlays, which would entail paying off government debt over the next quarter century. Increasing labour force participation, notably for older persons would also attenuate the economic pressures associated with population ageing. In this regard, it will be important to reduce incentives for economic inactivity, especially by reforming early retirement schemes and disability insurance. Finally, raising productivity growth could also help ease these pressures by facilitating a de-coupling of government expenditure from GDP growth by enlarging the scope to maintain living standards of pensioners without raising contribution rates on workers. Policy reforms to implement these approaches to coping with population ageing will be more important than ever if capital market returns remain below historical rates.

JEL Classification: I1, I3, J1, J11, J14, J26
Keywords: Netherlands, population ageing, pension, health care, long-term projections.

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FAIRE FACE AU VIEILLISSEMENT DE LA POPULATION AUX PAYS-BAS

Le vieillissement de la population va entraîner un ralentissement de la croissance économique et un accroissement des transferts de ressources au profit de la population âgée, d'où des tensions dans les systèmes de retraite et d'assurance maladie. Les Pays-Bas sont en meilleure situation que la plupart des autres pays de l'OCDE pour absorber ces tensions, car ils possèdent un important système de pensions professionnelles capitalisé. Cet avantage sera renforcera encore si le gouvernement adopte la politique qu'il envisage de préfinancement des charges qui pèseront sur le budget, ce qui permettrait d'amortir la dette de l'Etat sur le prochain quart de siècle. L'accroissement du taux d'activité, notamment des personnes âgées, atténuerait également les pressions économiques dues au vieillissement de la population. A cet égard, il portera de réduire les incitations à l'inactivité économique, en réformant en particulier les systèmes de préretraite et l'assurance invalidité. Enfin, renforcer la croissance de la productivité pourrait également aider à alléger ces pressions en permettant de découpler les dépenses publiques de la croissance du PIB et d'élargir les possibilités de maintenir le niveau de vie des retraités sans augmenter les cotisations des travailleurs. La mise en place de ces différentes réformes pour faire face aux problèmes du vieillissement de la population s'imposera encore plus s'il s'avère que les rendements des marchés financiers restent en dessous de leurs niveaux historiques.

Classification JEL : I1, I3, J1, J11, J14, J26
Mots clés : Pays-Bas, vieillissement de la population, retraite, système de santé, prévisions à long terme.

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COPING WITH POPULATION AGEING IN THE NETHERLANDS[1]

by

David Carey[2]

1.   The Netherlands' population is rapidly ageing, as is occurring in other OECD countries. The number of persons aged 65 and over relative to the working age population is set to double between 2010 and 2030. This will reduce economic growth and increase resource transfers to the elderly, placing pressure on the retirement-income and healthcare insurance systems. The Netherlands is better placed than most other OECD countries to meet these pressures as it has a large, funded occupational pension system. This reduces fiscal pressures from population ageing, although they remain substantial. Pre-funding these budget pressures, enhancing productivity growth, prolonging working lives and containing the increase in transfers to the retired population would reduce the economic costs of this demographic shock. Such reforms would also reduce the exposure of the pension system and, through tax-deductible pension contributions, the budget position to capital market risk. This chapter examines the problem of population ageing in the Netherlands and considers policy options for attenuating the adverse economic effects.

The scale of the demographic problem[3]

2.   The Netherlands' population age structure is changing progressively from a pyramid to a more rectangular shape, with a larger proportion of the population in older age groups (Figure 1). The main

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3.   Statistics Netherlands' (SN) demographic projections for the Netherlands are used throughout this chapter rather than those of Eurostat, which are used in the OECD project on the fiscal implications of ageing (Dang *et al.*, 2001). The CPB (Netherlands Bureau for Economic Policy Analysis) spelled out three reasons for preferring these projections to those of Eurostat (Van Ewijk *et al.*, 2000, pp 64-66):

- They are based on more advanced methods (such as emigration rates instead of emigration numbers) that are better suited to the Dutch context;

- They are accompanied by confidence intervals; and

- They run up to 2100, rather than 2050.

Almost all the demographic assumptions (the total fertility rate, life expectancy at birth and net migration) are lower in the SN projections. Overall, the aged dependency ratio rises by somewhat more in the Eurostat projections, with the maximal difference being 5 percentage points in 2045. Nevertheless, the Eurostat projections remain within the 95 per cent confidence interval of those made by SN. Eurostat projections are used for other European countries.

Figure 1. **An ageing population structure**

Source: Statistics Netherlands.

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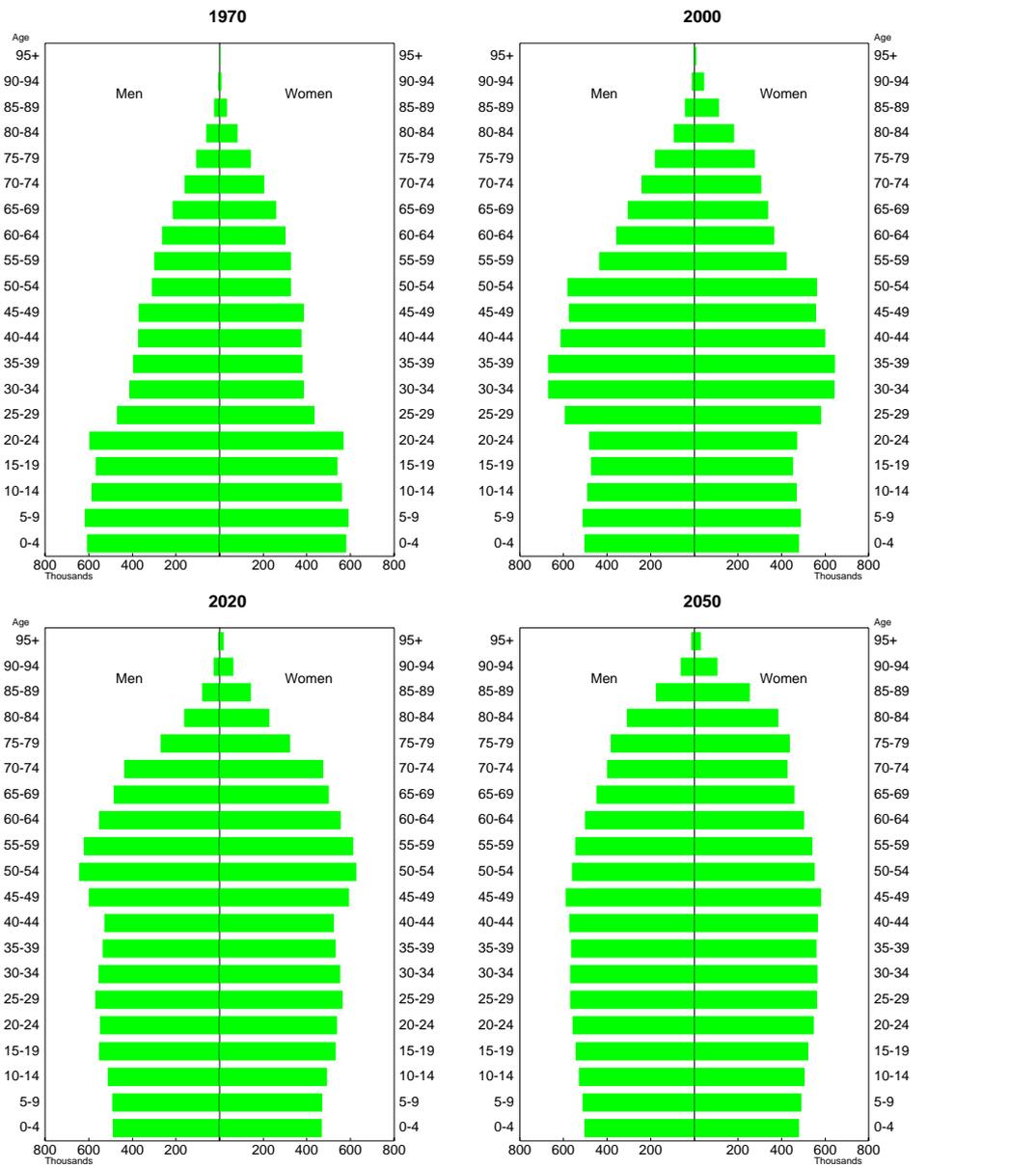
factor driving this change is the large decline in the fertility rate since the 1960s (Figure 2). Although the fertility rate is expected to recover slightly to 1.8, this rate is still not high enough to stabilise the overall population. The other factor contributing to population ageing is rising life expectancy (Figure 3). Life expectancy at birth has increased markedly over the past century, to 75 years for men and 81 years for women. Statistics Netherlands assumes that life expectancy at birth continues to rise in coming decades, albeit more slowly than in recent decades, reaching 80 years for men and 83 years for women by 2050. The lower increase in life expectancy in coming decades reflects the judgement that the decline in mortality rates for older persons (aged 65 and over) was exceptionally high in recent decades owing to effective measures (including lifestyle changes) to reduce mortality from lung cancer and heart disease. Reducing the incidence of other causes of premature death is likely to be more difficult.[4]

Figure 2. **Total fertility rate**

Average number of children per woman (1)
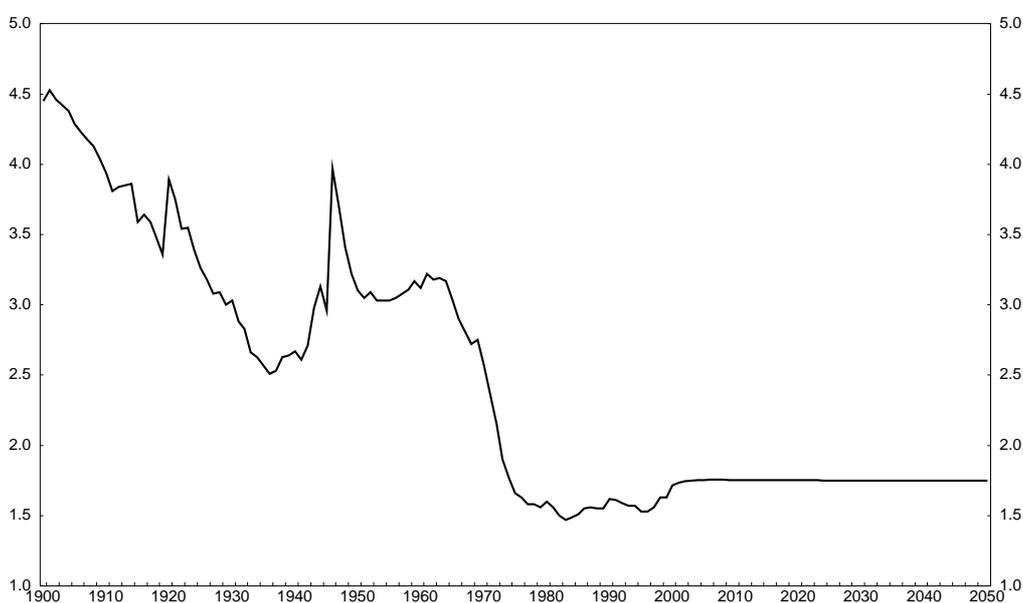
1. Average number of children a woman would have if the age-specific fertility rate observed in the calendar year under review were to apply during her whole life.
Source: Statistics Netherlands.

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3.   Growth in the working age (20-64) population has already slowed significantly since the early 1980s, when the "baby boom" generation (born in the two decades to the late-1960s) was still entering this age group, and will slow further from 2010, when this generation starts flowing out of it (Table 1). Concomitantly, growth in the older age group (65+) is set to rise sharply. These projections imply a large increase in the aged dependency ratio (i.e. the ratio of persons aged 65 and over to those of working age) from 22 per cent in 2000 to 39 per cent in 2050 (Figure 4). Whereas there are presently 4.5 persons of working age for each elderly person, there will only be 2.6 by 2050. This increase in the aged dependency ratio is broadly in line with that in other OECD countries (Table 2).

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4.   An alternative view is that much of the increase in life expectancy of older persons reflects long-term trends of improving nutrition in the first 20 years of life (Fogel, 1994).

Figure 3. **Life expectancy at birth**
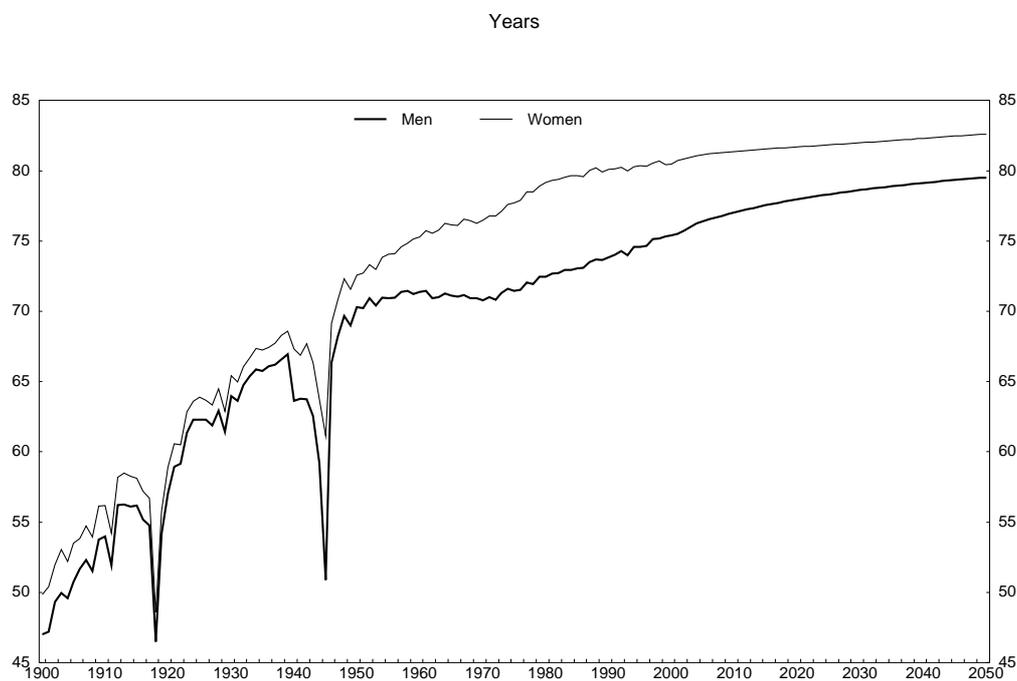
Years

Source: Statistics Netherlands.

Table 1. **Population growth by age group**

	Population						Dependency ratio[1]
	0-19 years	20-64 years	65 years and over	Total	65-74 years	75 years and over	
	Average annual percentage change						Average
1980-90	-1.5	1.3	1.7	0.6	1.1	2.5	0.2
1990-2000	0.1	0.7	1.2	0.6	0.9	1.7	0.2
2000-10	0.5	0.4	1.5	0.6	1.5	1.6	0.2
2010-20	-0.2	0.0	2.6	0.4	3.2	1.7	0.3
2020-30	0.0	-0.2	1.8	0.2	0.9	3.0	0.3
2030-40	0.3	-0.3	0.7	0.1	0.0	1.6	0.4
2040-50	-0.1	0.2	-0.6	0.0	-1.7	0.4	0.4
	Years of maximum and minimum population levels						
Maximum	1980	2011	2038	2040	2036	2047	
Minimum	1993	1980	1980	1980	1980	1980	

1.   Calculated as [population aged 65+]/[population aged 20-64].

Source: Statistics Netherlands.

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Figure 4. **Aged dependency ratios**

[population aged 65 years and over]/[population aged 20 to 64 years]
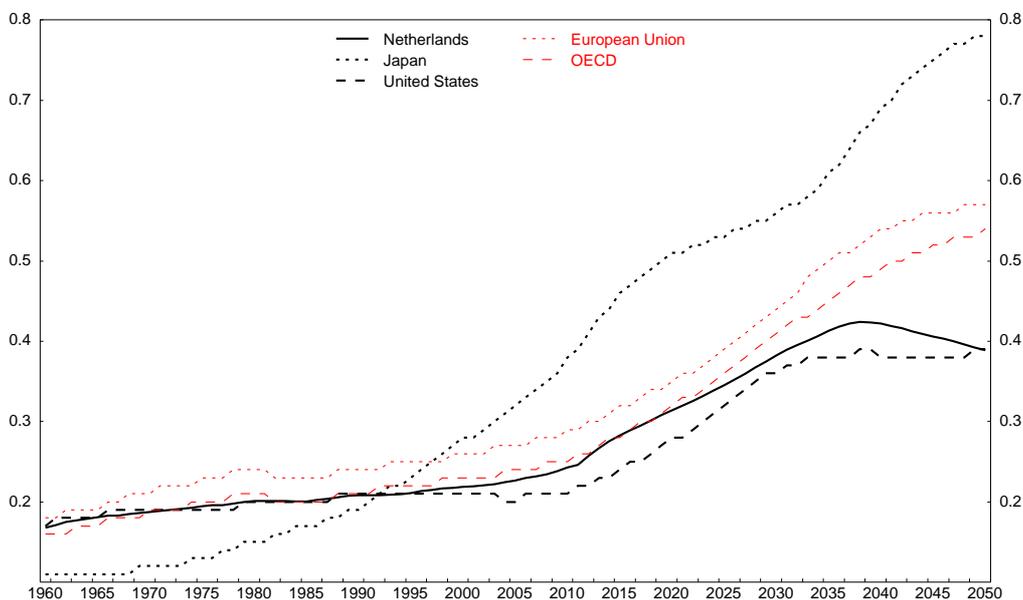
Source: Statistics Netherlands and UN World Population Prospects: The 2000 Revision.

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4.   A better indication of the economic pressure of population ageing can be obtained by considering developments in the ratio of persons aged 65 and over to employed persons, as it is they who generate income and pay taxes and social security/pension fund contributions. The Netherlands Bureau for Economic Policy Analysis (CPB) projects a somewhat smaller increase in this ratio than in the aged dependency ratio as labour force participation is assumed to rise by 5 to 6 percentage points (see below) (Figure 5). The increase in this ratio could be rolled back further by achieving a greater rise in participation rates. For example, if participation rates for persons aged 55 or over were to rise to the levels projected for the United States by 2050,[5] this would reduce the baseline increase in the employment aged dependency ratio by one fifth. Ensuring that economic policies do not depress labour force participation, especially of older persons, is one of the major challenges for minimising the adverse economic consequences of population ageing.

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5.   These calculations are based on the following projections for labour force participation rates in 2050, which were made by the Netherlands and the United States authorities for the OECD project on the fiscal implications of ageing (Dang *et al.*, 2002) :

	Females		Males	
	55-64	65+	55-64	65+
United States	58.2	7.1	65.5	14.3
Netherlands	38.1	1.6	49.5	3.2
Difference	20.1	5.5	16.0	11.1

Table 2. **Aged dependency ratios internationally[1]**

	2000	2050
Australia	0.2	0.5
Austria	0.3	0.6
Belgium	0.3	0.5
Canada	0.2	0.5
Czech Republic	0.2	0.6
Denmark	0.2	0.4
Finland	0.3	0.5
France	0.3	0.5
Germany	0.3	0.5
Hungary	0.2	0.5
Ireland	0.2	0.5
Italy	0.3	0.7
Japan	0.3	0.6
Korea	0.1	0.5
Netherlands	**0.2**	**0.4[2]**
New Zealand	0.2	0.5
Norway	0.3	0.4
Poland	0.2	0.6
Portugal	0.3	0.5
Spain	0.3	0.7
Sweden	0.3	0.5
United Kingdom	0.3	0.5
United States	0.2	0.4
EU[3]	**0.3**	**0.5**
OECD[3]	**0.2**	**0.5**
Eastern Europe	0.2	0.5
China	0.1	0.4
Rest of Asia	0.1	0.2
Latin America	0.1	0.3
Africa	0.1	0.1

1. Calculated as [population aged 65+]/[population aged 20-64].
2. This estimate of 0.39 is based on national assumptions. Using the standardised assumptions of the OECD project on ageing, the result is 0.45.
3. Calculated as [total population aged 65+]/[total population aged 20-64] for member countries in the table only.

Source: Statistics Netherlands, OECD project on the fiscal consequences of ageing (Dang *et al.*, 2001) and UN World Population Prospects: the 2000 Revision.

Institutional arrangements for supporting the elderly

5.   Population ageing will increase transfers to the elderly. The scale and nature of this increase depends on institutional arrangements for supporting the elderly, notably in the form of retirement income and subsidies for healthcare costs. These arrangements are described in this section.

Figure 5. **Employment aged dependency ratio**[1]
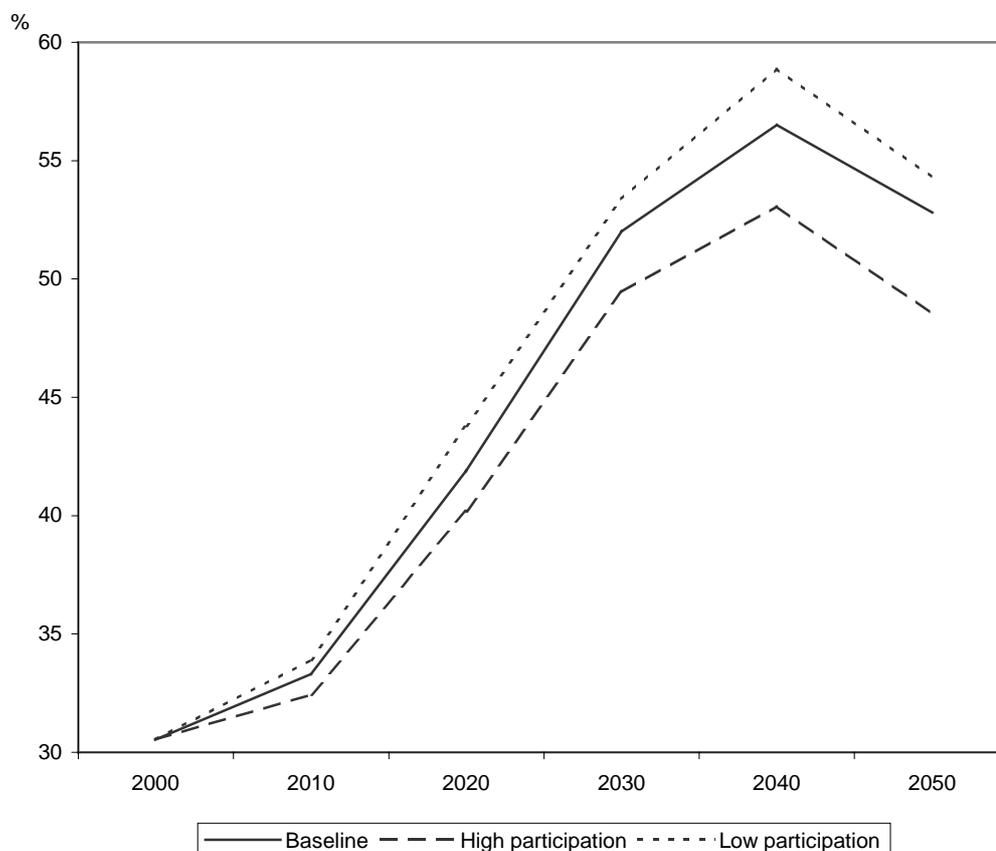
1. The employment aged dependency ratio is population aged 65 years and over divided by total employment. In the CPB's baseline projection, labour force participation rates rise by 5 to 6 percentage points, mainly over the next two decades. In the high participation scenario, labour force participation rates for persons aged 55 or over rise to the levels projected in the United States in 2050. In the low participation scenario, labour force participation rates remain at current levels.

Source: CPB Netherlands Bureau for Economic Policy Analysis and OECD.

Retirement income

The old age pension

6.   The old age pension system comprises three pillars (see the Annex for a more detailed description): the public age pension (AOW), which is Pay-As-You-Go (PAYG); funded occupational pensions (including for public servants); and voluntary provisions. All residents are entitled to an AOW pension and some 90 per cent of employees participate in an occupational pension scheme. Almost all of these schemes are defined benefit (DB). Most of them aim to provide a pension at age 65 that accrues at the rate of 1.75 per cent of final salary per year of contributions up to a maximum of 70 per cent of final

salary taking into account the AOW pension. Individuals may also top up their old age pensions with private pension arrangements with insurers. All told, the first and second pillars each accounts for about 40 per cent of old age pensions with the balance coming from the third pillar.

Early retirement income arrangements

7.   The three main routes to early retirement are voluntary early retirement (ER) schemes, disability insurance (DI)[6] and unemployment insurance (UI) (see the Annex for a more detailed description). ER (*vervroegd uittreden*, VUT) schemes provide benefits to voluntary early retirees, with the average age of retirement in these schemes being 60. These schemes are funded on a pay-as-you-go (PAYG) basis. They have the drawback that, in general, neither party deciding to use them usually bears any serious financial penalty for doing so. To correct this incentive problem, they are being phased out in favour of funded pre-pensions that are actuarially adjusted according to the age of early retirement.[7] DI provides benefits based on a disabled person's residual earning capacity. Most older disability recipients are declared fully disabled. ER, UI and the first stage of DI all provide benefits of 80-90 per cent of the last wage; second-stage DI benefits are lower but age-related, and thus highest for older workers. Nevertheless, the difference with first-stage benefits is generally not great in practice as most wage contracts provide topping up of DI-benefits to 70 per cent or more. In addition, pension rights continue to accrue under DI and most ER schemes. People who become unemployed over age 40 also continue to accrue pension rights for the period that they receive an income-related benefit. The duration of UI- and first-stage DI benefits rises with age.[8] Unemployed persons aged 57½ or over are exempt from job search requirements, although if a suitable job is offered it must be accepted.

Healthcare[9]

8.   Healthcare costs for the elderly are covered by three insurance schemes:

– The AWBZ (the long-term care and exceptional medical expenses scheme) for long-term care.

– The ZFW (Compulsory Health Insurance Act) for basic cure services for low- and medium income persons of all ages;[10] or

– The WTZ, which regulates insurance for those aged 65 and over who are not eligible for ZFW insurance.[11]

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6.   For a comprehensive discussion of the history of the DI scheme and of current reforms to it, see OECD (2002).

7.   Some pre-pension schemes have been integrated with occupational pensions systems so that pension benefits can be drawn at any age above a minimum with the amount varying by the age of exit.

8.   In the case of UI, this relation is implicit as duration is based on years of employment.

9.   This section focuses on ageing-related healthcare issues. See OECD (2002) for a general discussion of healthcare reform.

10.   Membership for eligible persons is compulsory (about 65 per cent of the population).

11.   Private health insurance companies are obliged to offer the WTZ scheme. It has a standard benefit package comparable to that under the ZFW for a uniform premium that is fixed by law. Almost all privately insured pensioners are in the WTZ scheme.

Each of these schemes socialises the higher risks of elderly people.[12] Outlays in all three of these schemes exceed premiums. The shortfall is mainly financed by income-dependent co-payments[13] in the AWBZ scheme and by compulsory contributions from persons with private health insurance in the ZFW- and WTZ schemes. The government finances the remainder of the shortfall in the AWBZ- and WTZ schemes. Consequently, managing them does not expose sickness funds and insurance companies to any financial risk; by contrast, managing the ZFW does expose sickness funds to financial risk. This means incentives for sickness funds and insurance companies to seek improvements in the efficiency with which healthcare services are provided are rather limited.

Economic consequences of population ageing

The CPB's baseline scenario

Economic growth

9. Population ageing will substantially reduce potential economic growth by cutting employment growth to zero (in full-time equivalents) over the coming four decades: economic growth will depend entirely on labour productivity growth (Figure 6). This outlook reflects a small decline in the working-age population over this period and a small rise in unemployment to its structural rate (4 per cent) offset by a 5 to 6 percentage point increase in the participation rate (Table 3).[14,15] The increase in the participation rate reflects a rise in female participation rates as current young cohorts with high participation rates flow into older age cohorts. Because growth in the total population is projected to fall by less than growth in the working-age population, GDP per capita is projected to expand somewhat more slowly than labour productivity. The decline in economic growth in the Netherlands caused by population ageing is broadly in line with that projected in other OECD countries (Figure 7). Based on assumptions for labour productivity growth that are similar to those made by the Dutch authorities, economic growth is projected to fall in most OECD countries to only 1½-1¾ per cent over the next half century, with growth in GDP per capita falling to an even lower rate.

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12. The AWBZ is mainly financed through capped premiums as part of the income tax system. Premiums are mainly income related for the ZFW and are flat for the WTZ.

13. For example, the elderly have to make income-related co-payments for the costs of residential care or home nursing.

14. This increase is considerably greater than in ILO projections for the Netherlands owing to a large difference in projected participation rates for older males (+4 points by 2050 in the CPB projections, -5 points in the ILO projections) and a more front-loaded profile for the increase in female participation rates. The CPB projections take into account policies concerning disability insurance, early retirement schemes and childcare that have been implemented.

15. These projections do not take into account feedback effects from the increase in income tax rates and social security contribution rates that will be needed to meet the budget costs of population ageing (see below). Broer (2001) has taken these and other feedback effects into account using a general equilibrium model calibrated for the Netherlands. He finds that labour force participation rates decline through to 2040 but recover to current levels thereafter (*ibid*, pp.94-95). This pattern results from the decline in the after-tax interest rate (caused by the increase in the income tax rate), which encourages households to save less while they are young, obliging them to supply more labour when they are older (*ibid*, p.97). Taking these feedback effects into account suggests that the slowdown in economic growth during the next few decades could be more pronounced than projected by the CPB but that growth could subsequently be somewhat higher.

Figure 6. Growth in employment, population and GDP per capita

Average annual rates
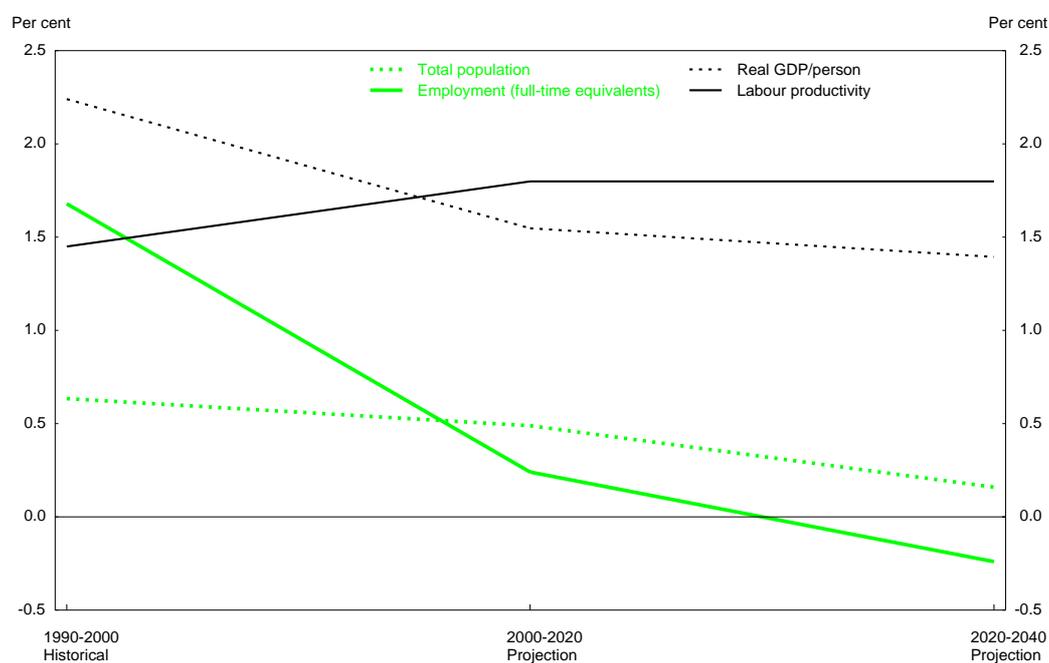
1. Assuming an average annual growth in labour productivity (real GDP per full-time equivalent employee) of 1.80 per cent over the projection period 2000-2040. This corresponds to the assumption made by the CPB that age-specific labour productivity in full-time equivalents grows at an annual rate of 1.75% (Van Ewijk et. al., 2000, page 47).

Source: Statistics Netherlands; OECD.

Table 3. **Decomposition of the change in labour force participation (age 20 to 64)**

	2001-2020	2001-2040	2001-2060	2001-2080
	change in %-points			
Levels in 2001	72	72	72	72
Ageing	-4	-2	-3	-3
Male participation	0	0	0	0
Female participation	9	9	9	9
Total change	5	6	5	6
Level in final year	77	78	77	78

Source: Van Ewijk *et al.*, 2000.

Figure 7. **Contributions of labour productivity and employment to GDP growth in OECD countries**[1]

Average annual percentage change
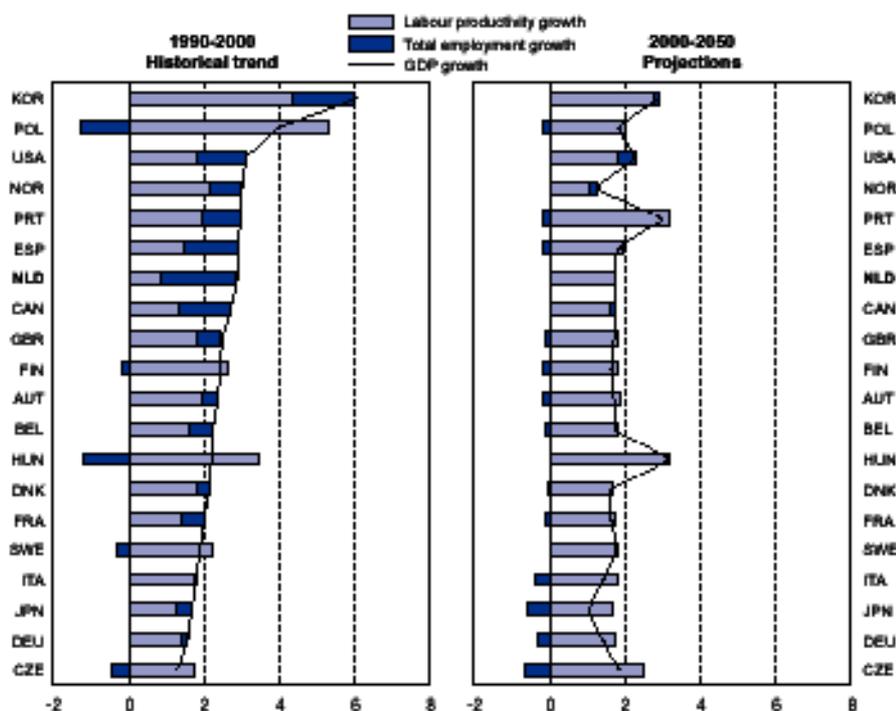
.
1.   Labour productivity is defined as GDP per person employed. Projections for the Netherlands are based on assumptions of the national authorities. For the remaining countries, projections are those prepared by the OECD Ad Hoc Working Group on the Fiscal Implications of Ageing using a standardised set of assumptions (Dang *et al.*, 2001). Trend estimates are annual historical estimates to which the Hodrick Prescott filter was applied with lambda of 100. For Germany the initial date is 1991, not 1990. Note that national accounting methodology varies across countries and time, for example, the Netherlands National Accounts are according to the ESA95 methodology only from 1995 onwards (see the Statistical Annex of the Economic Outlook for details).

Source: Statistics Netherlands; OECD Analytical database and medium-term projections December 2001; Dang *et al.* (2001).

Public finances

10.   Population ageing will put pressure on the government's budget position. The CPB's long-term projections for the budget, an example of a fiscal adjustment to make policy sustainable and the sensitivity of the projections to changes in key assumptions are discussed in the remainder of this section.

Projections

11.   Based on the demographic and economic assumptions outlined above,[16] the CPB projects that on unchanged policies the budget balance will deteriorate by 4½ percentage points of GDP by 2040 (Table 4). This mostly reflects a sharp rise in outlays for public pensions (+4¼ per cent of GDP) and for healthcare (+3½ per cent of GDP) partly offset by a rise in income taxes on pensions; in effect, exempt-exempt-taxed

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16.   The key assumptions are: no employment growth on average over the next 40 years; annual labour productivity growth of 1.8 per cent; a near doubling in the age dependency ratio; a real interest rate of 4.5 per cent; an equity risk premium of 4.0 per cent; and 40 per cent of pension fund assets invested in equities.

(EET) arrangements for taxing pension funds defer tax revenues. Demography contributes 1.65 percentage points to the annual real growth rate in public pensions (3.4 percentage points) and productivity growth the remainder. In the case of healthcare, the contribution of demography is much smaller (0.85 percentage points); the contribution of productivity growth is the same (1.75 percentage points)[17] and there is an additional contribution of 0.2 percentage points, which mainly reflects the costs of technical progress[18,19]. The smaller demographic contribution for healthcare is attributable to the correction for death-related costs[20] and the declining differential life expectancy between men and women.[21]

12.   The projected decline in the primary balance (from 4.4 per cent of GDP in 2001 to -0.5 per cent of GDP in 2040) eventually outweighs the effect of budget surpluses over the next decade on interest payments, resulting in spiralling interest payments, deficits and debt (Figures 8 and 9). Current policies are unsustainable in the long run.

An example of sustainable public finances

13.   In view of the impact of population ageing on public finances, a reduction in outlays and/or an increase in taxes are/is necessary to put budget balances on a sustainable path in the long run. The CPB provides an example of such an adjustment -- a permanent increase in indirect taxes of 0.7 per cent of GDP starting in 2001. In this scenario, the budget surpluses are big enough for the associated reduction in government debt and interest payments to counterbalance the increasing net budget costs of ageing [and of falling gas revenues (-1 per cent of GDP by 2060)]. Government debt is almost all redeemed by 2030 but subsequently rises as the budget balance deteriorates (Figures 10 and 11). Nevertheless, both budget deficits and debt remain low by historic standards during boomers' retirement years. The longer the delay before public finances are made sustainable, the larger the required permanent increase in indirect taxes: it is 1.0 per cent of GDP in 2020 and 1.7 per cent of GDP in 2040. No account is taken in this analysis of the negative impact of higher indirect taxes on economic activity in the long run. The CPB estimates[22] that an *ex ante* increase in indirect taxation by 1 per cent of GDP results in an ex ante reduction in the deficit of 0.7 per cent of GDP, implying a leakage due to a decreasing tax base of 30 per cent (Van Ewijk *et al.*, 2000, p.60). Applying this adjustment factor, the permanent increase in indirect taxes in 2001 required to achieve long-run budget sustainability is 1.0 per cent of GDP.

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17.   It is assumed that there is no growth in labour productivity in the provision of healthcare services. Consequently, productivity growth in the rest of the economy pushes up wages in all sectors, resulting in a rising relative cost of healthcare.

18.   Normally technical progress enables the same level of services to be provided at lower cost. However, technical progress may be cost increasing in healthcare because there are low co-payments. This means that patients want new treatments made possible through technical progress provided the expected benefits exceed their small co-payments. In addition, where technical progress does reduce production costs, it may nevertheless result in higher budget outlays owing to price elastic demand. On the other hand, a break through in the treatment of Alzheimer's or Parkinson's disease could substantially reduces expenditures for long-term care.

19.   Rising real incomes may also contribute to growth in healthcare expenditures relative to GDP as people tend to spend a higher proportion of their income on healthcare as they become richer.

20.   The CPB assumes that death-related medical expenditures are independent of age and takes DG 100 000 as its estimate of medical expenditure per dying person. This is in line with WRR (1997). All other types of medical expenditure are age-related, rising steeply after 75 years of age (Van Ewijk *et al.*, 2000, p.45).

21.   This increases the probability that elderly persons with chronic conditions can be cared for at home instead of being placed in a care institution.

22.   This result comes from the CPB model JADE (CPB, 1997).

Table 4. **Budget projections based on unchanged policies**

	2001	2010	2020	2040	2060	2080
	Per cent of GDP					
Expenditures						
Social Security	10.9	12.4	13.9	15.9	15.3	15.4
Public pensions	4.7	5.4	6.8	9.0	8.3	8.5
Disability benefits	2.7	3.3	3.6	3.4	3.5	3.5
Unemployment benefits	1.5	1.7	1.6	1.6	1.6	1.6
Other	2.0	2.0	1.9	1.9	1.9	1.9
Healthcare	7.0	7.7	8.6	10.6	10.3	10.2
Education	4.4	4.6	4.4	4.6	4.5	4.6
Other primary expenditure	19.1	19.5	19.5	19.5	19.5	19.5
Interest payments	3.5	2.1	1.7	2.9	5.5	8.8
Total	44.9	46.3	48.0	53.5	55.2	58.6
Revenues						
Income tax + social security contributions	20.7	21.7	22.5	24.2	24.1	23.8
of which from pension income	1.8	2.1	2.9	4.9	4.9	4.9
Indirect taxes, other taxes and non-tax revenues	19.2	19.5	20.0	21.2	21.2	21.2
of which from pension income	1.5	1.7	2.3	3.5	3.5	3.5
Corporate tax	3.6	3.2	3.2	3.2	3.2	3.2
Revenues from assets, including gaz	2.4	2.2	2.0	1.6	1.4	1.4
Total	45.8	46.5	47.7	50.2	49.8	49.6
Budget balance (EMU definition)	0.9	0.2	-0.4	-3.4	-5.3	-9.0
Primary Balance	4.4	2.3	1.3	-0.5	0.2	-0.2
Government debt (EMU definition)	54	36	28	51	98	157
Net government wealth	27	42	45	18	-31	-90

Source:Van Ewijk *et al.*, 2000.

Sensitivity analyses

14.   The CPB has also undertaken sensitivity analyses to changes in key assumptions underlying the projections (Table 5). It can be seen from Table 5, which shows the difference in the required adjustment in indirect taxes to achieve sustainability from the above example of sustainable public finances, that the projections are most sensitive to assumptions about the current cyclical position of the economy and to pension fund rates of return. The CPB assumes that the Dutch economy is above trend in 2001 and that the cyclical component of the budget balance is 1.6 per cent of GDP. On this basis, they assume that the cyclically adjusted budget balance in 2001 is in deficit by 0.7 per cent of GDP. If instead the cyclical component of the budget balance were zero (the economy were at trend output), indirect taxes could in fact be cut by 0.7 per cent of GDP consistent with long-term sustainability. This is 1.4 per cent of GDP less than the required adjustment in the base case. With respect to pension fund returns, if they were to be 1 per cent lower than assumed, this would raise the required increase in indirect taxes by about 1 percentage point compared with the base case. This occurs (assuming that boards of pension funds do not use their right partially or fully to suspend indexation, if necessary) because lower returns would oblige pension funds to increase contribution rates progressively from 6.8 per cent of earnings in 2000 to 11.1 per cent in 2040 instead of 7.2 per cent in the baseline scenario in order to meet future pension obligations. This would increase tax deductions for pension contributions (see below).

Figure 8. **Budget balance and primary balance under current policies**

% of GDP

% of GDP
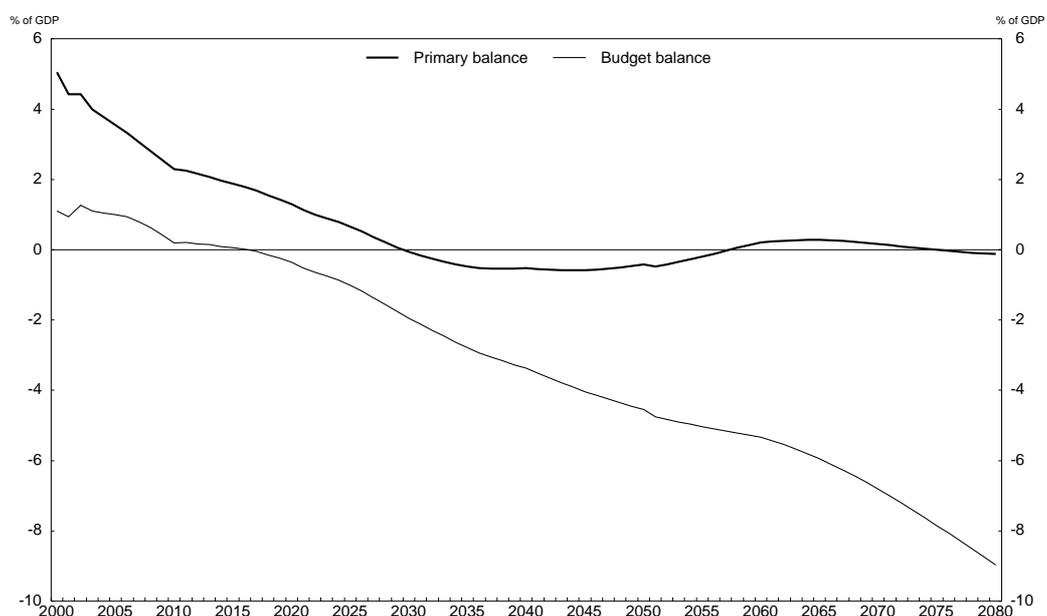
Source: Van Ewijk et. al. (2000, page 55).

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Figure 9. **Government debt and net government wealth under current policies**

% of GDP

% of GDP
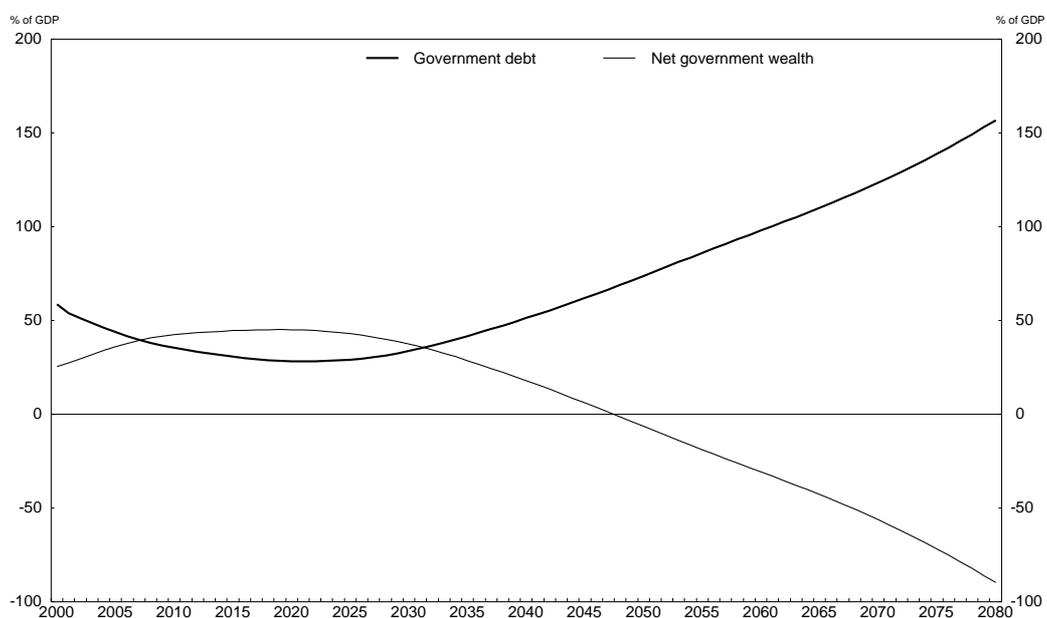
Source: Van Ewijk et. al. (2000, page 55).

Figure 10. **Budget balance and primary balance under a sustainable policy**
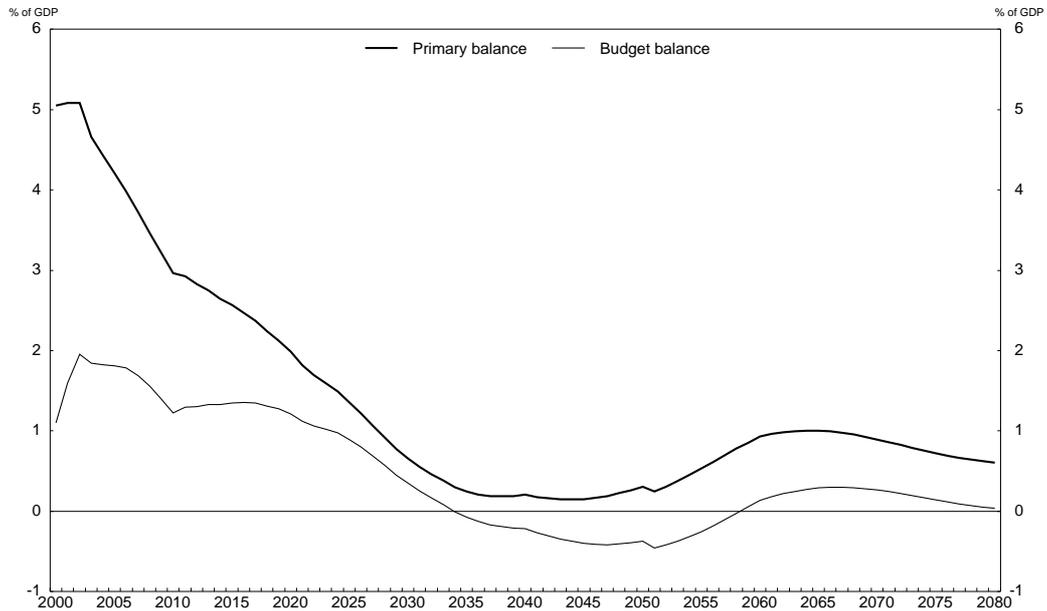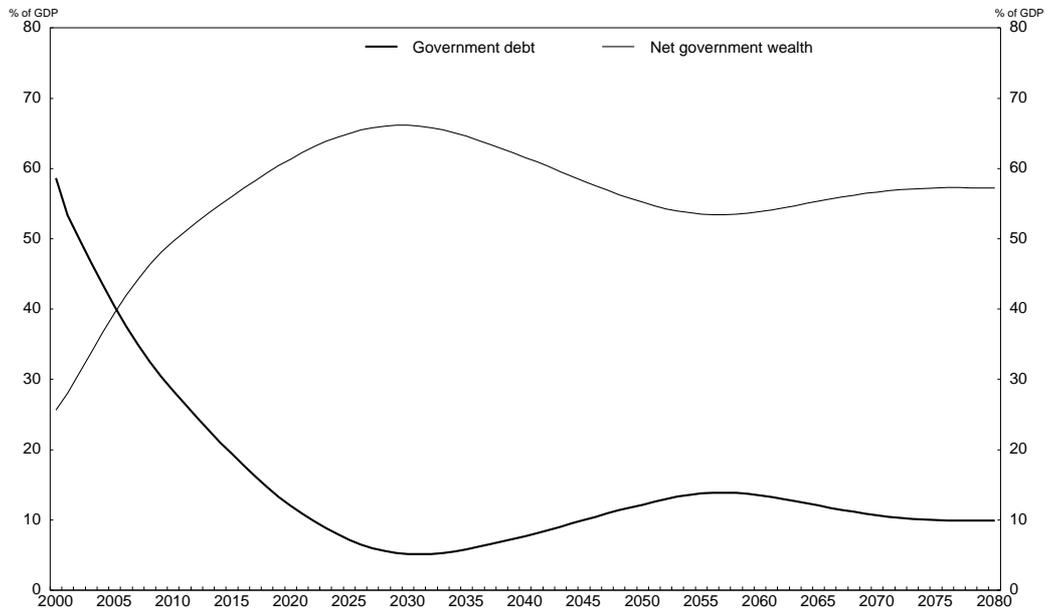

Source: Van Ewijk et. al. (2000, page 57).

Figure 11. **Government debt and net government wealth under a sustainable policy**

Source: Van Ewijk et. al. (2000, page 57).

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Table 5. **Sensitivity analyses**

Change of assumption	Difference in required fiscal adjustment from baseline[1]
	Per cent of GDP
Interest rates and growth	
1% lower pension fund return (eg. 2.5% lower equity premium)	+0.9
1% lower pension fund return and 1% lower interest rate	+1.0
0.5% higher productivity growth	+0.5
Demographics	
Life expectancy:1 year higher	+0.6
Fertility:10% higher	+0.04
Labour participation	
Females: 5% points lower	+0.6
Elderly (55-64 years olds): 5% points lower	+0.3
Extra costs	
Healthcare: 0.2% higher growth rate until 2020	+0.2
Baumol: Expenditures 1%of GDP higher in 2040	+0.6
Cyclical impact	
Assuming cyclical neutrality in 2001	-1.4

1.   The total required fiscal adjustment in each case in given by adding 0.7 per cent of GDP, the required adjustment in the baseline.

Source: Van Ewijk *et al.*, 2000.

15.   A result that may seem counterintuitive in the CPB analysis is that higher productivity growth would *raise* the indirect tax increase required to achieve long-run sustainability. This reflects the assumption of a unit income elasticity for primary government expenditures (i.e. they grow in line with income) and the fact that the majority of Dutch pensions are based on final wages. This feature of pension arrangements means that higher productivity growth increases the final wage and hence pension income relative to the average wage rate. Consequently, pension contribution rates would have to be increased, which would reduce tax revenue as such contributions are tax deductible. Accordingly, a greater increase in indirect taxes would be required to achieve sustainability.

Assessment and risks

16.   The CPB projections indicate that population ageing will reduce economic growth and make current budget policies unsustainable. Although the approach has the advantage of a certain analytical elegance and consistency between the variables, two points in particular should be borne in mind. First, economic feedback mechanisms are not taken into account. Thus, any negative effects on labour force participation of the increase in taxes required to put fiscal policy on a sustainable path are ignored. Second, an increase in labour productivity growth does not ease the budget impact of population ageing because of the steady state assumptions made in which contractual wages, and hence indexation of benefits, are assumed to follow increases in labour productivity. In practice, there will be policy options to make this increase in expenditures less automatic. Higher economic growth caused by increasing productivity should provide more room to de-couple government expenditures from GDP growth.

17.   While the CPB assesses a range of risks, there are perhaps two issues that warrant further examination: capital market risk; and the extent to which the current budget balance reflects cyclical factors. These issues, which are important for assessing the required fiscal adjustment to make current policies sustainable, are considered in the remainder of this section.

Capital market returns

18.   An important uncertainty surrounding the baseline projections concerns capital market returns, which are determined in global markets for a small country such as the Netherlands with an open capital account.[23] Capital market returns are more important in the Netherlands than in most other countries owing to the large scale of the funded occupational pension system. The CPB made its projections on the basis of a real interest rate of 4 per cent and a real return on equity of 8.5 per cent (i.e. an equity risk premium of 4.5 per cent). These returns are long-run averages (Eichholtz *et al.*, 2000). However, population ageing in OECD countries could reduce returns for the baby boom generation (Box 1). On the other hand, diffusion of ICT could increase returns. While there is considerable uncertainty about the relative magnitudes of these and other effects on returns, current asset prices do not appear to be compatible with historical rates of return. Based on the Gordon formula[24] and growth projections for the next half-century,[25] international stock markets seem to be priced for yields of 4-4½ per cent.[26,27] And long-term (30 years) indexed

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23.   Ford and Laxton (1999) examined real interest rate trends over the period of rising rates (1977-97) in nine countries (Belgium, Canada, Denmark, Germany, the Netherlands, Japan, Switzerland, the United Kingdom and the United States) with liberalised capital markets. They found the real interest rate in each of these countries is highly correlated with the average real rate.

24.   This states that the expected return on shares is the dividend yield plus the expected growth in dividends. The best indicator of long-term growth in profits in S&P 500 companies, and therefore of dividends, is real growth of the United States economy (Chan *et al.*, 2001). It is implicitly assumed in this formula that distributions are at a rate that maintains leverage stable. Profits can temporarily rise more quickly than GDP if dividends are low, reducing debt and the share of operating surplus distributed as interest payments. However, in a steady state the dividend yield must be such as to maintain a stable gearing ratio.

25.   In the recent OECD project on the fiscal implications of population ageing (Dang *et al.* 2001, p.15), economic growth was projected to decline to an annual rate of 2.3 per cent in the United States over the next 50 years and to an average of 1.6 per cent in the other countries included in the study and not catching up. Growth in employment is projected to fall to an annual rate of 0.5 per cent in the United States and to -0.2 per cent in the other countries.

26.   For example, the dividend yield on S&P 500 companies is 1.2 per cent and long-term growth is 2.3 per cent. However, there has been a trend towards distributing earnings through share buybacks in recent years. Allowing for these, S&P 500 companies have in fact continued to distribute half of their earnings, despite the decline in the dividend yield. Given that the trailing price earnings ratio is presently around 30, this would suggest an adjusted dividend yield of about 1.7 per cent, bringing the total expected return to 4 per cent. In the case of Europe, the dividend yield is around 2¾ per cent and expected growth in the United Kingdom, Germany and France (the three countries that account for most of the European stock market capitalisation) is 1.6 per cent, bringing the total return to about 4½ per cent.

27.   The counterpart of low expected returns on equities is that stock markets have been re-rated upwards to levels that are high by historical standards. This re-rating underpins the very large capital gains on equities earned over the past two decades. So long as stock markets remain highly valued, there is compensation for low returns going forward for those (including Dutch pension funds) who made large capital gains during the run-up in stock markets. Of course, were stock markets to fall far enough, expected returns could rise back to historical averages. In this case, the higher returns would have to be weighed against the capital losses of stock market valuations returning to historical norms. While individuals might be able to "lock in" their gains from the past two decades by selling equities before they were re-rated downwards, investors as a group cannot do so.

government bonds are yielding 3½ per cent.[28] Given the CPB's assumption that Dutch pension funds allocate 40 per cent of their assets to equities and 60 per cent to bonds, this would imply long-term returns for pension funds of 3.8 per cent instead of the 5.8 per cent assumed by the CPB.

Box 1. **Global capital market implications of population ageing**

Brooks (2000) simulates the effects of the baby boom/bust demographic shock on capital market returns using a general equilibrium model with overlapping generations, rational expectations and life-cycle consumption behaviour. Although his model is calibrated for the United States, it can reasonably be thought of as representing the developed world as a whole because most countries with significant asset markets are due to experience a similar demographic shock to that in the United States. He finds that the demographic shock reduces capital market returns for baby boomers, especially those born during the second half of the baby boom, with cumulative returns (4.2 per cent at an annual rate) some 15 per cent below those of parents of early boomers.

While these effects are large in relation to other sources of uncertainty about returns in Brooks' model, they are small in relation to the run-up in stock market returns over the past 20 years.[1] Thus, changes in the age distribution are unlikely to explain much of the surge on stock prices over this period. As Brooks notes (p.29), the simulation exercise ignores changes in other fundamentals, such as technological developments, or the possibility of a speculative bubble.

Although lifecycle models of saving may be a reasonable characterisation of saving through defined benefit pension schemes and of pre-funding by governments of age-related expenditures, doubts have been raised about the validity of such models for other saving. For example, abstracting from defined benefit pension wealth, Poterba (2000) finds that while holdings of net financial assets rise with age between the ages of 30 and 60, there is no evident decline at older ages.

A concern in the Netherlands is that countries with large PAYG pension obligations could increase their deficits and debt to support boomers in retirement, driving up interest rates and reducing the value of pension fund assets. While this is a valid concern, measures that these countries could take to make their long-term budget positions sustainable would also reduce pension fund returns. In particular, greater pre-funding, whether by means of a shift towards funded pensions or by running down government debt, would tend to increase saving and capital intensity, reducing capital market returns during the asset accumulation period. When these assets would be run down (or government debt run up) to pay boomers' pensions, capital market returns would rise, albeit to a lower level than if governments had not pre-funded and had higher levels of debt. At the end of the day, the key issue in this regard is the extent to which retirement income arrangements in other countries facilitate a transfer of purchasing power from people working to those not working. The greater the extent to which this occurs, the less favourable will be the terms on which Dutch pension funds can make the same transfer.

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1. The average real return on the Ibbotson Associates large stock index from 1979 to 1998 is 13.43 per cent, compared with 3.53 per cent from 1959 to 1978 (Brooks, 2000, p.29).

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19.   Were capital market returns to remain around these levels and pension boards not to exercise their right partially or fully to suspend indexation, pension fund contributions in the Netherlands would need to rise progressively from 6.8 per cent of earnings this year to 15.0 per cent in 2040, despite the large

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28.   Incidentally, such estimates are much more in line with recent research on the equity risk premium (e.g. Siegel, 1999). Long-term historical estimates of the equity risk premium are seriously distorted by the unanticipated rise in inflation, which drastically cut real bond yields *ex post*. McGratten and Prescott (2001) find that the equity risk premium was unusually large in 1962-2000 owing to the capitalisation of successive reductions in the marginal tax rate on dividends, notably through the growth in the proportion of equities held in forms (pension funds, 401K accounts) that are exempt from taxation as earnings accumulate. On this basis, their model generates a decline in the expected real before-tax rate of return on equity from 8 per cent in the early postwar period to a little over 4 per cent in the future (barring any further unexpected changes in tax rates).

capital gains on equities in recent decades.[29] This compares with a contribution rate of only 7.2 per cent in 2040 if historical rates of return were to be maintained. Contribution rates increase when capital market returns are lower than expected because almost all pension benefits in the Netherlands are defined benefit. This means that capital market risk is borne by pension funds themselves if indexation is maintained -- hence, by current and future contributors -- rather than by the beneficiaries of the accumulated fund assets, as in defined contribution schemes. In these circumstances, lower-than-expected returns impose a "tax" on current and future contributors in order to maintain the value of acquired rights, with the same consequences for labour supply as any other comparable tax. As pension fund contributions are tax-deductible, the fiscal adjustment required in this case to make budget policies sustainable in the long run would be 1.5-percentage points of GDP higher than in the baseline. On the other hand, if pension fund boards suspend indexation of benefits -- invoking the so-called conditional indexation mechanism -- part or all of capital market risk can be shifted back to beneficiaries. For the time being, it is too early to conclude that future rates of return are unlikely to match historical rates. Rates of return are notoriously volatile and uncertain -- capital market prices could return to levels compatible with historical rates of return. It should also be noted that over the period from which the CPB's pension simulations start -- 1994 -- average rates of return have been in line with historical rates. Nevertheless, it would seem prudent to be aware of the risk of disappointing capital market returns and to make appropriate contingency plans. It would be helpful in this respect if pension boards could reduce uncertainty about how they would respond in different rate of return scenarios. This would give beneficiaries more scope to build these risks into their long-term work and saving plans and would enable the government better to assess risks surrounding its long-term budget position.

The cyclical component of the budget balance

20.	The other major uncertainty affecting the CPB's projections concerns the extent to which the budget balance is cyclical. As shown in their sensitivity analysis (see above), changes in the estimated cyclical component of the budget balance have a large effect on the required fiscal adjustment to make fiscal policy sustainable in the long run. And estimates of the cyclical position of the economy can vary greatly depending on the method of cyclical adjustment used and assumptions made about developments in the period beyond which data are available (i.e. the end-point problem for trend estimates).[30] The counterpart of this sensitivity is that the primary structural surplus required for sustainable fiscal policy is not very sensitive to changes in assumptions about the initial cyclical position. For example, it is 3.5 per cent of GDP in 2001 in the CPB's example of sustainable public finances and 3.7 per cent of GDP if fiscal neutrality is assumed.[31] Thus, while uncertainty about the cyclical position of the economy does not have much effect on the path of structural primary budget balances required to ensure that fiscal policy is sustainable, it has rather a large effect on the fiscal adjustment required to get to this path. This suggests that a range of estimates of trend output should be used to assess the required adjustment to achieve budget sustainability and that estimates should be regularly updated. Moreover, fiscal policy should not be micro-adjusted every time a new estimate of the output gap is made. Rather, an adjustment should only be made when there is a high probability that a significant change in fiscal settings is required.

29.	According to the CPB's pensions model, a one percentage point decline in pension fund returns increases pension fund contribution rates progressively to 3.9 percentage points above the baseline by 2040.

30.	For a discussion of further complications concerning estimates of structural budget balances, see OECD (2002).

31.	The required structural primary surplus is a little higher assuming cyclical neutrality because there are no debt reductions attributable to cyclical surpluses.

Policy implications

21.   Population ageing will substantially increase the scale of resource transfers to the retired population from a smaller working population. There are two main ways of limiting the adverse economic effects of this shock: pre-funding, both through pension funds and by the government, which spreads increases in contribution rates and taxes over time; and reducing the scale of the transfers, notably by prolonging working lives. The Netherlands is already better placed than most other countries to limit the adverse economic effects of population ageing but more needs to do more to prolong working lives. This section examines how these responses to population ageing could be strengthened. At the same time, it must be acknowledged that there is some uncertainty about the required scale of pre-funding, notably owing to uncertainty about capital market returns, and the fiscal adjustment required to make budget policy sustainable. As discussed above, this makes it important to monitor capital market returns and regularly to evaluate a variety of estimates of the output gap with a view to adjusting policy settings if it becomes clear that current assumptions are no longer realistic.

Smoothing tax increases through advance funding

22.   Advance funding minimises the economic costs of restoring long-run budget sustainability in the face of ageing-related pressures. This is because it enables tax increases or expenditure reductions to be spread over a long period, minimising the scale of such adjustments. Concomitantly, the earlier that fiscal policies are put on a sustainable long-run path, the smaller the required adjustments and hence, economic costs. The CPB has estimated that immediately putting fiscal policy on a sustainable path would entail settings that yield a cyclically-adjusted primary surplus of around 3½ per cent of GDP in 2001. Such policy settings would progressively reduce government debt and interest payments over the next few decades and steadily increase the structural budget balance (as interest payments decline). On average, the budget surplus would be 1¼-1½ per cent of GDP over the next quarter century. By 2030, government debt would be almost entirely paid off, allowing age-related budget pressures to be met out of savings on debt interest payments. The CPB estimated that this policy could be put into effect by means of a permanent increase in indirect taxes of 0.7 per cent of GDP. However, the OECD Secretariat estimates that the primary structural balance is already around the required level. On this basis, no fiscal adjustment is required to put fiscal policy on a sustainable path. Rather, the challenge is to ensure that future policy initiatives do not deflect fiscal policy settings from a sustainable path. As noted above, these projections are subject to considerable uncertainty, especially concerning capital market risk and the cyclical impact on the budget balance. This suggests that the authorities will need to monitor these risks and adjust fiscal policy settings if it becomes clear that the assumptions on which their projections were made no longer seem realistic. Moreover, as demographic developments cause expenditures to rise from 2010 onwards, it would seem prudent to do some front-loading of debt reduction over the coming decade. On this basis, it might be appropriate to target a budget surplus of 1¼-1¾ per cent of GDP over the next government period (2003-06).

Increasing efficiency in the healthcare sector[32]

23.   It could also be prudent to create some budgetary room for manoeuvre by providing incentives for the healthcare sector to become more efficient. A recent reform along these lines is the introduction of *personal budgets* for elderly home care into the AWBZ, which occurred in 2000; these arrangements also are being extended to mentally disabled groups. Personal budgets make care services better adapted to the needs of the elderly. These budgets can be used to purchase services, such as home help or special

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32.   This section focuses on ageing-related healthcare issues. See OECD (2002) for a general discussion of healthcare reform.

housing- or transport services, that enable the elderly to stay in their homes longer before going into institutional care. An independent agency[33] financed by the government determines whether an elderly person applying for long-term care should be placed in residential care or should remain in their own home and if the latter, what community services are required. This approach has proven to be very popular with the elderly and their families. It also allows widows and single persons in particular to remain longer in the community without falling into poverty, a risk that concerns these groups, as they do not benefit from household economies of scale. At the same time, personal budgets should reduce costs, as it is generally much cheaper to provide services that enable the elderly to remain in the community, including administration costs, than to provide care services in institutions (such as nursing homes). In view of this "win-win" situation, Parliament has asked for a substantial increase in the personal budget share in total AWBZ expenditure. The authorities also are currently studying policy options to improve the co-ordination of health and community services, focusing on the borderlines between health care, housing policy and support measures for disabled people at the community level. These policy options will be taken into account in the broader proposal for a more comprehensive reform of the health care system that is being considered to set the healthcare system on a sound footing in the face of population ageing.

24.   The major plank of this reform is to make room for managed care in the services that are presently covered by the AWBZ- and WTZ schemes; as noted above, the elderly are the main beneficiaries of these schemes. Under current arrangements, the sickness funds and insurance companies administering the AWBZ- and WTZ schemes have no incentive to develop managed care,[34] as they do not bear any financial risk. They are reimbursed for their expenditure through central government funds and government determines all of the important dimensions of the insurance package.[35] The reform being considered would integrate these schemes with the ZFW scheme for low- and medium income persons. This would introduce financial incentives for developing managed care in long-term care and in curative services for the elderly along the lines of those that exist in the ZFW scheme; it would also facilitate better co-ordination of cure and care. Sickness funds managing the ZFW scheme bear some of the financial risk of the scheme as a large part of each fund's financing is in the form of a budget that is based on expected expenditure and clients can switch fund at yearly intervals. Clients' decisions to switch funds are influenced by the small supplementary premiums that they pay[36] and by the service provided by the fund, notably in terms of obtaining high quality healthcare from providers.

Reducing the early retirement problem

25.   A factor that aggravates the economic costs of the demographic shock is early retirement. Insofar as public policy measures have the effect of encouraging early retirement, the welfare cost of these policies is set to rise substantially when the baby boom generation reaches the age group most affected by them (55-64).

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33.   The agency's independence from service suppliers avoids the moral hazard problems that would otherwise arise.

34.   Managed care refers to insurance companies' activities to influence the provision of health services, affecting the volume, quality and/or price of services.

35.   This includes premiums, co-payment schedules, contents of the insurance package and eligibility (insurers are obliged to accept each individual who demands insurance and who meets the conditions).

36.   This premium is in addition to the basic premium that is paid by employers and employees and is uniform across funds and a function of the income of the insured. The supplementary premium differs from one fund to another and depends on neither income- nor risk class.

26.   The main routes to early retirement developed in the 1970s and 1980s. Employer-provided early retirement (ER, VUT) schemes were introduced at this time and there was a considerable expansion in both eligibility criteria and generosity of disability insurance (DI) and unemployment insurance (UI) for older workers. These developments occurred in a context of industrial restructuring, which had pushed up unemployment to high levels. The idea was to encourage older workers to make room for the large inflows of younger workers by retiring early. The schemes certainly provide strong incentives for older persons not to work. As noted above, replacement rates are typically 80-90 per cent of previous earnings, pension entitlements continue to accrue as though the beneficiary were working[37] and the duration of UI and of first-stage DI pensions is positively related to age (see the Annex for details).[38] In addition, there are no follow-up medical examinations to ensure that persons receiving DI pension are still incapacitated and UI beneficiaries aged 57½ or over are not subject to job search requirements.

27.   The result has been a marked increase in early retirement in the 1970s and early 1980s.[39] This has been reflected in a sharp fall in the labour force participation rate for males aged 55-64 (Figure 12); while females have also been retiring earlier, the effect of this on participation rates has been offset by younger cohorts with higher lifetime participation rates entering the older age group. Although male participation rates for this age group have been increasing since the mid-1990s, they remain below rates in earlier decades and in many other OECD countries. Overall, the average age of retirement (defined as withdrawing from the labour force at age 45 or more) has fallen from 64.7 in 1966-71 to 60.3 in 1994-99 for males and from 62.3 to 56.7 for females over the same period (Scherer, 2001) (Figure 13). These declines are large by international comparison and the current average age of retirement is relatively low.

Increasing the supply of older workers

28.   The government recently took a major step towards reducing incentives for early retirement by legislating for a phase-out of tax deductibility for ER (VUT) schemes by 2022. Tax deductibility instead will be available for funded pre-pension arrangements. To qualify for tax deductibility, these schemes must provide for actuarially neutral adjustments to pensions for early or late retirement. This is in contrast to the ER (VUT) schemes, which have no such adjustment, implying a marginal effective tax rate (METR) of 80-90 per cent on working beyond the date of eligibility for an ER scheme. The government could, however, go further in this respect by immediately replacing the ER (VUT) schemes for which it is responsible as an employer with pre-pension arrangements and by refusing to provide legal extension of the relevant clauses in collective agreements to all employees in an industrial sector. Another reform that should increase labour supply of older workers makes it possible to draw an occupational pension while continuing to work for the firm that grants the pension. Incentives for older persons to work are also to be reinforced in 2002 through a reduction in their tax burden.

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37.   Except in the case of some ER schemes.

38.   Indeed, DI and UI beneficiaries faced potential penalties for returning to work in the past if that entailed accepting a lower paid job, as this would have reduced their retirement pension. This problem was resolved for UI beneficiaries in the new Pension Law, which included a measure that protects pension build-up of such persons accepting a lower paid job, regardless of whether the reduction in pay is attributable to a lower wage rate or to reduced working hours. The social partners have largely solved this problem for DI beneficiaries recently at the request of the government, again by safeguarding pension rights.

39.   See OECD (2002) for a general discussion of the large number of inactive persons.

Figure 12. **Labour force participation rates of persons aged 55-64**
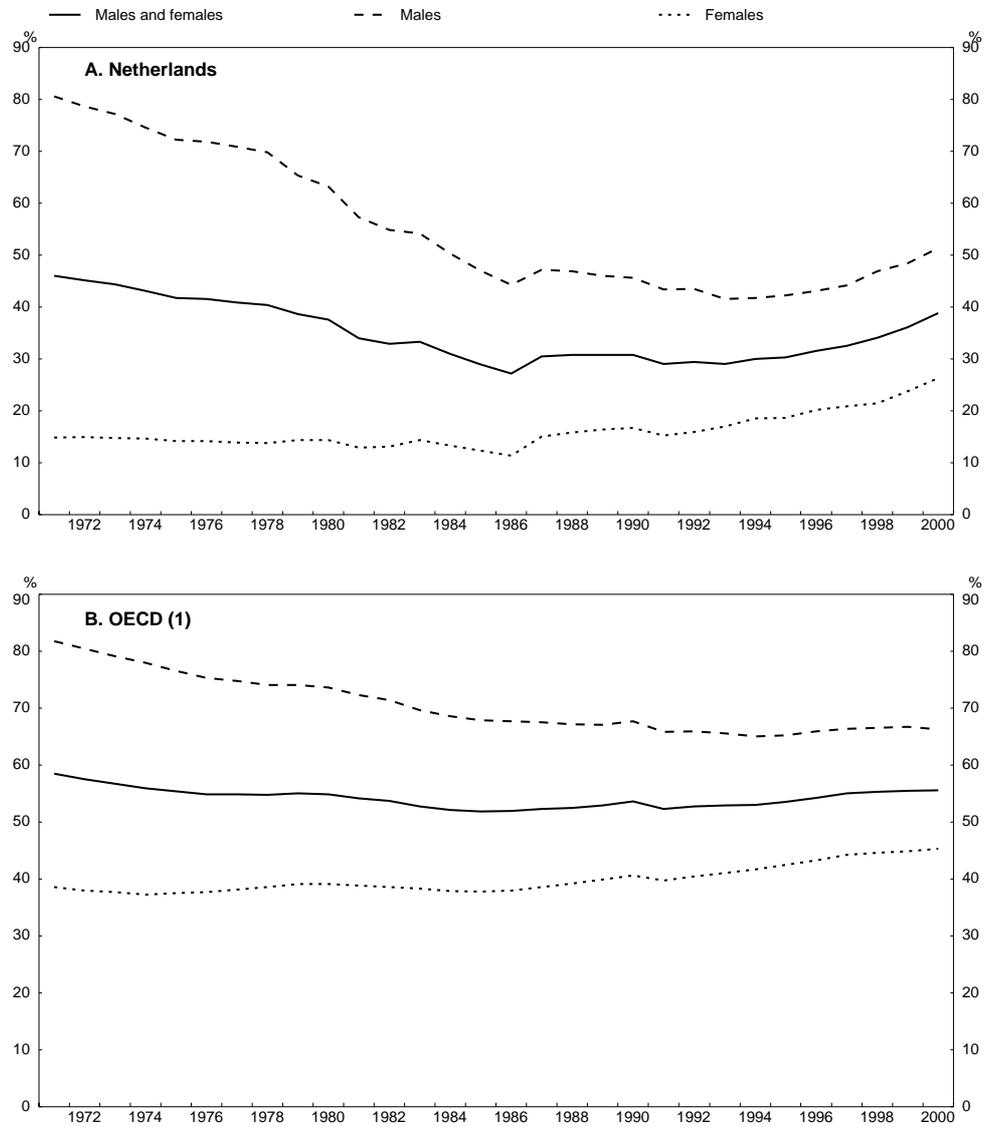
1. Only comprises countries for which data are available in 1971, namely Australia, Canada, Finland, France, Germany, Japan, Netherlands, Sweden, United States. Germany is western Germany before 1991. The labour force participation rate average for persons aged 55-64 in all OECD countries was 51% in 2000.

Source: OECD (ELS) Labour Force Statistics.

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Figure 13. **Estimates of the average age of withdrawal from the labour force**
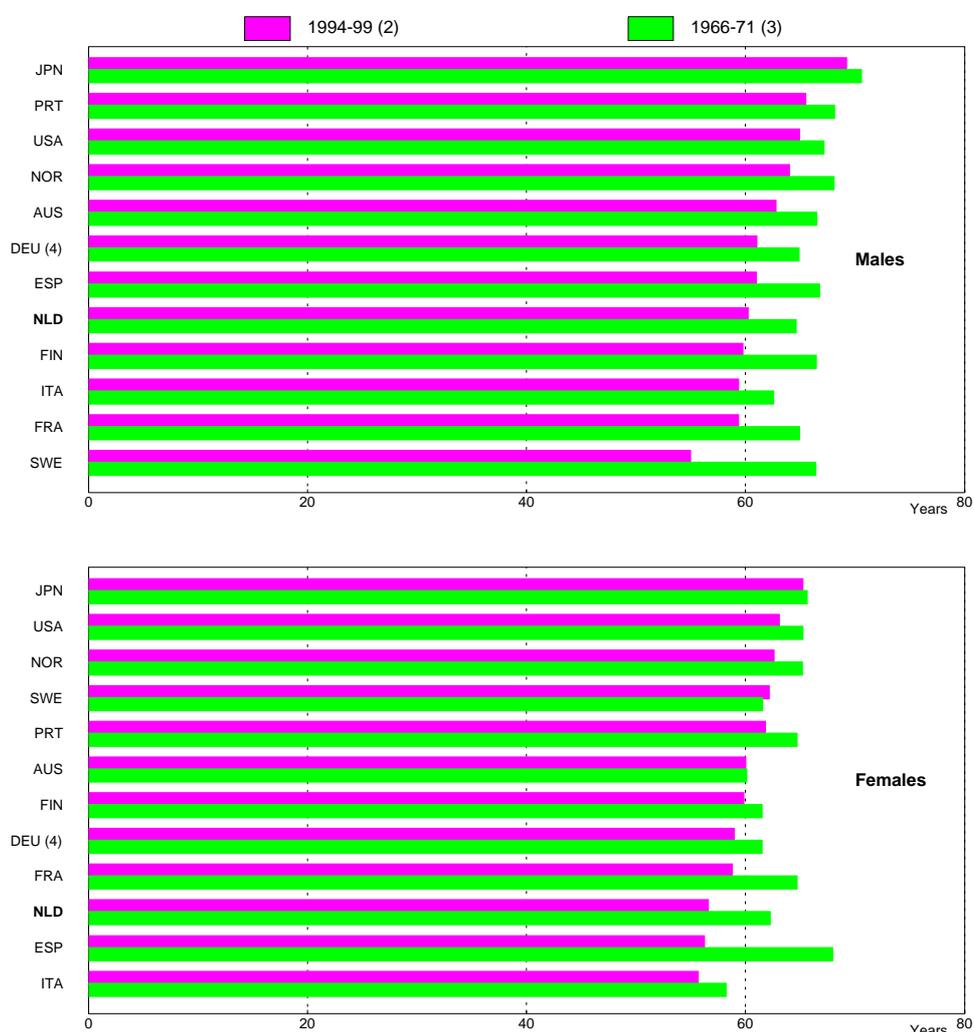
1. Static method of calculation (the dynamic and more accurate method developed in the source document provides estimates for only a few countries).
2. For western Germany and the Netherlands, 1993-98.
3. For Norway and Spain, 1967-72 and for Portugal, 1969-74.
4. Western Germany.
Source: Scherer (2001).

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29.   These reforms need to complimented by bolder measures to ensure that the DI and UI schemes cease functioning as *de facto* routes to early retirement. The first plank of such reforms would be to ensure that all claimants are legitimate. For DI, this would mean that applications would be based on strict tests of medical incapacity and that beneficiaries would be subject to regular medical examinations to assess their continued eligibility for the benefit. For UI, this would mean ending the exemption from job search requirements for beneficiaries aged 57½ or over. The second plank would be to ensure that benefit

replacement rates do not discourage a return to work. As it is the long duration of higher first-stage benefits for older persons that makes these schemes a particularly attractive route to early retirement, priority should be given to bringing benefit duration more into line with that for the rest of the working-age population. Given that ER (VUT) schemes are a substitute exit route to early retirement through the DI and UI schemes,[40] it would probably be necessary to accelerate the phasing out of ER (VUT) schemes for such reforms to be effective. Such reforms would also reduce the incentive that older workers will face in the future to make increased use of these schemes for early retirement so as to "save" their pre-pension accumulation for retirement.[41]

30.   If the recommendations of the Donner Commission (see OECD, 2002) are implemented, this will eventually end the use of DI as a *de facto* early retirement scheme. As only fully and permanently disabled people (on purely medical grounds) would in future qualify for DI, there no longer would be an inflow of people who are not really incapacitated and there would be no need for follow up medical examinations to ensure that beneficiaries are still disabled. And as beneficiaries would be incapable of ever again working, there would be no need to limit the duration of higher first-stage benefits to give them an incentive to return to work. This would also end the more favourable treatment for older persons in this respect, which is one of the key "early retirement" features of the current scheme. In the event that the Donner reforms are not fully implemented, more limited reforms along the lines discussed above will be necessary if DI is to cease being a *de facto* early retirement scheme.

31.   Further development of flexible working time arrangements and/or part-time employment could also help to increase the supply of older workers by enabling them better to reconcile work and home life and to move into retirement progressively.

Increasing the demand for older workers

32.   For such reforms to be successful, there must be jobs available for older workers. A major obstacle in this regard is that seniority-based pay, which remains dominant in the Netherlands,[42] makes them relatively unattractive to employers. This has given employers an incentive to collaborate with older workers so that they can retire early. A number of reforms have been made to reduce incentives for such behaviour.

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40.   Kerkhofs *et al.,* (1999) find that income streams in the alternative exit routes -- ER, DI or UI -- are compared in the retirement decision and that alternative routes act as substitutes. OECD (1995) comes to the same conclusion.

41.   Under the UI scheme, this is only possible if the beneficiary is in a pre-pension scheme with a flexible retirement age. If the retirement age is fixed, the pre-pension would be deducted from the UI benefit. With respect to the DI scheme, there is no requirement to deduct pre-pension benefits or similar income from the DI benefit.

42.   Seniority-based pay systems are still very important in the Netherlands (Van Opstal *et al.*, 1997). Stegeman (2000) also finds that collective bargaining arrangements in general include remuneration systems that are mostly related to the classification of jobs and seniority. Performance-based pay systems are still of minor importance. Age is a more important explanatory factor of wage differentials than tenure, although the two are difficult to disentangle (Teulings and Hartog, 1998). In recent years, employers have been aiming to move away from seniority-based pay, basing wage increases more on performance. This has been reflected in collective labour agreements, which increasingly provide for the introduction of flexible pay (CPB, 2001, p.69). As noted above, the CPB projects that seniority-based pay will become less important in the future (Van Ewijk, 2000, pp.44-46). The CPB projects that during the next 20 years, wages for younger workers will rise by 9 per cent relative to the average wage while older workers' wages will fall by 10 per cent relative to the average wage.

−   First, as noted above, ER schemes are being replaced by pre-pension arrangements, shifting the cost of early retirement from the industry to the individual making the decision. This should increase the incentive for employees to remain longer in employment.

−   Second, qualifying criteria for DI have been more strictly enforced since the early 1990s.

−   Third, WULBZ and the PEMBA reforms in 1998 made employers responsible for paying sickness benefit, which is paid during the year before an application for DI can be made, and introduced experience-rated DI premiums (based on the employer's record over the past five years). While these reforms were primarily aimed at encouraging employers to reduce the risk that their employees become incapacitated, for example by making the workplace safer, the reforms also had the effect of making the departure of older employees on DI less attractive to employers.

−   Finally, UI has been reformed to require employers to pay part of the costs of UI of employees made redundant at age 57½ or over except if the person was aged 50 or more when they were hired. A risk with this reform, however, is that employers may seek to make older employees redundant before age 57½. Although strict EPR and a recent measure prohibiting employers from using age as a criterion for selecting candidates for compulsory redundancy would prevent employers from acting unilaterally in this way, some employees may be tempted to volunteer for redundancy once the pre-pension system matures. UI would in this case serve as a bridge to a pre-retirement pension, with neither the employer nor the employee bearing the direct cost of this decision.

33.   In time, these reforms will considerably reduce employers' interest in seeing older workers retire early. These incentives would be reduced further were the reforms discussed above -- notably the Donner- or equivalent reforms for DI and enforcing job search requirements for UI beneficiaries -- to discourage older workers from retiring early to be implemented. Such reforms would undoubtedly accelerate the move away from seniority-based arrangements in collective agreements by reducing the scope to socialise the costs of the unprofitable part of long-term employment contracts. This process could be greatly accelerated by ending the legal extension of collective agreements (or at least of seniority-based pay clauses). Employers who do not have much to gain from implicit long-term employment contracts would be free to offer wage rates more in line with individual worker's productivity, allowing older workers to become more attractive. And all employers would have the possibility of offering employment to persons wishing to work beyond the standard retirement age at wage rates that would make hiring them profitable. In addition, such a reform would ease the squeeze on company profitability and wage rates for other workers that otherwise could result from the interaction of seniority-based pay and the demographic shock.[43] Were legal extension of seniority-based clauses in collective agreements to end, it would be necessary to re-negotiate pension formulae (increasing the accrual rate and/or reducing contribution rates) as pensions are mainly based on final pay. It would also be necessary to modify the parameters of the DI and UI schemes as a flatter age-profile of earnings would reduce the expected returns (benefits less contributions) from these schemes for older workers (for whom expected returns greatly exceed those for other workers), and hence the overall cost of the schemes. This would provide an opportunity to reduce both the attractiveness of these schemes as *de facto* routes to early retirement and the tax wedge on labour by leaving benefit formula unchanged and instead cutting contribution rates for all workers.

34.   Another avenue for making older workers more attractive to employers is to raise this group's productivity by increasing their participation in job-related training; this could also enable them to work

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43.   This will create an imbalance between the proportion of older workers in the labour force, who are paid in excess of their productivity, and younger workers, who are paid less than their productivity.

longer by reducing stress from the frequent changes in skills and responsibilities that are required in a modern workplace. Presently, older workers receive much less training than younger workers (Figure 14). This appears to be because older workers resist participating in such training, not because employers are unwilling to sponsor it (Leuven and Oosterbeek, 1999); lower educational attainment of older workers, reducing returns on investment in training, also may be a factor. Presumably, older workers do not expect to work long enough for it to be worthwhile. Closing off the escape routes to early retirement should change this expectation. Such an approach is certainly more promising than offering tax incentives to boost training for older workers, as occurred in 1998. This appears to have increased training for workers aged 40 or over, for whom employers receive a tax incentive, at the expense of training for workers in their late 30s (*ibid*).

Figure 14. **Career or job-related training by age, 2000**

Ratio of participation of older workers to younger workers (1)
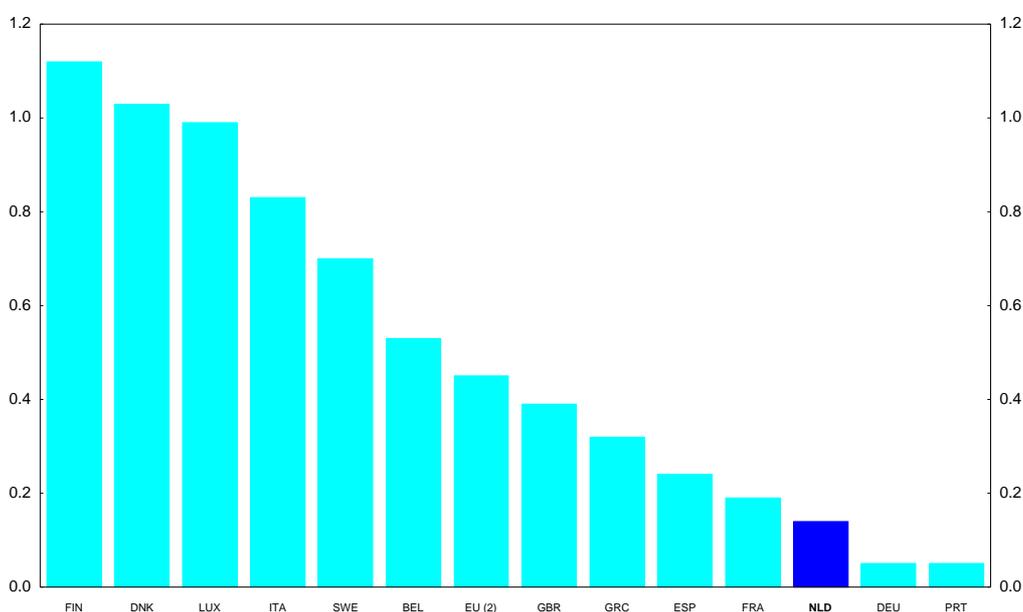
1. Younger is defined as 25-29 and older as 50-54. Training is defined as education or training received for a reason other than general education (at non-tertiary level) or initial vocational training, in the four weeks prior to the labour force survey. The ratio is calculated as [share of older employees in some education]/[share of younger employees in some education]; only employees whose response was some or no education are included in the totals.
2. Calculated using totals for countries in graph.

Source: Eurostat Labour Force Survey.

35.   The government has also taken a series of measures, which take effect in 2002, which should increase demand for older workers by subsidising their employment. This is to be done through cuts in payroll tax and social security contributions for older workers.

Increasing productivity growth

36.   With growth in the working age population slowing to around zero on average over the coming half century, economic growth will mostly depend on labour productivity growth. Increasing productivity growth would help to offset the decline in economic growth caused by the fall in labour supply growth. It could also ease the burden of transferring resources to retirees by facilitating a de-coupling of government

expenditure from GDP growth, as has occurred over the past two decades. Moreover, it could ease pressures on defined benefit pension schemes as it would increase contributions without necessarily raising pensions -- as discussed above, pension fund boards can decide partially or fully to suspend indexation (usually to wages) for a specific period, if necessary. As shown in the OECD Growth Study, this calls for a comprehensive productivity growth strategy -- including facilitating the diffusion of ICT -- based on a combination of actions aimed at strengthening economic and social fundamentals, improving the functioning of markets, fostering innovation, investing more in human capital and stimulating firm creation.

37.   Indeed, action may be necessary just to prevent labour productivity growth from slowing as a result of population ageing. This could occur, for example, owing to the slowing in inflows of young age cohorts with up-to-date skills and a reduction in external labour mobility, which is much lower for older workers than for other workers (OECD, 1997).[44] Greater participation of older workers in continuing education would help to counter both of these effects. Another factor that may weigh on labour productivity growth is that the rate at which education attainment is rising in younger age cohorts has slowed (Table 6, panels A and B). This could be countered by increasing education attainment among future cohorts of young workers, notably at tertiary level, where there is still considerable scope to raise attainment. An important challenge in this regard is raising education attainment of ethnic migrants and their children, which make up the fastest growing group in the Netherlands, towards the levels of the rest of the population.[45]

Lengthening pension contributions and shortening the duration of benefits instead of raising contribution rates

38.   The response to adverse developments for pension schemes in the Netherlands is normally to raise contribution rates. This is precisely what many occupational funds are planning to do in the wake of stock market losses over the past year or so. As noted above, large increases in contribution rates would be required if capital market returns were to be significantly below historical averages and pension boards did not exercise their right to suspend indexation of pension benefits. An alternative approach would be to lengthen the contribution periods required to receive a full pension and raise the pivotal age for calculating such a pension. Such an approach should also be considered for longevity risks. This would involve indexing the official/pivotal retirement age to life expectancy.

Concluding remarks

39.   Population ageing will reduce economic growth and increase transfers of resources (both through the government budget and pension funds) to the retired population. The Netherlands is better placed to

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44.   There is tentative evidence on a cross-country basis that this could reduce MFP growth: low tenure countries tended to enjoy the greatest increases in MFP growth during the 1990s, OECD (2001*a*). Though the causes of this relationship are not yet well understood, it seems likely that a certain degree of mobility is needed to seize new business opportunities This would tend to increase the rate at which resources flow to higher productivity uses, increasing growth in MFP.

45.   The Netherlands is active in seeking to integrate foreigners. All unemployed foreigners (except EU and US citizens) are subject to a 600-hour long training programme to develop their Dutch language skills, their understanding of Dutch culture and geography and their orientation on the Dutch labour market. Although the programme has a high dropout rate and low resulting levels of language skills, it may nevertheless have contributed to the rapid fall in this group' s unemployment rate, from 26 per cent in 1998 to 14 per cent in 2000/01. An evaluation is underway.

meet this challenge than most other countries as it has a large, funded occupational pension system. In addition, fiscal policy already may be on a sustainable path, despite the fact that population-ageing related factors will reduce the primary structural budget balance by 3 per cent of GDP by 2040. However, these projections are highly sensitive to changes in the underlying assumptions, notably concerning pension funds' capital market returns and the current cyclical component of the budget balance. Given this uncertainty and the fact that demographic developments cause expenditures to rise from 2010 onwards, it may be preferable to do some front-loading of debt reduction over the coming decade. On this basis, it could be prudent to aim for a budget surplus of 1¼-1¾ per cent of GDP in the next government period (2003-06).

Table 6. **Education attainment by age group (Panel A)**

Percentage of the population having attained a specific level of education

Panel A	At least upper secondary education[1]				
	25-64	25-34	35-44	45-54	55-64
Australia	56	64	58	52	44
Austria[2]	73	84	78	68	56
Belgium	57	73	61	51	34
Canada	80	87	83	77	65
Czech Republic	85	92	88	84	74
Denmark	78	85	80	78	67
Finland[2]	68	84	78	62	41
France[3]	61	75	63	56	41
Germany	84	88	87	84	76
Greece[2]	44	66	52	36	22
Hungary	63	77	73	65	31
Iceland	55	61	58	55	40
Ireland	51	67	56	41	31
Italy	41	55	50	35	19
Japan	80	93	91	77	57
Korea	65	92	70	45	27
Mexico	21	26	23	16	9
Netherlands	**64**	**74**	**68**	**59**	**50**
New Zealand	73	79	77	69	58
Norway[2]	83	93	88	78	65
Poland	54	62	59	53	37
Portugal	20	29	20	14	12
Spain	33	53	38	23	12
Sweden	76	87	80	73	60
Switzerland	81	88	83	80	71
Turkey	18	24	19	13	7
United Kingdom[3]	60	63	62	58	53
United States	86	88	88	87	80
Country mean	**61**	**72**	**65**	**57**	**44**

1. Excluding ISCED 3C Short programmes. For more information, see OECD (2000), Education at a Glance, Annex 3.
2. Year of reference 1997.
3. Not all ISCED 3 programmes meet minimum requirements for ISCED 3C Long programmes. For more information, see OECD (2000), Education at a glance, Annex 3.

Source: OECD (2000), Education at a Glance.

Table 6. **Education attainment by age group (Panel B)**

Percentage of the population (25-64) having attained a specific level of education

Panel B	At least tertiary education[1]				
	25-64	25-34	35-44	45-54	55-64
Australia	25	28	28	25	17
Austria[1]	11	12	13	10	6
Belgium	25	34	28	22	14
Canada	39	46	39	37	28
Czech Republic	10	10	12	10	8
Denmark	25	27	27	27	19
Finland[1]	29	36	33	27	18
France	21	30	20	18	11
Germany	23	22	26	25	19
Greece[1]	16	22	19	13	8
Hungary	13	14	14	14	10
Iceland	21	24	24	19	11
Ireland	21	29	22	16	11
Italy[1]	9	9	11	9	5
Japan	30	45	40	23	13
Korea	22	34	23	12	8
Mexico	13	17	15	10	5
Netherlands	**24**	**27**	**26**	**23**	**17**
New Zealand	27	26	28	27	23
Norway[1]	26	30	28	24	18
Poland	11	12	10	11	10
Portugal	9	11	9	8	7
Spain	20	32	21	14	8
Sweden	28	31	31	29	20
Switzerland	23	25	25	22	18
Turkey	6	7	7	6	3
United Kingdom	24	26	25	23	17
United States	35	36	36	37	27
Country mean	**21**	**25**	**23**	**19**	**14**

1.   Year of reference 1997.

Source: OECD (2000), Education at a Glance.

40.   Increasing labour force participation of older persons could significantly ease the economic and social problems caused by population ageing. The government has already taken important steps in this regard by reducing incentives to use disability insurance (DI) as a route to early retirement and by encouraging the replacement of early retirement schemes (ER, VUT) with pre-pension arrangements (that put the cost of early retirement on those making the decision). However, much remains to be done. The government could accelerate the move away from ER (VUT) schemes by immediately replacing these schemes with pre-pension arrangements in sectors where it is the employer and by refusing to extend the clauses in collective agreements relating to such schemes to all employees in a sector. In addition, the DI and unemployment (UI) schemes need to be restructured so that older working-age persons cease using

them as *de facto* early retirement schemes. This would entail bringing the duration of (higher) first-stage benefits for older persons more into line with those for the rest of the population and strictly applying qualification criteria (i.e., ensuring that only medically disabled persons flow into the DI scheme and continue to receive benefits and that job search requirements are enforced for UI beneficiaries). These harmful features of the DI scheme will be removed if the (more comprehensive) recommendations of the Donner Commission are implemented. If there are to be more jobs for older workers, they must become more attractive to employers. A key barrier in this regard is seniority-based pay, which remains pervasive despite the trend towards flexible pay in collective agreements in recent years. This makes older workers expensive in relation to their productivity. Ending the legal extension of seniority-based clauses in collective agreements would be a particularly effective means of making older workers more attractive to employers. Greater participation in work-related training would also make older workers more attractive to employers. Older workers may well become more positively disposed to participating in such training as they come to expect to retire later.

41.   Finally, increasing productivity growth could also contribute to coping with population ageing by facilitating the de-coupling of government expenditure from GDP growth. Moreover, it could ease pressures on defined benefit pension schemes as it would increase contributions without necessarily raising pensions -- pension fund boards can partially or fully suspend benefit indexation for a specific period if necessary. This makes it particularly important to continue implementing the comprehensive productivity growth strategy along the lines spelt out in the OECD Growth Study.

ANNEX
RETIREMENT INCOME ARRANGEMENTS

The old age pension

First pillar: the public old age pension (AOW)

The public age pension provides a flat rate benefit to all inhabitants of the Netherlands from age 65. Entitlement to the benefit accumulates at the rate of 2 per cent for each year of residence in the Netherlands between the ages of 15 and 65. For persons who meet this residence requirement in full, the benefit for two persons living together is equal to the net minimum wage (€1 145 per month on 1 January 2001) while a pensioner living alone receives 70 per cent of this amount.[46] The net minimum wage is presently 55 per cent of the average wage and is indexed to average growth in collective labour agreement (CAO) wages. Normally, the age pension is adjusted in line with developments in the minimum wage twice a year. However, the Indexing Conditions Suspension Act (WKA) allows indexation to be suspended for any period of time. This was done in the early 1990s owing to unfavourable economic conditions. Indexation has been fully restored since 1996.

The public old age pension is financed through contributions which are built into the tax system. The contribution rate is 17.9 per cent of taxable earnings (except for earnings in the lowest income tax bracket) up to €27 009 per year (indexed to growth in average wages) and is paid solely by employees and the self employed. The government has set an upper limit on the AOW contribution rate of 18.25 per cent. Consequently, contributions will eventually fall short of pension outlays owing to population ageing. Part of this shortfall will be financed from the AOW savings fund. This fund receives annual deposits from general tax revenues; this amounts to an accounting exercise within the general government sector comparable to that concerning the social security fund in the United States. It is not possible to draw from this fund until 2020. The authorities expect that the financial manoeuvring space afforded by reducing the national debt, combined with increasing tax revenues from pensioners will be sufficient to pay for the AOW, without the need to increase tax rates or AOW-social security contributions.

Second pillar: occupational (or supplementary) pensions

Occupational pensions play a major role in the retirement income system with around 50 per cent of pensioners receiving occupational pension income and 90 per cent of employees participating in such a scheme. Although there is no general statutory obligation for employers to make pension commitments to employees, almost all (98 per cent) do so. A contributing factor to the almost universal nature of these commitments is that individual employers can be obliged to offer such schemes owing to the extension of

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46.   A single parent with an unmarried child under the age of 18 is entitled to 90 per cent of the net minimum wage if they satisfy the residency requirement.

branch (industry-wide) agreements made between the social partners.[47] Once pension commitments have been made, they are subject to the Pension and Savings Fund Act (PSW) which contains safeguards to ensure that they are respected. The most important safeguard is that pension contributions must be placed outside the employer's company. This must be done by concluding an insurance agreement with an insurance company (direct insurance), establishing a company pension fund (a separate legal entity not liable to the debts of the employer[48]) or by joining a branch pension fund.

The normal retirement age in these schemes is 65, as for the AOW pension.[49] Almost all (95 per cent) occupational pension schemes are defined benefit. Most aim to pay an old age pension of 70 per cent of final salary after 40 years of contributions, but a number of schemes, in which 31 per cent of employees participate, aim at 70 per cent of the average career salary. This replacement rate takes into account the AOW pension through an adjustment known as the AOW franchise; in view of this relationship between the two pillars, occupational pensions are also known as supplementary pensions. Until recently, the franchise was usually based on the AOW pension for a couple with one breadwinner, with the result that low income persons, dual income couples and single persons in fact had much lower replacement rates.[50] This was changed in the Pension Covenant of 1997 in which the covenant parties agreed to lower the franchise substantially if it was high. Pensions in payment are indexed to wages (60 per cent of participants), prices (20 per cent) or through other mechanisms (20 per cent), although there is no legal indexing requirement. An unusual feature of these arrangements by international comparison is that there is no upper income limit on mandatory participation: everyone with a complete contributions record gets a pension at age 65 that is 70 per cent of earnings, regardless of how high those earnings were.

Occupational pension payments (4.0 per cent of GDP) are almost as great as AOW outlays (4.3 per cent of GDP). As a large proportion of occupational pension payments go to high income earners, the AOW pension accounts for a much higher proportion (around three-quarters) of the average pensioner's total age pension. Pension fund assets amount to around 115 per cent of GDP in 2000, with around 40 per cent of those assets invested in equities.

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47. When employers' organisations and trade unions together set up a branch pension fund, they may ask the government to impose an obligation on all employers and employees within the branch to participate in the fund. For participation to be declared mandatory, the employers and employees affiliated to it must form an adequate representation of their branch or industry. For employers, this requires that they employ at least 60 per cent of employees in the branch or industry. For the organised employees, no supporting percentage is required. A general condition for an employer to be exempt form participating in a branch scheme is that he must have a similar or better scheme in force for his personnel.

48. In addition, a company pension fund may not invest more than 5 per cent of its assets in the employer's company.

49. Approximately 2 per cent of employees are in schemes with a retirement age of 63 or 64 years and 1 per cent are in schemes with a lower retirement age (OECD, 2000, p.3).

50. Ministry of Social Affairs and Employment (2001, p.17) provides an example which is reproduced here:

- *Case 1.* Single income couple, final salary €31 765, target pension €22 235 (i.e. 70 per cent of €31 765). Assuming the franchise is €14 975, the pensionable salary is €16 790 (i.e. salary - franchise). The supplementary pension will be 70 per cent of €16 790 = €11 753. The AOW pension for a couple €10 482 (= 70 per cent of the franchise) plus the supplementary pension (€11 753) gives a pension of €22 235, which equals 70 per cent of final salary.

- *Case 2.* Dual income partners with the same total income (€31 765). Each partner earns €15 882. Because the franchise is still €14 975, each partner's pensionable salary is only €908 (i.e. salary - franchise) and supplementary pension is only €635. This gives a combined old age pension for the household of €11 753 (AOW of €10 482 plus supplementary pensions of €1 271), which is not even 40 per cent of final salary.

Taxation of occupational pensions is on the basis of exempt-exempt-tax (EET) rules. This implies that there will be a substantial increase in tax receipts when the baby boom generation draws its pensions. To qualify for this tax treatment, pension funds must meet the criteria spelled out in the Pension and Savings Fund Act (PSW) including, notably, a maximum pension accrual rate of 2 per cent of final salary per year. Taxation rules allow accruals of up to 100 per cent of final salary for people who work longer than 35 years or retire later than 60. It also permitted to pay an occupational pension before age 60 provided that there is an actuarial adjustment downwards in the pension.

Third pillar (private provisions)

Individuals can enter into a private pension arrangement with an insurer to top up their old age pension. This can be done by annuity insurance as well as by endowment insurance. Annuity insurance receives the same tax treatment as occupational pensions up to various limits depending on individual circumstances. In particular, contributions are tax deductible provided that they do not result in a total pension-entitlement being built up over 40 years that exceeds 70 per cent of final salary at age 65. Contributions to endowment insurance are not tax deductible but the interest component of the pay out is tax free up to certain limits. In 2000, these were €28 134 after 15 years of premium payments and €95 293 after 20 years of premium payments.

Aggregate income replacement rates

Total disposable income for persons aged 65-74 was around 80 per cent of that for people aged 51-64 in the mid-1990s, as in many other countries (Figure A1). This ratio has fallen somewhat in the Netherlands in the past two decades. Capital is a more important source of income for retired people in the Netherlands than in most other countries (Figure A2).

Early retirement income arrangements

The three main routes to early retirement are voluntary early retirement (ER) schemes, disability insurance (DI) and unemployment insurance (UI). ER (*vervroegd uittreden*, VUT) schemes have been included in collective agreements on terms and conditions of employment since the 1970s. They generally offer gross (net) benefits of around 80 per cent (90 per cent) of last gross (net) earnings to voluntary early retirees. The fact that some 80 per cent of ER recipients retire directly through an ER scheme as soon as they become eligible suggests that these schemes are indeed a very attractive retirement option for the average worker (Kerkhofs *et al.*, 1999). It seems that a rapidly increasing number of individuals meet the age and tenure eligibility conditions for ER from age 58, making it the dominant exit route by age 59 (*ibid*). Presently, around 70 per cent of the private sector labour force[51] and all public sector employees are covered by such schemes. Clearly, the government has played a major role in propagating these schemes, both directly as an employer and indirectly through legal extension to all employees in the relevant industrial sector. A major problem with them has been that, in general, neither party deciding to use them bears any serious financial penalty for doing so. To correct this incentive problem, there has been a move towards early retirement arrangements that are funded and that make actuarial adjustments to benefits that depend on the age of early retirement. The government is encouraging this development by phasing out tax deductibility for ER (VUT) schemes and restricting it to pre-pension schemes that provide for actuarially neutral adjustments to pensions for early or late retirement. Some pre-pension schemes have been integrated with occupational pensions systems so that pension benefits can be drawn at any age above a minimum with the amount varying by the age of exit.

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51. This includes employees in many educational institutions who are nevertheless paid out of central government funds.

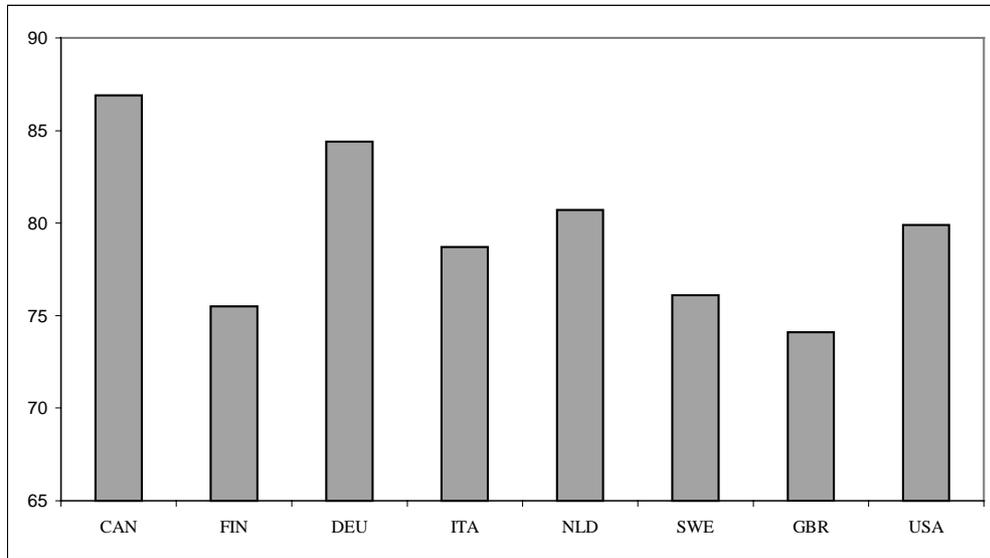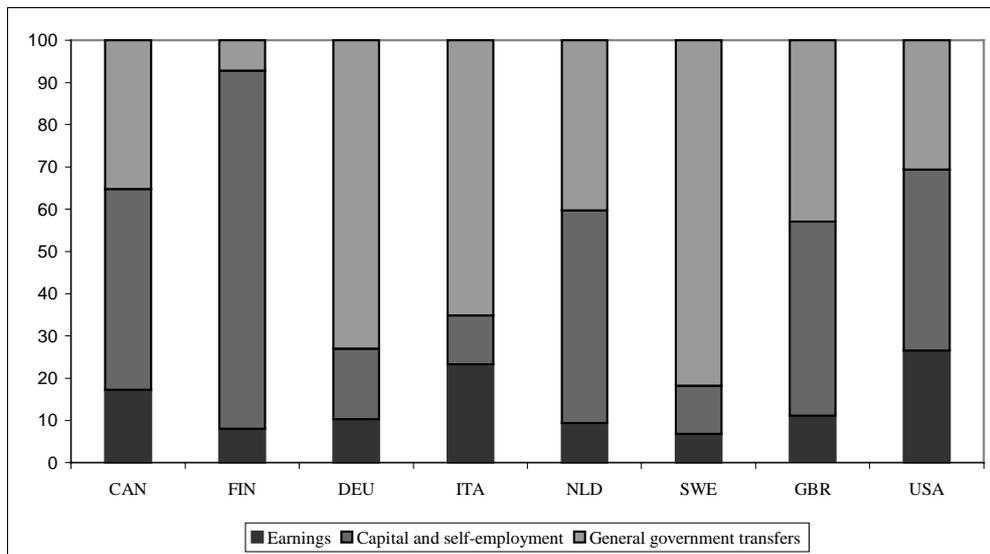**Figure A1. Aggregate replacement rates for persons aged 65-74**[1]

Figure A2. Composition of disposable income of persons aged over 65 years[2]

1. Mean disposable income of people aged 65-74 as a proportion of mean disposable income of people aged 51-64.
2. Disposable income of an individual is the adjusted real disposable income per equivalent household member, allowing for economies of scale in household needs (an equivalence elasticity of 0.5 is used). It is calculated as

[total disposable income of household]/[number of persons in household]$^{0.5}$

Source: Calculations from the OECD questionnaire on distribution of household incomes (1999) presented in OECD (2001), *Ageing and Income: Financial Resources and Retirement in 9 OECD Countries.*

DI provides benefits based on a disabled person's residual earning capacity. Most older disability recipients are declared fully disabled. DI provides a benefit to a fully disabled person of 70 per cent of the last wage (up to a maximum benefit of €35 000) for a period that is positively related to age,[52] after which the benefit declines to a level that is based on the minimum wage.[53] This second stage payment is higher for older persons than for younger persons. Collective agreements generally provide for the topping up of (first-stage) DI benefits to 85 per cent of the last wage.

UI also provides benefits that are 70 per cent of the last wage (up to a maximum benefit of €40 000) and are generally topped up to 85 per cent under collective agreements. Again, benefit duration is effectively related to age, rising to five years after 40 years of employment and to the period remaining until age 65 is reached for persons aged 57½ or over. Unemployed persons aged 57½ or over are exempt from job search requirements, although if a suitable job is offered it must be accepted. After UI rights have been exhausted, unemployed persons may be eligible for social assistance. This second stage benefit is the same flat rate for all age groups.

Pension rights continue to accrue under DI and most ER schemes as though beneficiaries were still working. People who become unemployed over age 40 also continue to accrue pension rights for the period that they receive an income-related benefit.

By age 55-59, the ratio of persons with principal income coming from one of these sources (or some smaller scale schemes[54]) to those with labour income or profits as a principal source rises approximately to one while in the 60-64 age group, the inactive sources of income predominate (Table A1). ER schemes account for most of the increase in the proportion of the population relying on inactive income sources in the older age group. DI is by far the most important of the inactive income sources other than ER: DI benefit claimants comprise 60 per cent of the population aged 55-64 with income principally from an inactive source other than an ER scheme.[55] The proportion of the population

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52.   The duration of first stage DI benefits depends on age, as follows:

Age	Year of first-stage benefits
32 or less	0
33-37	0.5
38-42	1
43-47	1.5
48-52	2
53-57	3
58	6
59-65	6 or less if age 65 is reached sooner

53.   This second stage benefit is determined as follows:

Benefit level = minimum wage + (the age at the moment one became disabled - 15) * 0.02 * (final wage - minimum wage).

The final wage is not really the final wage but the wage the disabled person could have earned if he had not become disabled (it is the median wage taken from a distribution consisting of at least 30 jobs, representing the three best paid functions he could have got).

54.   The schemes other than ER, DI and UI referred to in the first column of Table A1 are social assistance (ABW), income support for older, partially disabled persons who are unemployed and no longer qualify for UI benefits (IOAW), unemployment insurance for civil servants (ABP wachtgeld) and DI for civil servants (ABP disability).

claiming DI benefits rises sharply after age 45, notwithstanding the progress made in the 1990s in reducing benefit claimants aged 45-54, reaching about 20 per cent by age 55-64 (Table A2).

Table A1. **Population aged 55-64 by source of income**

(Per cent of total)

	WW/WAO/ABW/ IOAW/ABP wachtgeld/ABP disability[1]	Early retirement various pre-pensioning schemes	Wages/profits	Other income	No income
Men					
55-59	39	9	48	2	1
60-64	46	38	12	1	2
Women					
55-59	25	4	25	6	41
60-64	27	15	6	9	42

1.   These schemes are as follows:

WW= unemployment insurance; WAO= disability insurance; ABW= social assistance; IOAW= income support for older, partially disabled unemployed persons who no longer qualify for UI benefits; ABP wachtgeld = civil servants' unemployment insurance; ABP disability = civil servants' disability insurance.

Source: Woningbehoefte onderzoek, bewerking SZW.

Table A2. **Disability benefits claimants by age group**

Percentage of population

	1990	1995	1999
25-34	2.5	1.7	2.4
35-44	6.2	4.9	5.1
45-54	13.2	11.5	10.8
55-64	21.4	20.9	20.1
Average	9.2	8.3	8.4

Source: Ministry of Social Affairs, Eurostat.

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55.   Note that the proportion of UI beneficiaries in these age groups is higher than indicated by standardised unemployment statistics because beneficiaries aged 57½ or more are exempt from job search requirements (see below). Accordingly, they are unlikely to be actively searching for a job and hence, included in the unemployment statistics.

LIST OF ACRONYMS

ABP	Insurance schemes for civil servants
ABW	Social Assistance Scheme
AOW	Public age pension
AWBZ	General insurance for long-term and exceptional health expenditures
CPB	Netherlands Bureau for Economic Policy Analysis
DB	Defined benefit pension system
DI	Disability insurance
EET	Exempt-exempt-taxed arrangements
ER	Voluntary early retirement schemes
GDP	Gross domestic product
ICT	Information and Communication Technology
ILO	International Labour Organisation
MFP	Multi-factor productivity
OECD	Organisation for Economic Co-operation and Development
PAYG	Pay-as-you-go basis
PSW	Pension and Savings Fund Act
SN	Statistics Netherlands
UI	Unemployment insurance
VUT	Pay-as-you-go voluntary early retirement schemes
WAO	Disability insurance
WTZ	Standard private health insurance package for persons aged 65 and over
ZFW	Sickness Fund Act

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