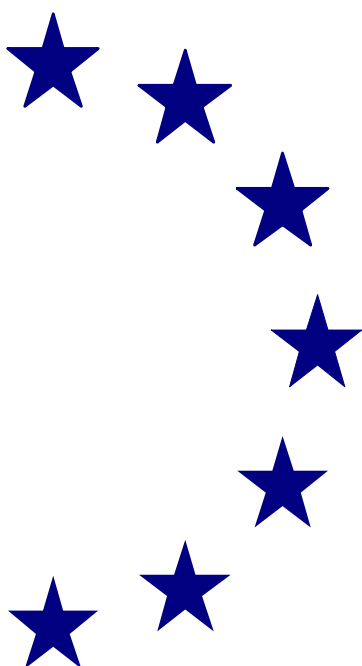


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**Country Study: Denmark – Making
work pay, getting more people into
work**

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Editorial

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DENMARK - Making work pay, getting more people into work

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Abbreviations:

ADAM	Annual Danish Aggregate Model
APW	Average Production Worker Wage
BEPG	Broad Economic Policy Guidelines
CAPB	Cyclically Adjusted Primary Balance
DKK	Danish crown
DREAM	Danish Rational Economic Agents Model
EITC	Earned-Income Tax Credit
EPL	Employment Protection Legislation
ERM II	Exchange Rate Mechanism (after the introduction of the euro)
HICP	Harmonised Index of Consumer Prices
MCI	Monetary Conditions Index
MPIT	Marginal Personal Income Tax Rate
NAWRU	Non-Accelerating-Wage-Rate of Unemployment
REER	Real Effective Exchange Rate
RIR	Real Interest Rate
VERB	Voluntary Early Retirement Benefit Scheme

Summary and main conclusions

Denmark's economic fundamentals are sound overall. In the past ten years, its average GDP growth and output gaps have been similar to the euro area's, with annual GDP growth averaging around 2%. After the downturn in 2003, GDP growth should return to around 2¼% in 2004, close to the rate commonly thought to be sustainable over the medium term. After rising for two years - albeit from a low level - unemployment should decline as employment growth gains momentum with the recovery. The current account and the general government finances have posted successive surpluses in recent years.

The well-developed Danish welfare system is sustained by tax and public expenditure ratios which are among the highest in the EU. The financing of these public sector commitments depends critically on maintaining a broad tax base, which requires a high employment rate. Like many countries, however, Denmark faces the longer-term challenge of population ageing. The working-age population is set to fall and the old-age dependency ratio will rise considerably after 2010, putting pressure on public finances. In order to sustain potential growth and to cope with increased public expenditure relating to the ageing of the population, it is necessary for Denmark to ensure a labour supply compatible with fiscal sustainability. This is the main challenge that underpins the recommendations for Denmark in the 2003-05 Broad Economic Policy Guidelines.

This study focuses specifically on Denmark's policy options to expand the already high labour supply. The country's starting point in this respect is relatively favourable. The projected increase in old-age related public expenditure is not among the highest in Europe, in part due to the large private-sector share of occupational pensions. Moreover, a high degree of awareness of the issues related to the effects of ageing has been raised and the government is pursuing a medium-term strategy to address this challenge. High general government surpluses have thus been maintained over a number of years, including during the recent economic downturn, and the government debt ratio is being reduced. However, the negative effects of the ageing population on the economy's potential should not be underestimated.

The Danish medium-term strategy for addressing these challenges is enshrined in the "2010 Plan", launched in 2001. Under this plan, substantial fiscal savings have been programmed to relieve the burden on the generations which will be in work when the dependency ratio increases. The strategy is based on maintaining the present welfare system while finding room to reduce the tax burden. The fiscal targets are, on the whole, being met. Compliance with the targets for real public consumption growth is important as expenditure restraint creates fiscal leeway for the 2004 tax reform. The lower growth of public consumption in 2003 can be seen as encouraging. In view of past trends, however, the targets for the coming years remain challenging.

The medium-term fiscal projections set out in the 2010 Plan assume increases in employment through future reforms which, however, remain unspecified. With the 2005 mid-point of the Plan's time frame to 2010 approaching, the picture is thus less encouraging in this regard. The recent labour market and tax reforms are in line with the recommendations in the Broad Economic Policy Guidelines, but, as the Danish authorities recognise, further measures are needed.

Average annual hours worked per person had long been on a falling trend, and contractual working hours have continued to fall. Nevertheless, in the last decade average annual hours have stabilised and even increased slightly, though the level remains lower than in the EU-15. In this context, by attempting to mitigate the negative impact of high taxation on labour supply, the

recent tax reform goes in the right direction. Even after the tax reform, however, the highest marginal tax rate remains at 63% and still applies to some 40% of full-time workers. Several studies suggest that targeting the top tax bracket would generate a stronger labour supply response, but would also have the largest effects on income distribution. The earned-income tax credit (EITC) in the tax reform should increase incentives to enter or stay in the labour market, primarily for low wage earners. The measure is, however, modest in scale and thus limited in its expected impact. Yet, as the EITC benefits all employed persons and not only those on low wages, it is relatively costly in terms of lost fiscal revenues. The income tax cuts are not self-financing and their effect on the sustainability of public finances needs to be assessed carefully. Further tax cuts reducing the taxation of labour should be accompanied by expenditure cuts.

Unemployment benefits for low wage earners are among the highest in Europe. They amount to 90% of wages (up to a ceiling that is set at about 70% of the average wage), which means that there are weak financial incentives to enter or stay in the labour market. The maximum duration of unemployment benefits of four years is also long by international standards. Maintaining high benefit levels for reasons of equity requires strict rules on eligibility and measures to encourage those on benefits to return to work, and these have indeed been tightened in successive labour market reforms. Eligibility rules are now quite strict and this partly counterbalances the generosity of unemployment benefits. The level of benefits should also be seen in the context of Denmark's relatively light employment protection legislation, with hiring and firing rules among the least restrictive in the EU. However, the long duration of unemployment benefits has weakened the effectiveness of active labour market policies. Although back-to-work measures are generally activated after one year's unemployment, the remaining entitlement to unemployment benefits has provided an easy return to benefit reciprocity and often resulted only in short employment periods. To make further inroads into structural unemployment and to raise labour supply, creating stronger work incentives in the form of a reduced unemployment benefit period or a gradual lowering of the benefits after a certain period of unemployment should be considered.

Although overall labour market participation is high in Denmark, the over-60s constitute a significant potential source for increased labour supply. The plummeting of the participation rate around that age in Denmark has been largely due to the voluntary early retirement benefit (VERB) scheme. This scheme has clearly outlived its original purpose of allowing older workers to retire earlier from the labour market while benefiting from a strongly publicly subsidised allowance.

The 1999 reform of the VERB scheme was a step in the right direction as the incentives to postpone the take-up of the benefit are reducing the number of 60- and 61-year-olds entering the scheme. However, the reform was limited and somewhat piecemeal and the scheme remains a long way from being actuarially fair, with contributions covering only 20-25 percent of the future benefits. The scheme thus continues to strongly subsidise early retirement, distorting the basis on which individuals make decisions about their future economic situation. In addition, the 1999 reform lowered the retirement age from 67 to 65 years, which gives the wrong signal if the intention is to raise labour supply. Even after the reform, the VERB scheme continues to drain the labour market of a large number of workers aged between 60 and 64; in 2003 there were more than 180,000 recipients of the VERB, close to half of this age group.

Older workers who are eligible to enter the VERB scheme make up the largest potential resource for raising labour market participation in Denmark and the scheme therefore constitutes a major obstacle to the realisation of the country's employment objectives. It also burdens public finances

through direct costs to the state of around 1¼% of GDP (2003) as well as through lost tax revenues. It would therefore appear that the scheme needs further reform if the longer-term challenges of securing the financing of Denmark's welfare commitments are to be seriously addressed.

Introduction

Denmark's economic fundamentals are currently sound and public finances are among the strongest in the EU. However, as in many other industrialised countries, Denmark faces the challenge of addressing the consequences of a projected decline in the work force as the population ages. On current demographic projections, the negative consequences of ageing are estimated to become significant already after 2010. Over the longer term, a shortfall in the labour force would affect the economy's production potential, with important implications for the old-age dependency ratio, employment and public finances.

Against this background, the Danish authorities are actively pursuing policies to address the challenge of ageing. A key challenge is linked to the financing of the welfare state. In the framework of the medium-term fiscal strategy, measures are being taken to ensure the future financing basis of welfare-related public sector commitments in the longer run. The policy response includes, in addition to running substantial general government surpluses in the next several years, policies to expand the labour supply. To this end, the Danish authorities have recently implemented reforms of the tax and benefit system, all geared towards a strengthening of the financial incentives to work. However, while the need for further measures in this field is recognised and the so-called Welfare Commission (see chapter 2) has been set up with the task of making proposals on issues related to the future financing of the welfare state, the content and direction of further reforms have not been spelt out in any detail.

On this basis, this Country Study discusses the policy challenge of expanding the labour supply in Denmark and options for policy. Building on the recommendations to Denmark in the 2003-05 Broad Economic Policy Guidelines related to labour supply, the focus of the study is on strengthening of the financial incentives to work. It is acknowledged that a better integration of immigrants in the Danish labour market could contribute importantly to increasing labour supply. However, analysis of this aspect is for further development and not pursued in this study. After setting the scene by presenting a brief overview of macroeconomic developments and policy adjustments (chapter 1), the study discusses efforts to expand the labour supply (chapter 2). First, it broadly describes labour supply trends and presents the challenge coming from the ageing of the population. Secondly, it assesses the scope for enhancing labour supply through tax policy and the benefit system. Finally, the study deals with the voluntary early retirement scheme and it assesses the impact of this scheme on the labour market participation of older workers.

1. Macroeconomic developments and policy adjustments

1.1. Main macroeconomic developments – an overview

In the past ten years, average GDP growth and output gaps have been similar to the euro area's, with annual GDP growth averaging some 2%. The employment rate is high and unemployment is relatively low. The current account has posted successive surpluses in recent years and public finances are strong: the fiscal deficits up to the early 1990s have turned into successive general government surpluses in recent years, which have reduced the debt ratio considerably. An overview of main macroeconomic developments is given in Table 1.

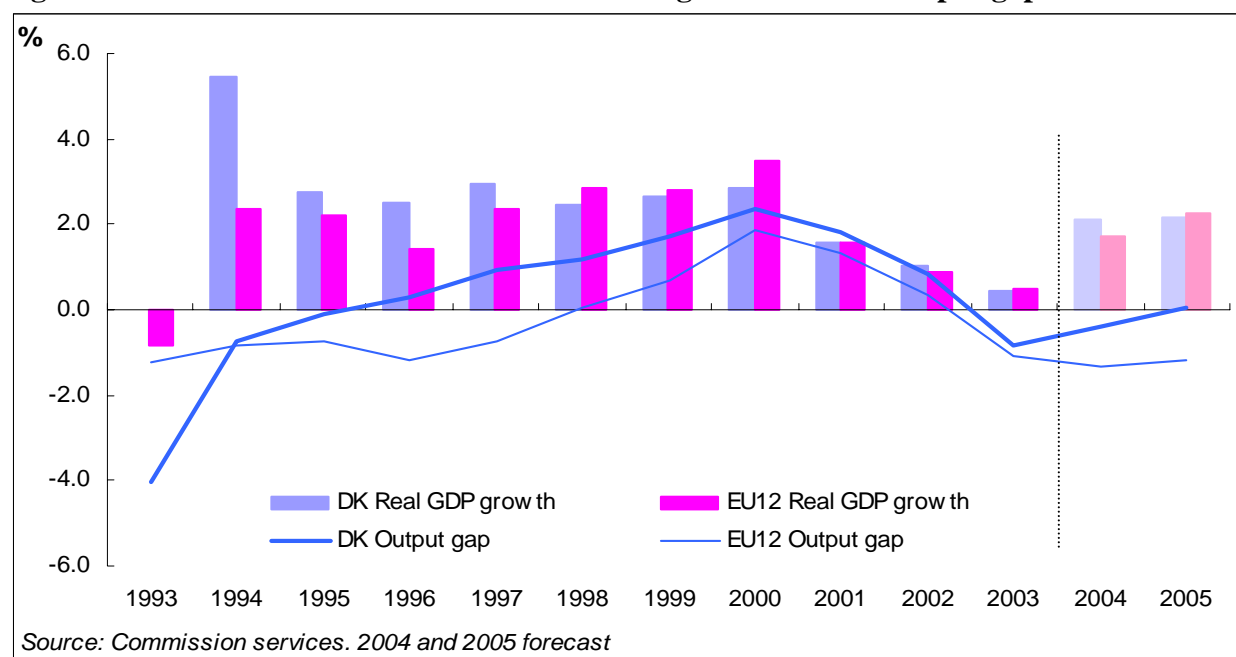
Table 1: Main macroeconomic developments, 1980-2003

	1980-89	1990-94	1995-99	2000	2001	2002	2003
GDP growth, annual % change	1.4	1.6	2.7	2.8	1.6	1.0	0.4
CPI, annual % change	6.9	2.1	2.2	2.9	2.4	2.3	2.1
Unemployment rate, % of the labour force	6.7	8.2	5.6	4.4	4.3	4.6	5.6
Employment rate, % of the working age population	76.8	75.0	75.9	78.2	78.3	77.9	77.0
Current account, % of GDP	-3.2	1.6	0.7	1.5	3.1	2.0	3.0
Budget balance, % of GDP	-2.1	-2.2	0.3	2.5	3.1	1.5	1.3
Gross debt, % of GDP	n.a.	n.a.	63.2	50.1	47.8	47.2	44.8

Source: Commission services (AMECO)

The slowdown of *GDP growth* in 2002 and, in particular, in 2003, was due to weak developments of investments and exports. Led by private consumption, which is set to grow vigorously on the back of real disposable incomes boosted by tax reductions, the economy is recovering in 2004. On this basis, the Commission spring 2004 forecast foresees a GDP growth of just above 2% in 2004, close to the rate commonly thought to be sustainable over the medium term.

Figure 1: Denmark and the euro area. Real GDP growth and the output gap

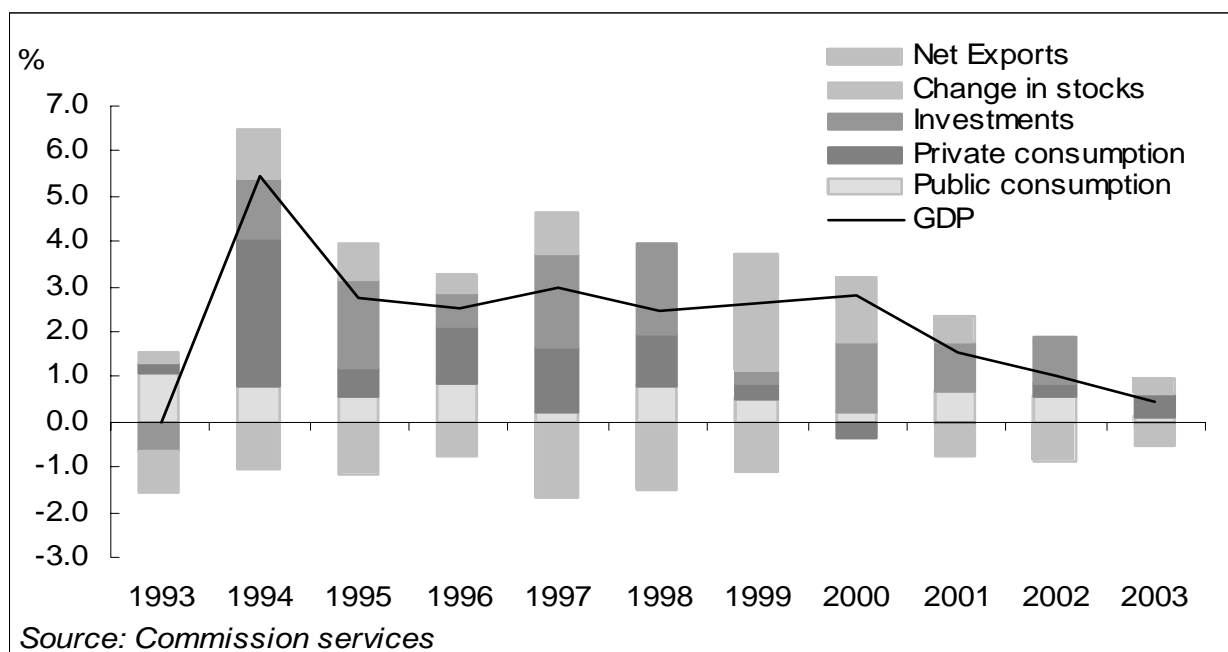


Over the last decades, the *composition of GDP growth* has varied substantially. There have been two main episodes of overheating with weakening of the current account, around 1986 and 1998. The savings-augmenting policies put in place to address the imbalances led to subdued domestic demand and GDP growth, in particular in 1987-1992. However, the external imbalance was corrected and the current account has posted surpluses since 1989 (with the exception of 1998). In the period up to 1998, private consumption and investments expanded strongly, while the contribution of net export to growth was negative. As a consequence of the so-called Whitsun package (see p. 13 below), GDP growth was mainly driven by net exports and investments, while private consumption has been subdued. Business *investment* expanded strongly through the

1990s, in particular in 1997 and 1998, in the context of a strong growth of domestic demand, and the investment-to-GDP ratio exceeded 20% in 2000. Changes in the investment ratio are well correlated with the output gap, which could explain the weakness of investment in 2003.

Due to their composition, *exports* tend to be relatively insensitive to the international business cycle, and thus to support economic activity in downturns¹. The recent fall of the dollar *vis-à-vis* the euro and the ensuing effective appreciation of the *krone*, however, have put pressure on competitiveness and thus on exports. Along with weak demand in the euro area, this has contributed to the limited growth contribution from net exports in 2002 and 2003 (Figure 2).

Figure 2: GDP growth, 1993-2003: contribution of the components



The situation on the *labour market* has improved markedly since the early 1990s, with unemployment falling from a peak of nearly 10% to some 4½% in 2002. This development is due to cyclical improvement as well as to improved labour market institutions, which have led to a fall in structural unemployment². In the 2002-2003 slowdown, employment fell more than in the euro area, which can be linked to the fact that the Danish labour market is characterised by a high degree of flexibility in hiring and firing rules. However, the unemployment rate, which rose to 5½% in 2003, remains comparatively low and has stabilised in early 2004.

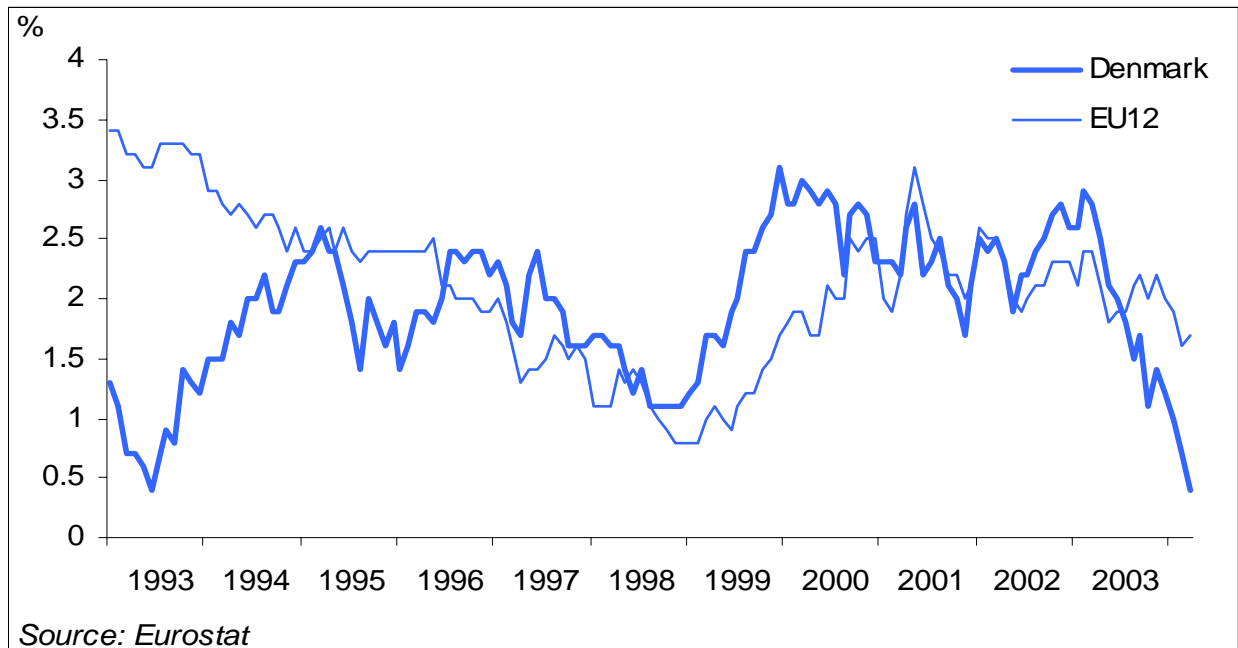
Over the last decade, *consumer price inflation* has averaged 2%. Inflation differentials vis-à-vis the euro area have generally reflected differences in resource utilisation. In the late 1990s, when there was a larger positive output gap in Denmark, inflation was accordingly higher. In 2003, the average HICP inflation in Denmark was 2%, similar to the euro area. In late 2003, consumer price inflation decelerated markedly and in the beginning of 2004 annual inflation was at below

¹ An important part of Danish exports are made up of pharmaceutical and agricultural products, as well as wind turbines, which tend to be income inelastic and thus less sensitive to business cycle fluctuations.

² Successive labour market reform measures have lowered the structural unemployment rate. In the period 1993-2003, structural unemployment, defined as the NAWRU (Non-Accelerating-Wage-Rate of Unemployment), is estimated to have decreased from 7% to some 5¼% (AMECO, Commission services).

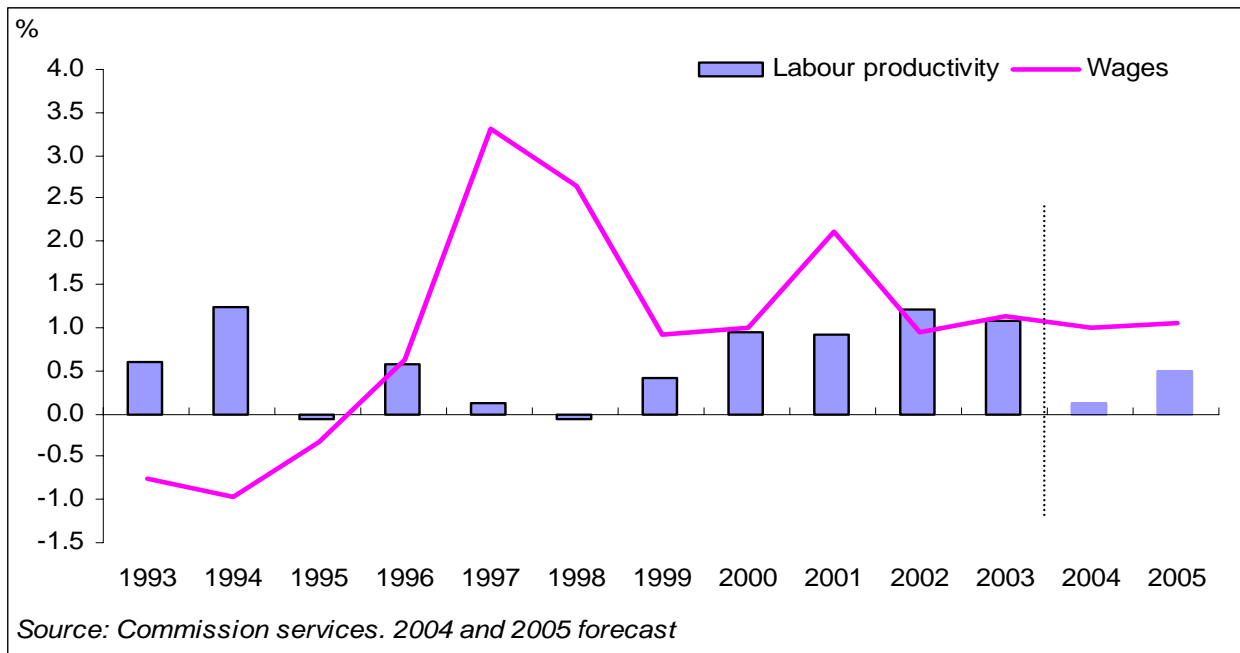
1%, lower than in the euro area. In addition to falling import and energy prices, this development has been due to the reduction of excise duties on several items in late 2003.

Figure 3: HICP inflation in Denmark and the euro area



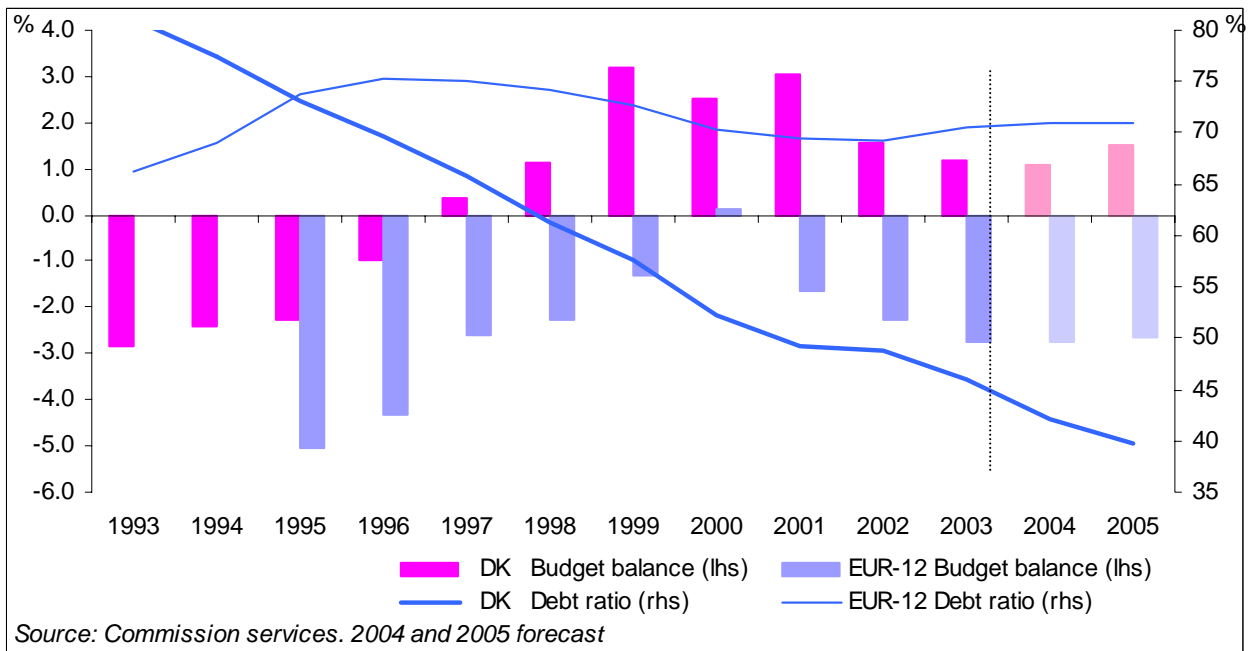
Since the mid 1990s, *wages* have been growing faster than in the euro area. The line in Figure 4 represents the differential between wage growth in Denmark and in the euro area. The period 1997-1998 saw substantially higher wage increases than in the euro area, which were not offset by positive labour productivity differentials. This period coincides with a deteriorating external balance of Denmark. Since 1999 the higher wage increases have been matched by a corresponding positive labour productivity differential vis-à-vis the euro area and unit labour cost growth has been fairly similar. The three-year central framework agreement of early 2004 implies an annual contractual growth in labour costs of some 3¼%.

Figure 4: Differential between Denmark and the euro area in labour productivity growth and wage increases



Government finances are among the strongest in the EU. The general government finances have shown surpluses since 1997 and central government since 1998. Counties and municipalities are required to balance their budgets³. In spite of the modest GDP growth in 2003, the general government surplus was 1.3% of GDP⁴. As a result of successive general government surpluses, the gross debt ratio has been steadily reduced and stood at 45.9% of GDP in 2003.

Figure 5: Budget balance and gross debt as a % of GDP



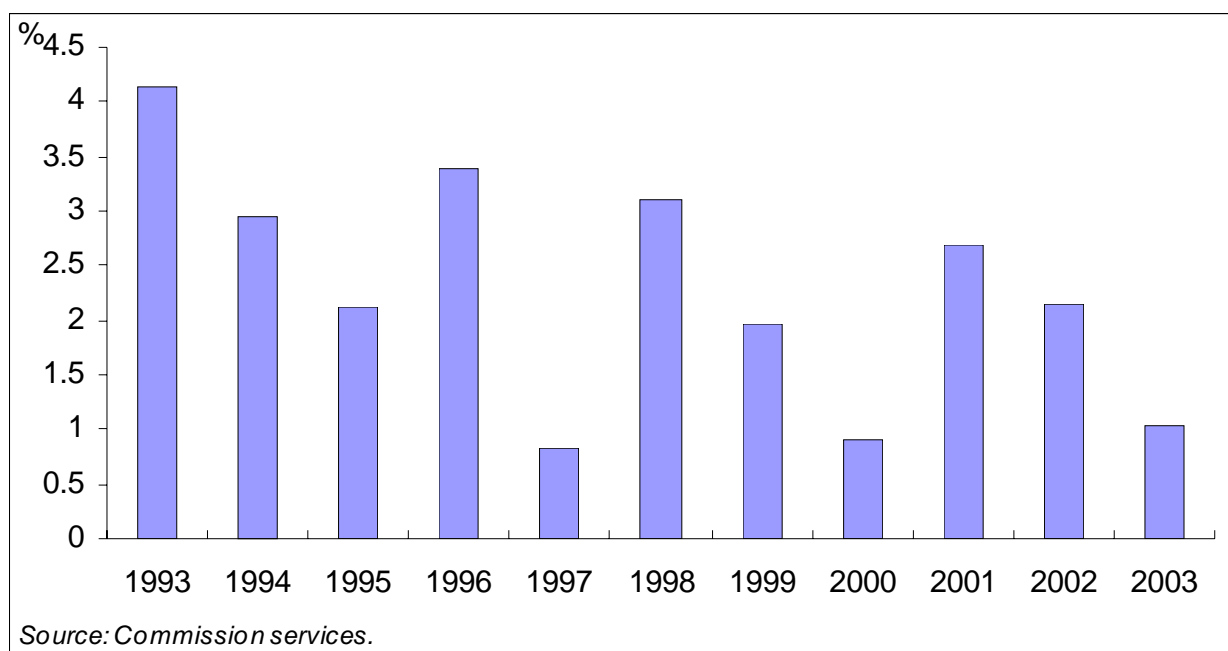
³ In individual years there may be positive or negative changes in local governments' liquid funds.

⁴ This was due to increasing revenues from taxes which are less correlated to the business cycle, such as the pension fund yield tax, and also to high revenues from corporate taxes.

The general government surpluses targeted for the coming years include fiscal leeway for the 2004 tax reform (see chapter 2), mainly through a projected lower growth of public consumption. To this end, strict targets for public consumption growth in real terms have been set⁵. These national targets are reflected in the recommendation in the Broad Economic Policy Guidelines (BEPG), which states that Denmark should “ensure expenditure control at all levels of government so that the multi-annual targets for real public consumption growth are respected”.

Around two thirds of public consumption in Denmark is accounted for by municipalities and counties, with fully autonomous taxing powers. The instruments in the hands of the central government for enforcing expenditure control of local government spending are the yearly budget agreements, the tax freeze⁶ (see box 1, chapter 2) and the requirement that local governments do not run budget deficits. Achieving the targets for public expenditure restraint is important for the fiscal targets, in general, and in particular for the credibility of the strategy of lowering income taxes and thus the objective of raising labour supply. Compliance with the agreements between government levels seems to have improved since 2002. Over the last decade, however, the average growth of public consumption in real terms has been more than 2%. In 2002, the outcome was 2.1% and in 2003 1.0%. This was thus above the target for the two years (an average growth of 1% for the two years). In the light of past trends the target for the coming years is ambitious, but the lower growth of public consumption in 2003 could indicate that the present instruments are contributing to a more effective control of local government expenditure.

Figure 6: Public consumption growth in real terms (annual % change)



⁵ After a target of 1% per year on average for 2002 and 2003, a growth of 0.7% is foreseen in 2004 and for 2005-2010 the target is ½% per year.

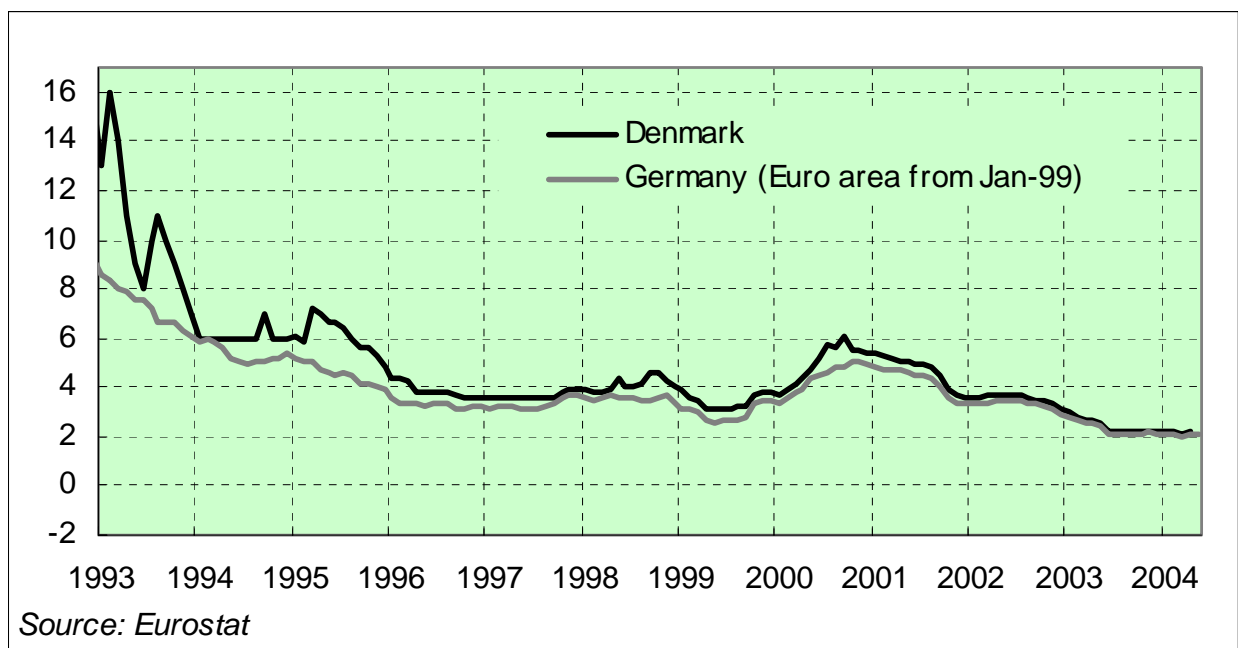
⁶ The sanction mechanism connected to the tax freeze implies that excess revenue from a higher average tax rate at the county or municipality level will be neutralised by an adjustment of central government grants at the local government level where the tax freeze has been breached.

1.2. Macroeconomic policy adjustments in recent years

Denmark's macroeconomic policies are anchored in a medium-term stability-oriented framework. Monetary policy is centred round exchange rate stability through a commitment to a stable exchange rate against the euro. Fiscal policy is mainly medium-term oriented, aimed at substantially reducing current and future government liabilities through maintaining high general government surpluses.

In monetary and exchange-rate policy, Denmark has a long-standing and firmly established credible policy of maintaining a fixed exchange rate in the framework of the Exchange Rate Mechanism (ERM II) with a narrow fluctuation band of $\pm 2.25\%$ (to the euro since its inception, previously to the German mark). Deviations in the exchange rate of the *kroner* from the central parity have been much smaller than the official band width and the short-term interest rate differential to the euro area has been low. As a result, the monetary policy framework continues to be credible and to provide for low differentials relative to euro area markets in long-term bond yields. With a firm exchange rate peg, as a *de facto* member of the euro area, Denmark does not, however, in practice dispose of independent monetary policy instruments. As a consequence, short-term interest rates are largely determined by the monetary policy of the ECB⁷.

Figure 7: Nominal short-term interest rates – Denmark vs. Germany



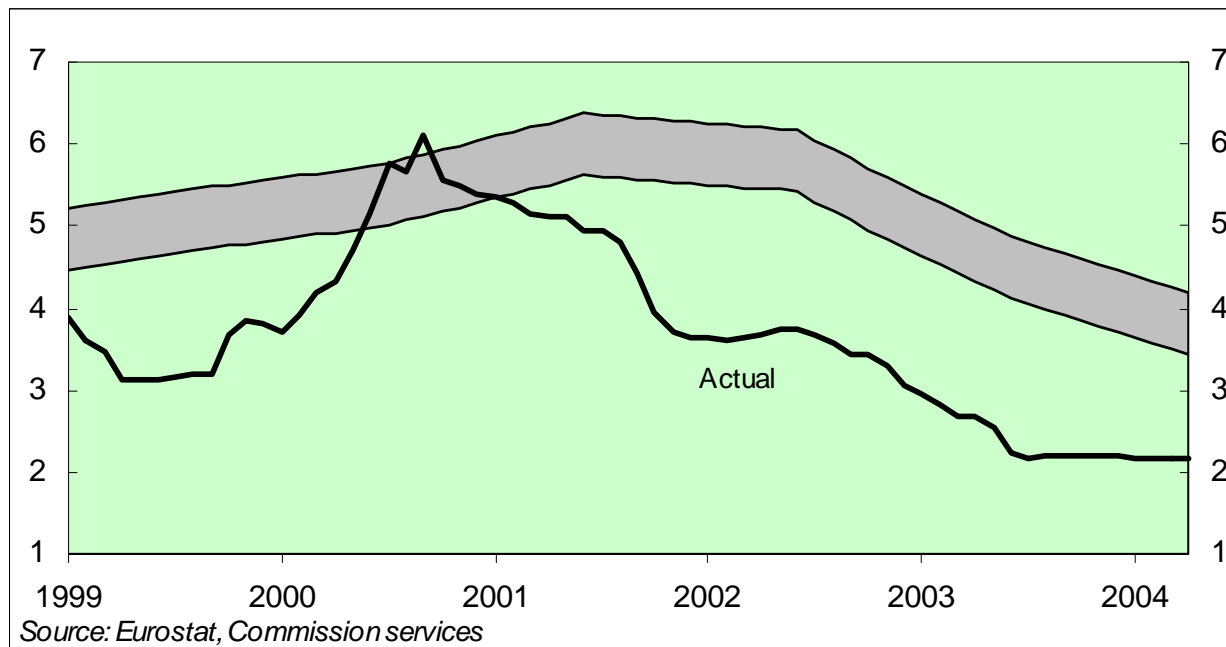
As can be seen from Figure 7, the Danish economy has experienced episodes in recent decades when cyclical developments have differed somewhat from those in other euro area countries⁸. The monetary policy was not able, in this framework, to respond fully to economic developments, producing sometimes inappropriate monetary conditions. In concrete terms, this can be examined by reference to the interest rate applicable by the implementation of a "Taylor

⁷ Calmfors (2002) argues that Denmark in practice already joined the EMU - without a seat in the ECB Governing Council.

⁸ See figure 1 for a comparison of GDP developments in the euro area and Denmark.

rule"⁹, which implies that interest rates are raised if either inflation or the output gap rises above “equilibrium” levels. Figure 8 shows that in the last five-year period, the short-term nominal interest rates have most of the time been lower than the ones implied by the Taylor rule¹⁰, indicating an expansionary stance of monetary policy.

Figure 8: Denmark – short-term interest rate: actual and implied by the Taylor rule

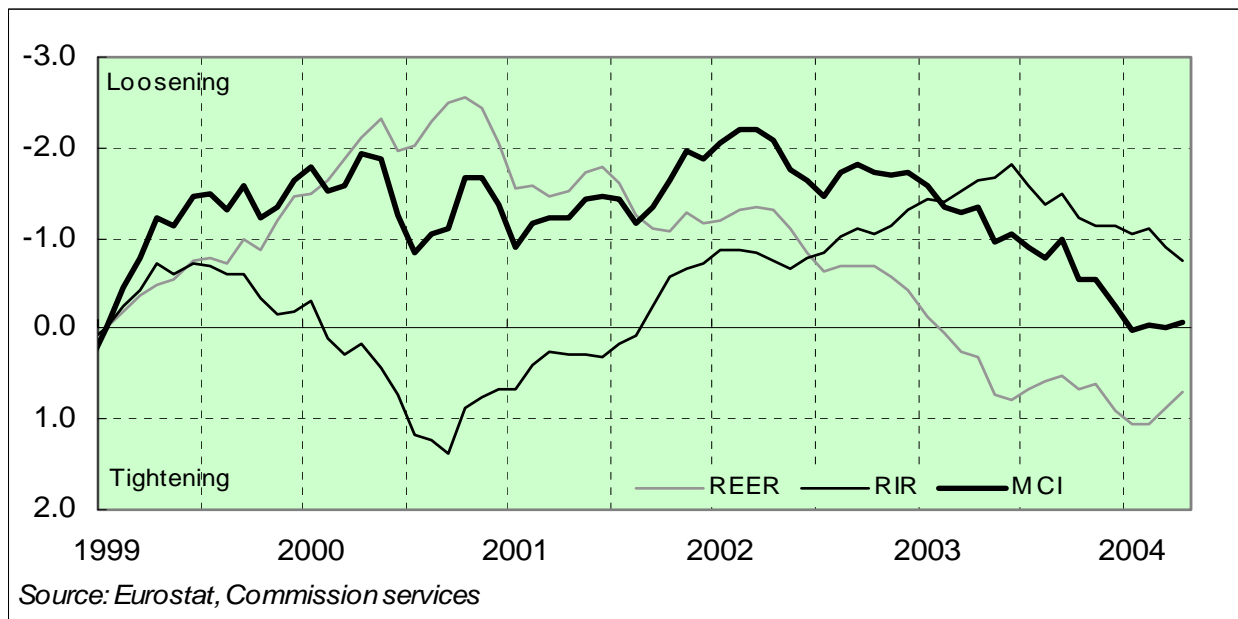


Another indicator of monetary conditions is the monetary conditions index (MCI), which, contrary to the Taylor rule, also takes account of the exchange rate. While the Taylor rule attempts to capture the stance of monetary policy, the MCI provides a measure of the change over time. More precisely, the MCI provides an indicator of the changes in the short-term real interest rate (RIR) and in the real effective exchange rate (REER) in a single variable. From Figure 9 it can be seen that in relation to the situation in 1999, monetary conditions were eased until the last quarter of 2001 a period which saw positive output gaps. As from 2002, the overall monetary conditions were tightened, mainly as a result of the appreciation of the euro (and consequently of the *krone*).

⁹ The Taylor rule stipulates how much the monetary authority should change the interest rate in response to output gap developments (i.e. divergences of actual GDP from potential GDP) and divergences of actual from a target (or “optimal”) rate of inflation (see Taylor, 1993).

¹⁰ In recent years, this also been the case for the euro area.

Figure 9: Denmark – MCI and its components



Given the present monetary policy framework, the role of countering asymmetric shocks and diverging cyclical conditions in relation to the euro area is broadly assigned to fiscal policy. While the overriding role of fiscal policy is to contribute to macroeconomic stability and long-term fiscal sustainability, through the maintenance of sound public finances, fiscal smoothing has a key role in the short run stabilisation of the economy. The cyclical budget sensitivity of government spending (mainly unemployment benefits) or taxes in Denmark, measured as the semi-elasticity of government revenues and expenditure with respect to changes in GDP growth, is the highest in the EU (Table 2) and this correspondingly affects spending through its impact on disposable income and hence household consumption.

Table 2: Budget sensitivities

	Sensitivities		
	Revenues	Expenditures	Total budget sensitivity
Belgium	0.50	-0.12	0.62
Denmark	0.54	-0.24	0.77
Germany	0.44	-0.04	0.48
Greece	0.42	0.00	0.42
Spain	0.37	-0.03	0.40
France	0.32	-0.09	0.41
Ireland	0.24	-0.08	0.32
Italy	0.40	-0.04	0.44
Luxembourg	0.42	-0.18	0.60
Netherlands	0.37	-0.27	0.64
Austria	0.29	0.00	0.29
Portugal	0.31	-0.04	0.35
Finland	0.49	-0.17	0.66
Sweden	0.53	-0.15	0.68
United Kingdom	0.41	-0.07	0.49

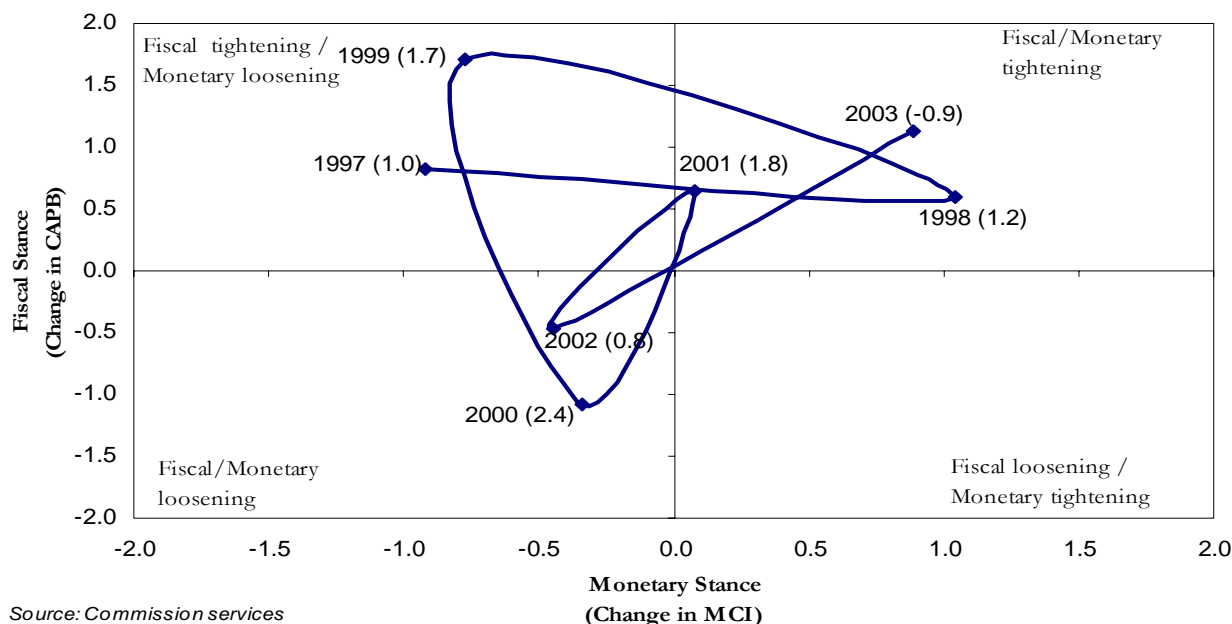
Source: Commission services, OECD.

Note: Budget sensitivities computed on data covering 1985-2000

In this way, the effects of a shock on output and employment can be dampened. The overall cyclical smoothing depends not only on the size of the sensitivity of the budget to changes in output, but also on the short-term fiscal multipliers. According to Brunila et al. (2003) the average degree of smoothing of GDP provided by automatic stabilisers is modest in the EU countries, including in Denmark. However, the sound fiscal balances in Denmark have provided margins for the automatic stabilisers to play fully. According to OECD estimates, output volatility during the 1990s would have been twice as high without the automatic stabilisers (OECD, 1999; van den Noord, 2002).

The combination of the monetary and the fiscal stance in recent years, the policy mix, is illustrated in Figure 10, where the fiscal stance is measured as the change in the cyclically adjusted primary balance (CAPB). In 1997, expansionary monetary conditions, and the inadequacy of fiscal stabilisation contributed to the overheating of the economy. The measures taken to counter that overheating were contained in the “Whitsun package”¹¹. In this context, fiscal policy was tightened in both 1998 and 1999, against the background of a widening positive output gap. The monetary conditions facing Denmark in this period were a tightening in 1998 and a substantial loosening in 1999. Following the “Whitsun” measures, macroeconomic developments returned to a more balanced path and fiscal policy was primarily geared to medium-term objectives (chapter 2). The automatic stabilisers cushioned household incomes and economic activity in the slowdown in 2003, a year in which monetary conditions were also tightened¹². In the light of the weak growth, the 2004 budget was expansionary through income tax cuts. On top of this, the March 2004 fiscal package provided additional stimulus, by fully implementing the tax reform in 2004, instead of through 2007, and by temporarily suspending the obligatory pension savings scheme which was introduced in 1998.

Figure 10: The fiscal and monetary stance



Source: Commission services

Note: The figures in parenthesis are the estimated output gaps.

¹¹ Adopted in mid-1998, this package aimed at dampening activity in the short term and improving savings incentives and resource allocation over the medium term.

¹² However, the increase in the cyclically adjusted primary balance in 2003 was not the result of fiscal policy being discretionarily tightened, but rather the effect of high revenues from i.e. corporate taxes.

In addition to monetary and fiscal policy, the effects of a shock on output and employment can be addressed through wage adjustments and other forms of labour market flexibility. A successful wage formation system can provide both aggregate wage flexibility, ensuring that real wages are sufficiently sensitive to changes in the unemployment rate, and also relative wage flexibility, ensuring that real wages appropriately reflect underlying productivity. Wage flexibility is crucial to the ability of an economy to adjust to shocks (OECD, 1995). The institutional setting of wage negotiations has shifted towards less centralised bargaining structures over the last two decades (Calmfors, 2000). Given the high levels of bargaining centralisation in the past, this shift has been more pronounced in Denmark than in other EU countries. The process of decentralisation of wage bargaining has been largely motivated by increasing international integration and technological changes requiring more flexibility and adaptation to local or sector-specific conditions, which could hardly be achieved in the centralised system. Formal job protection rules in Denmark are comparatively weak, leading to higher flexibility in hiring and firing. In combination with a decentralised wage formation structures, this increases the sensitivity to local conditions in the setting of wages.

Summing up, in the absence of an independent monetary policy, countering asymmetric shocks and diverging cyclical conditions in Denmark is chiefly assigned to fiscal policy, but the flexibility of the labour market - in terms of i.e. employment protection legislation – also contributes to the adjustment capacity of the economy. Fiscal stabilisation is mainly achieved through automatic stabilisers, but discretionary fiscal policy remains a tool in use, as evidenced by the 2004 budget and the March 2004 fiscal package. In this context, measures targeted at household savings have on several occasions played an important role in stabilising the economy. Fiscal policy is, however, primarily geared towards medium- and long-term fiscal sustainability, by generating substantial fiscal surpluses. In addition, to sustain potential growth rates and to secure the tax base necessary for maintaining present public services, an increase in the labour supply will be necessary in view of the projected demographic developments. This challenge is the topic of the following chapter.

2. Special topic: Making work efforts pay, making more people work

2.1. Introduction

Like in most industrialised countries, the projected ageing of the population in Denmark is leading to a substantial increase in the number of retirees and to a shrinking working-age population, which constrains the future labour supply and risks slowing down economic growth. Based on present demographic projections, the consequences of this development are likely to become significant around 2010. Over the longer term, the ratio of persons aged over 64 years for each 100 persons in working age is set to increase from 25 in 1995 to 42 in 2040.

If the share of employed declines (due to e.g. the ageing of the population or increases in 'inactivity' of the working age population), the economic impact on public finances come both via tax revenues and public expenditure. Expenditure will increase due to a higher number of dependant persons. Tax revenues risk falling if the contribution base (i.e. the wage sum, taxable transfer payments etc.) falls as a consequence of decreased employment. Such an increased pressure on public finances can be addressed by increasing the output potential of the economy and thus of the potential tax base. However, increased productivity per se does not solve the problem in Denmark as most public expenditure (consumption and transfers) are linked to the developments of private sector wages. Alternatively, tax rates could be raised to increase revenues. Finally, the level of public services could be adjusted so that public expenditures correspond to lower revenues. Obviously these alternative policy options (or a combination of them) do not have the same result nor the same opportunity cost in terms of output (and public revenues) foregone nor do they have the same distributional impact.

Denmark's strategy in preparing for the effects of ageing (while maintaining the present welfare system) is based on debt reduction, through the maintenance of high fiscal surpluses, in combination with measures increasing the potential of the economy and thus the potential tax base. In particular, it is thought that constraints of inadequate labour supply can be eased by increasing participation rates, i.e. by using labour reserves more efficiently. The need to address these medium-term challenges is supported by recommendations to Denmark in the Broad Economic Policy Guidelines (BEPG), which cover the period 2003-2005. The specific BEPG recommendations related to labour supply state that Denmark should "*Continue efforts to make work pay by increasing incentives to join the labour force and to postpone retirement, in particular by ensuring the implementation of tax reform and by considering additional steps to tighten eligibility rules of welfare benefits and reduce marginal taxes within the framework of sound public finances.*"

The Danish authorities are addressing the challenge of ensuring the future financing basis for public sector commitments in the framework of the so-called 2010 Plan. This medium-term plan was launched by the Social Democratic government in 2001 and subsequently endorsed by the present Liberal-Conservative government. This indicates a broad political support in Denmark for the medium-term fiscal strategy. The timing of the plan takes advantage of the fact that the present period constitutes a "window of opportunity", as the increased public expenditure related to ageing at the beginning of the century is estimated to be roughly constant for around a decade before starting to increase markedly after 2010.

2.2. The challenge of raising labour supply in Denmark

A snapshot of the Danish working-age population is given in Table 3. The labour force made up close to 77% of the working-age population in 2003. The present high participation and employment rates thus provide a broad tax base on labour income to finance public sector commitments. Of the persons outside the labour force, the largest groups are old-age pensioners and the disabled and sick. Around a third, however, are persons of working age who benefit from different early retirement and leave schemes.

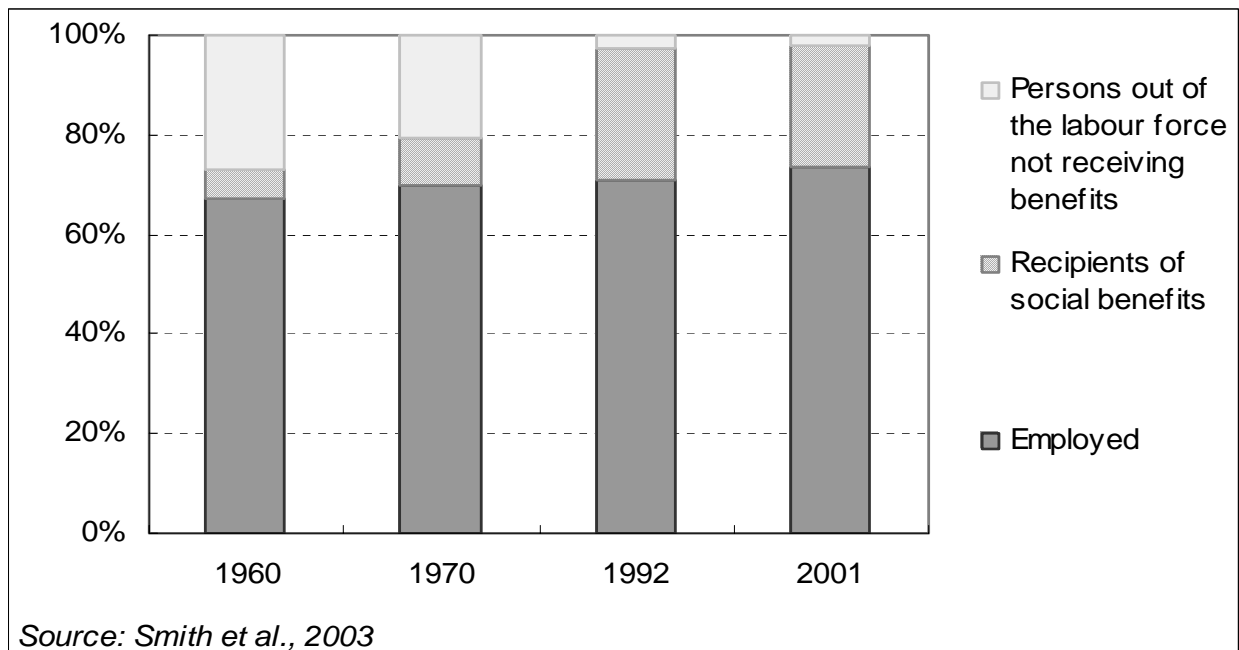
Table 3: Population and labour force, 2003

	% of population (16-66)
Population (16-66)	100.0
Labour force (nat.def.)	76.8
of which Employed	73.5
<i>Employees</i>	68.4
<i>Self-employed</i>	5.1
Unemployed (nat. def.)	3.3
Persons outside the labour force	23.2
of which Temporarily out of the labour force	3.3
Early retirees	4.9
Pensioners (i.e. disability pension, etc.)	6.4
Others (students, recipients of social benefits, etc)	8.6

Source: Statistics Denmark. Registered based labour force statistics.

The share of persons outside the labour force who receive public transfers has increased markedly over the last decades and with the unemployed now make up virtually all of those who are not employed (Figure 11). In addition to the unemployed, the group of non-employed of working age, which was largely made up of housewives (not receiving public support) in 1970, now consists of persons receiving social transfers. This illustrates the increased role of public income support in the Danish welfare society in general and of the development of early retirement and leave schemes in particular. Before addressing the projected demographic developments, the following section looks closer at the trends in labour supply in the last decades.

Figure 11: Population of active age (15-66)

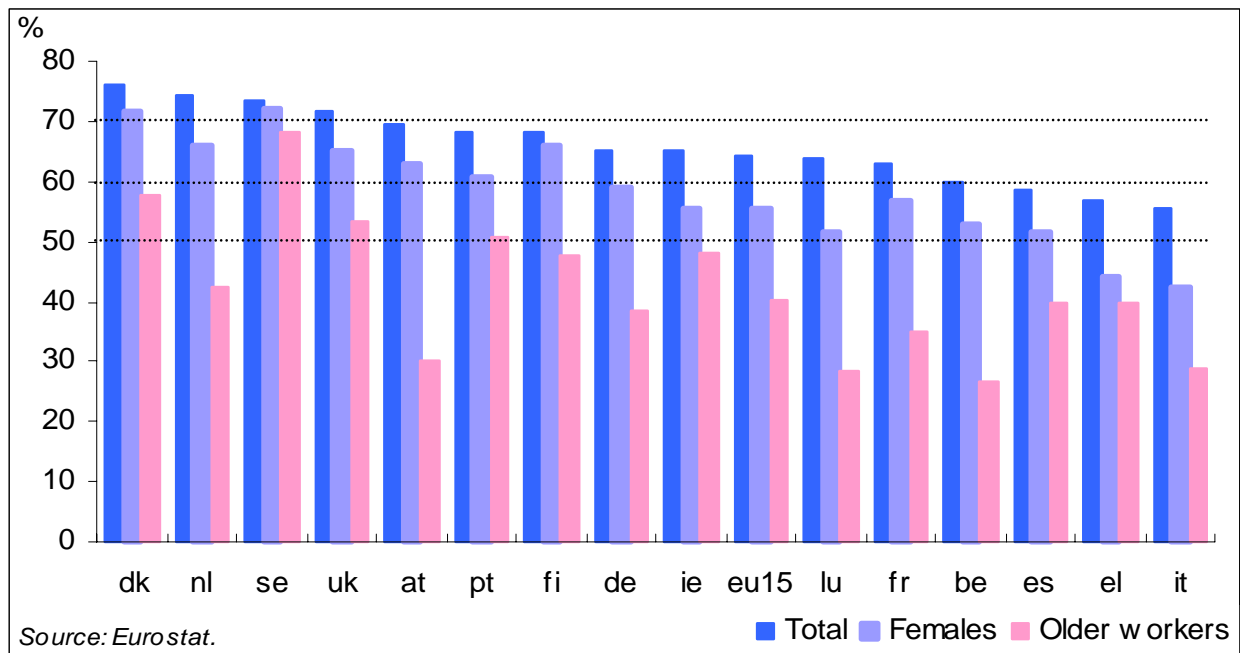


Note: Recipients of social benefits includes people under active labour market policies but not students receiving student grants

2.2.1. Background: trends in labour supply

In a European perspective, the Danish labour market situation is favourable. In the area of employment, the EU targets in the Lisbon Strategy include raising the overall employment rate in the EU to 70% by 2010 (from an average in 2002 of 61%), to increase the employment rate of women to 60% (from 51%) and that of older workers to 50% (40%), also by 2010. While many Member States are struggling to be on track with the Lisbon employment targets, Denmark – together with Sweden and the United Kingdom - already fulfils all of the above objectives (Figure 12).

Figure 12: Employment rate and Lisbon objectives, 2002

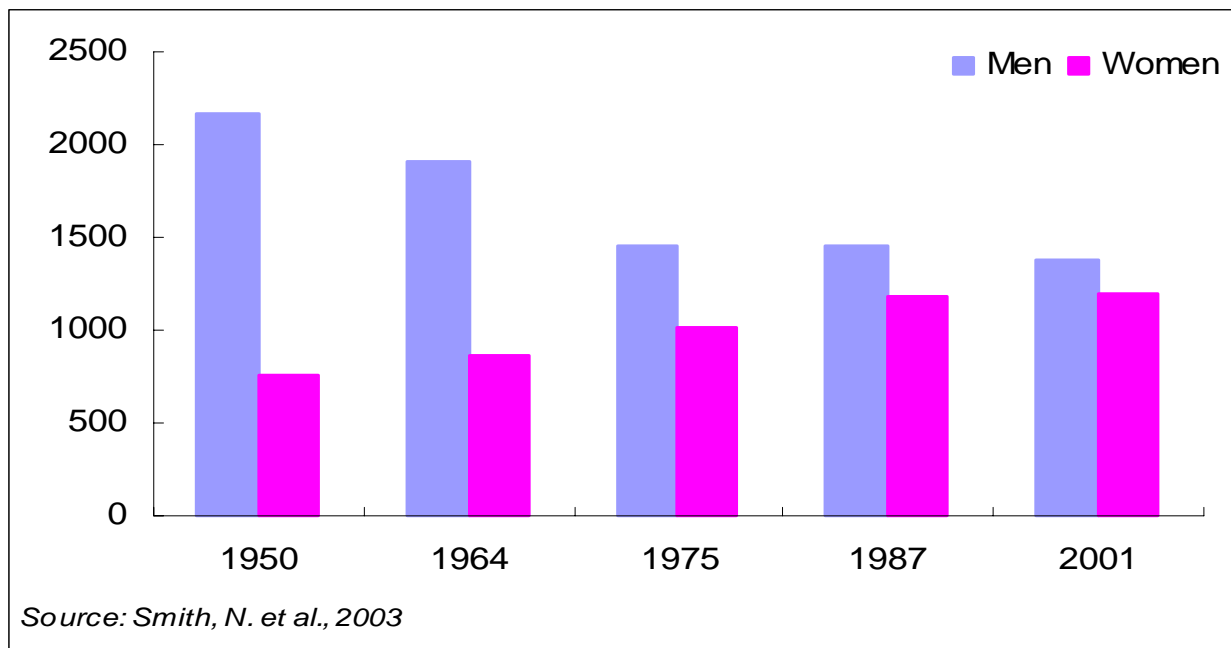


Note: the Lisbon strategy employment rate targets are 70% for total population, 60% for women and 50% for older workers

Looking at past trends for labour market participation, the rate for male workers has been falling somewhat over the last decades (except for the young). The decline in male participation has been very strong for those above 60 years, but also for those aged 45-64 years. The main explanation for this development is increased entry into early retirement schemes (section 2.5 below) and, more generally, an increased number of persons on social pensions and benefits.

An important long-term factor behind the high overall participation rate in Denmark has been the increasing female participation in the labour market, in particular since the 1960s. Up to around 1990, this was the major factor explaining why the aggregate labour force expanded. This trend has levelled out in the 1990s, although the participation rate for women was only 8 percentage points below the one for men in 2002. Recent decades have also brought the effective supply of female labour, i.e. not only in terms of persons but also in the number of hours worked, close to that of the male population (Figure 13). Madsen (1999) suggests that the main explanations for the growth in the high female participation rate in Denmark have been the increased educational level of women, the growth of the public sector (which both is an important employer of female labour and provides the services - child care etc., which facilitate female participation) and also the changing social values that give higher priority to equal opportunities for men and women. An implication of the already high female participation on the labour market is that women, compared to other countries, now constitute less of a source for potential increases in labour supply.

Figure 13: Worked hours per year

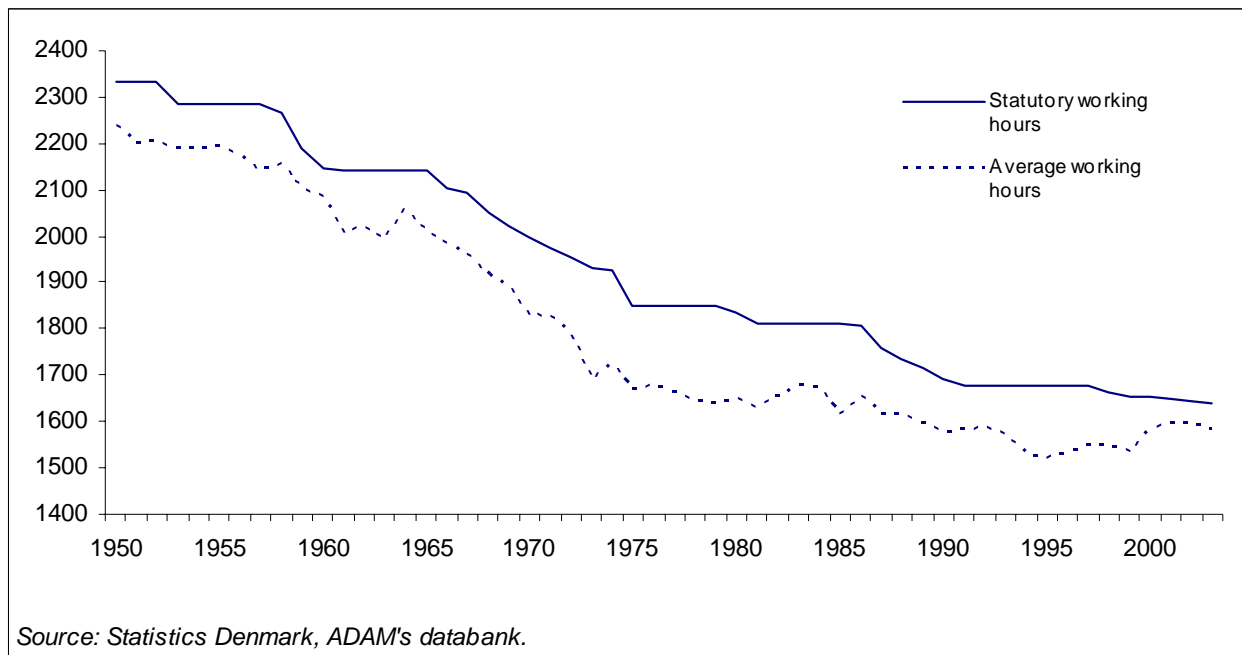


Alongside participation rates, a determining factor for labour supply is the number of hours worked. As in most industrialised countries, the average number of hours worked has been on a downward trend in Denmark over the last decades, from 1650 hours per person and year in 1980 to 1580 hours per person and year in 2003 (Figure 14). The trend fall in the number of hours worked follows from changes in the statutory working time, primarily legislated extensions of annual vacations and reductions of working hours agreed in collective bargaining. Contributing to lower working time - and thus to lower total number of hours worked - was the 37 hour working week phased in between 1986 and 1991¹³. In spite of a sixth week of holiday introduced in 1998¹⁴, the average annual hours worked per person in employment in Denmark has stabilised and even increased slightly between 1990 and 2003 (0.1% in annual terms), whereas the average annual hours worked in the EU-15 fell by 0.4% in annual terms in the same period. However, the average hours worked per person in Denmark remains lower than in the EU-15 (OECD, 2004).

¹³ As an illustration of the magnitude of the effects on the total numbers of hours worked of the shortening of the working week by 3 hours, a reintroduction of the 40 hour working week would correspond to the labour input of some 7 per cent of the labour force. The extra week of vacation corresponds to a decrease in annual working hours of some 2 percent (Danish Economic Council, 2002).

¹⁴ Intervening in a private sector labour market conflict, the Government introduced one additional day's leave per year for all workers, plus two additional days off for family reasons, rising to three. In the following wage agreement they were converted to special holidays not covered by the holiday legislation. Subsequently, this extra week of paid holiday has been extended also to the rest of the labour market.

Figure 14: Statutory and average working hours

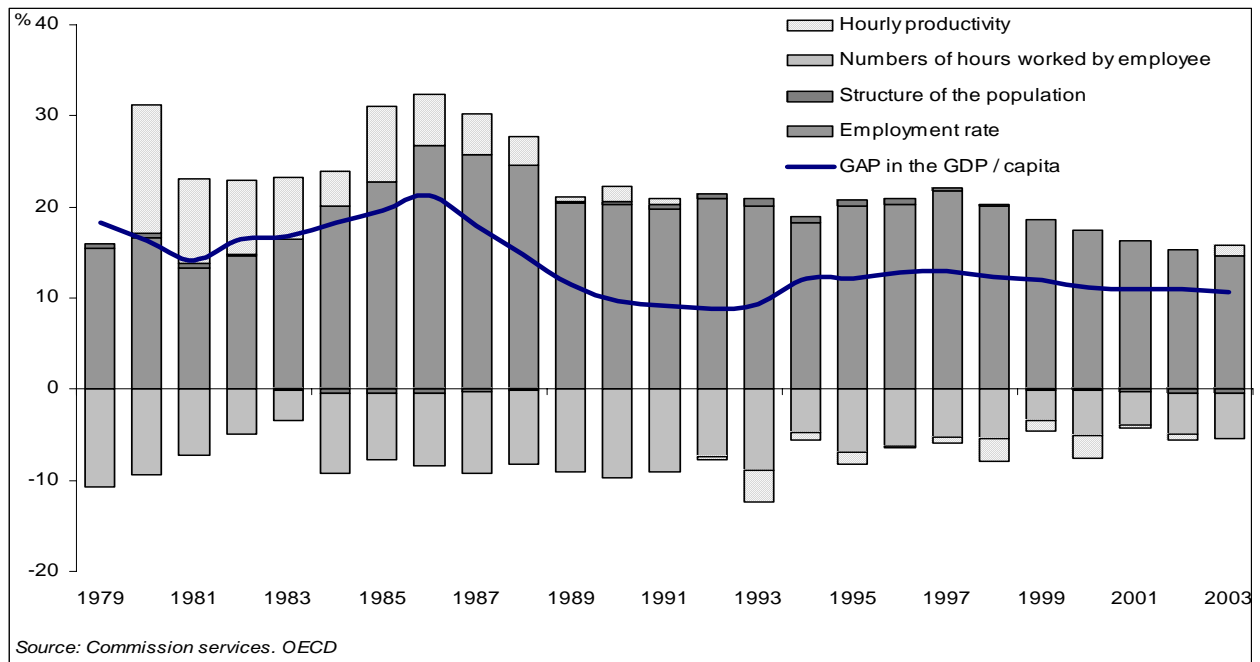


In addition to the statutory working time, flexible working time also affects total labour supply. The incidence of part-time work heavily affects the numbers of hours worked in Denmark. Part-time work has decreased among women in recent years, but the projected demographic changes tend to increase the number of persons with a preference for part-time work, which would tend to decrease the effective labour supply. While arrangements providing working time flexibility can make it easier for households to take on additional work, it may also facilitate a substitution to more leisure. Potentially contributing to shorter working time, certain recent private sector wage agreements provide an explicit choice between wage increases and leisure. Demographic developments are also at play; in the Danish government's medium-term projections, average working hours are set to fall by 1% between 2003 and 2010, due to projected changes in the structure of the working-age population (Ministry of Finance, 2003).

The developments described above of employment rates and average hours worked have affected the evolution of GDP per capita in Denmark. Figure 15 illustrates that Denmark has outperformed the EU-15 in GDP per capita over the last decades, although the gap narrowed in the 1990s. The breakdown into components shows that the sources of the income gap between Denmark and the EU-15 have been broadly stable; the positive gap has been due to a higher employment rate, whilst the lower number of hours worked in Denmark contributed negatively. The hourly productivity has been approximately at par with the EU-15 average since the 1980s¹⁵.

¹⁵ For methodology of decomposing the income gap between two countries, see for instance the approach of R. Faini *et al* explaining different roots of GDP per capita levels between the EU and the United States (http://www.frdp.org/images/customer/copy_0_i_report.pdf). Accordingly, the GDP per capita can be decomposed into the (i) hourly productivity, (ii) hours worked, (iii) employment rate and (iv) population structure.

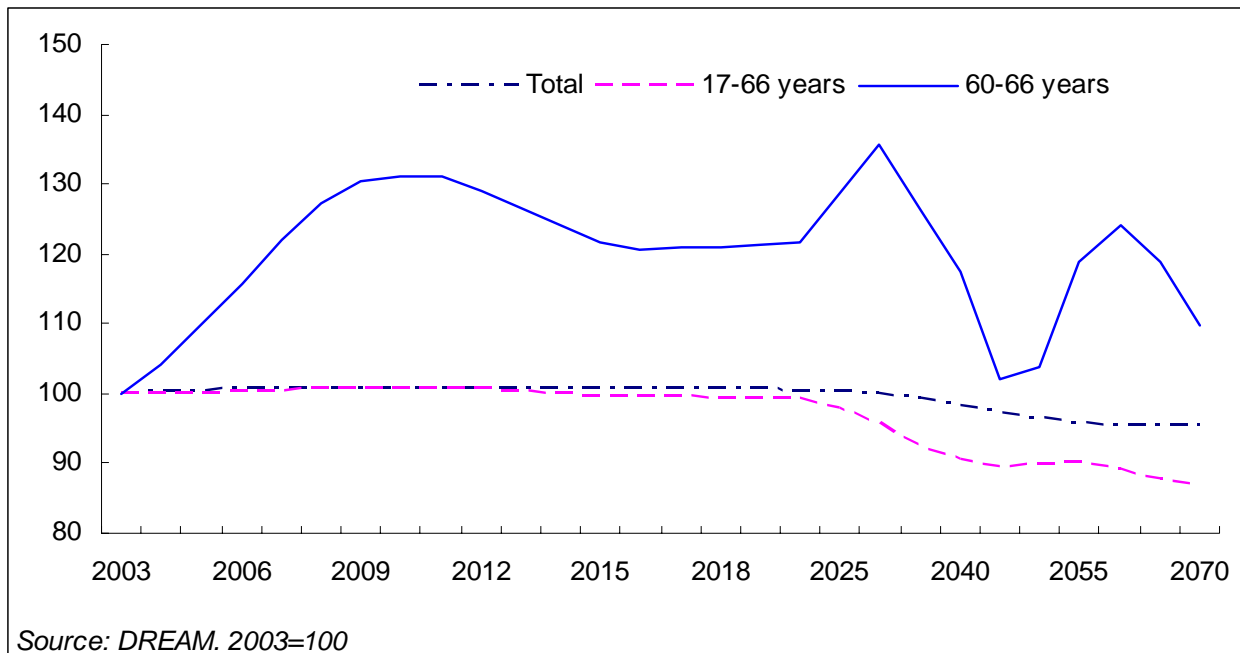
Figure 15: Sources of the difference of GDP per capita - Denmark/EU



2.2.2. The prospects of an ageing population and a declining work force...

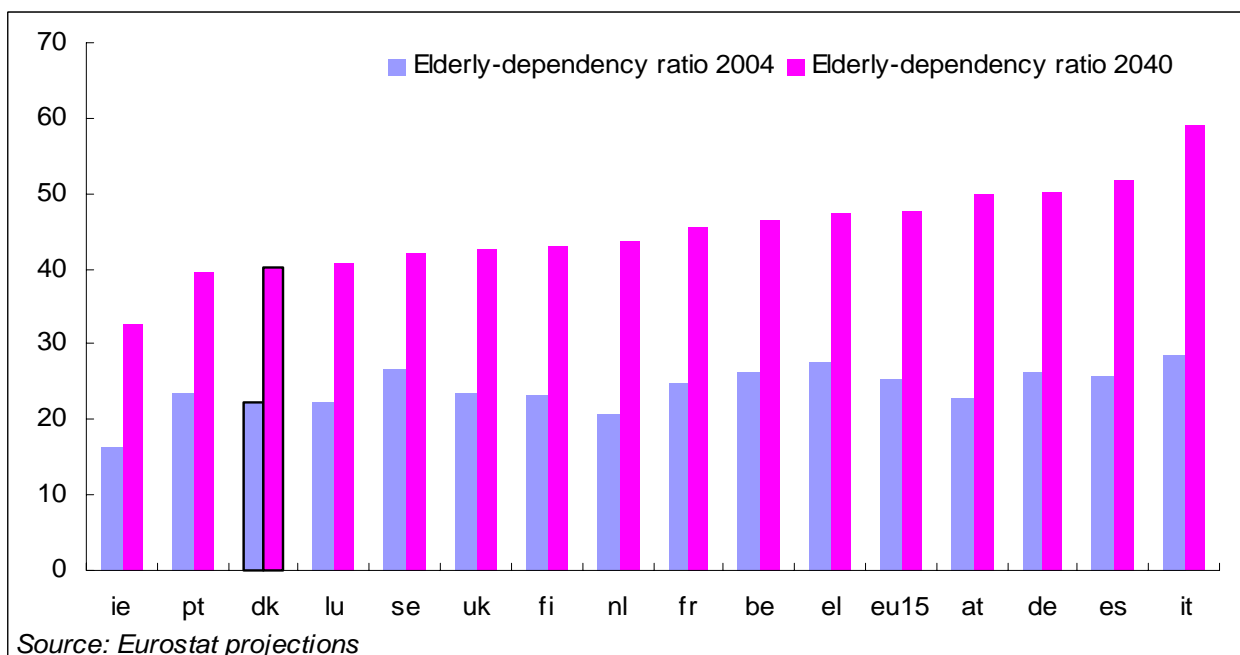
As in many industrialised countries, Denmark faces future challenges coming from demographic developments, mainly the ageing of the population. As shown in Figure 16, the total Danish population is expected to peak around 2010 and then fall gradually. The working-age population follows a similar pattern, rising slightly to 2010 and then falling to 2040. The fall in the working age population of some 10% to 2040 is accompanied by a projected increase in the number of persons aged 67-79 of more than 50%. The decrease of the working-age population will affect potential labour supply negatively and the old age dependency ratio will increase considerably.

Figure 16: Population, 2003 - 2070



As shown in Figure 17, in most EU countries the old age dependency ratio (the number of persons aged more than 65 as a share of the working-age population) will nearly double in the coming decades. In Denmark, the implied rise in the old-age dependency ratio in relation to 2003 is estimated at 5% by 2010 and 50% by 2040 (see below). Although falling somewhat thereafter, the dependency ratio is set to remain at a high level, implying that this age structure will be a permanent phenomenon.

Figure 17: Elderly-dependency ratio



The long-term demographic projections are based on constant participation rates for the different cohorts. The projected demographically induced fall in the labour force in the coming decades can, however, be affected by structural changes in the participation rates. Factors that could increase labour supply include a (marginal) catch-up for all cohorts of women to male participation rates and an increased average level of education, which tends to induce higher participation rates. A key challenge, in this respect, will also be an improved integration of immigrants and their descendants on the Danish labour market. The participation rates of immigrants, in particular those from less developed countries, are currently markedly below those of persons of Danish origin. Immigrants and their descendants will make up an increasing part of Denmark's population and thus constitute an important potential source for raising overall participation rates.

Table 4: Participation rates of immigrants and native Danes (16-66 years)

2002	Immigrants from non-Western countries	Immigrants from Western countries	Native Danes
Gender			
Men	59.8	70.5	82.7
Women	45.2	62.0	76.4
Total	52.6	66.2	79.6

Source: Denmark Statistics

As mentioned above, the projected demographic changes will furthermore decrease the relative size of the working-age population. At the same time, changes in the composition of the working-age population will increase the relative size of the groups which tend to have lower participation rates. As an example, the age group 60-66 is projected to grow by 37% to 2030. Overall developments of the labour supply will therefore largely depend on raising the participation rates for groups where the rates tend to be lower.

2.2.3. ... and the role of raising labour supply in Denmark's fiscal strategy

The aim of Denmark's medium-term fiscal strategy is to secure fiscal sustainability in view of the expected future increase in net public expenditures due to ageing, without triggering a need for fiscal tightening at some later point or reducing public service. The policy response to these challenges has two main strands. First, the Danish authorities are committed to the target of reducing the gross government debt ratio to 27½% of GDP in 2010 (Ministry of Finance, 2003), by running general government surpluses of around 2% of GDP on average. A recent revision has lowered the future net commitments, mainly due to expected lower immigration from less-developed countries and increased pension contributions¹⁶ As a result, the average structural surplus required for fiscal sustainability, assuming future participation rates and dependency ratios as above, in the Danish calculations has been revised downwards from 1.9% to 1.6% of GDP. Within this framework, fiscal leeway is created in order to allow for a lowering of the tax burden. Secondly, policies are to be implemented to expand labour supply and increase the number of employed, thus limiting the rise in the dependency ratio over the longer term.

¹⁶ As a result of the private sector wage agreement in March 2004, pension contributions were increased. This reduces the growth in public transfers in the period 2006-2008.

From 2010, the Danish long-term projections are based on a policy-neutral scenario in which revenue and expenditure shares of GDP are mainly affected by demographic changes. Employment rates broken down by age, gender and country of origin are assumed constant and assumptions are made about the average life length. Table 5 below presents the government's long-term fiscal projections. As a result of the ageing of the population and the higher average public consumption of older persons, old-age related expenditure will increase markedly in the future. Health care expenditure is thus estimated to peak around 2040 and remain constant thereafter at some 2¼% of GDP higher than in 2003. Total expenditure peaks in 2040 and then again in 2070 at around 5% of GDP higher than in 2003. Total revenues are set to increase by 1.2% of GDP by 2040, boosted by gradually increasing revenues from tax on net pension payments. The accumulation of pension funds assets in Denmark, which has already reached 100% of GDP, is estimated to double over the projection period.

Table 5: Long-term projections of public finances¹

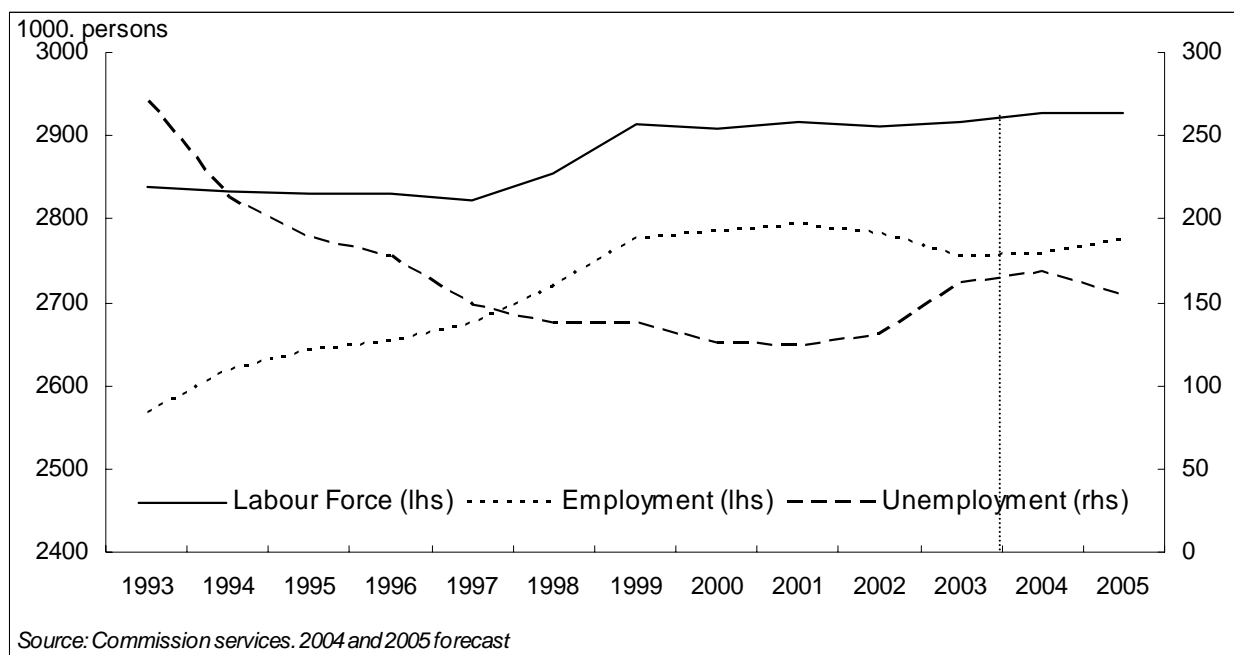
% of GDP	2003	2005	2010	2020	2030	2040	2050	2060	2070
Total expenditure	50.7	-0.3	-0.8	0.4	3.4	4.7	3.3	4.5	5.2
Old age pensions	4.4	0.2	1.0	1.9	2.7	3.2	2.5	2.6	2.9
Health care (including care for the elderly)	8.1	-0.1	-0.2	0.5	1.8	2.4	2.3	2.3	2.3
Transfer payments ²	17.2	-0.3	-0.4	0.7	1.8	1.7	0.8	1.2	1.4
Total revenues	55.2	-0.8	-1.5	-0.7	0.4	1.2	0.7	1.2	1.5
<i>Of which:</i> Tax on net pension payments	-	0.0	0.2	0.9	1.7	2.5	2.7	2.7	2.7
National pension fund assets ³	117	124	144	180	209	220	217	226	227
Assumptions									
Nominal GDP ⁴	3.5	4.4	3.9	3.6	3.3	3.8	3.8	3.6	4.0
Total participation rates (aged 20-64)	81.3	81.3	81.2	80.5	79.2	79.7	79.5	78.5	79.1
Unemployment rate	5.9	5.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5
¹ Level for 2003, and per cent changes compared to 2003 thereafter ² Transfers from social security funds (ATP etc.) are not included. ³ Percentage of GDP ⁴ Percentage change <i>Source: Convergence Programme for Denmark, 2003</i>									

In its assessment of the 2003 update of Denmark's convergence programme, the Commission concluded that the budgetary strategy outlined in the programme is compatible with maintaining the sustainability of public finances and that Denmark's public finances are in a good position to handle the impact of the ageing population¹⁷. However, these long-term fiscal projections depend on the realisation of a set of employment targets and the Commission assessment is conditional on the achievement of the projected rise in labour supply. Indeed, the projections in the 2010 Plan assume future increases in employment through unspecified future measures. It would imply raising employment by some 2 percent (50-60,000 persons) between 2003 and 2010. This includes lowering the structural unemployment from 5½% presently to 4½% in 2010. Against the background of the present relatively low unemployment rate, a fall in unemployment has less potential to contribute to rising employment than in the last ten years. As Figure 18 suggests, the rise in employment since the early 1990s has implied a fall in unemployment. At the same time, the development of the labour force has been relatively flat since 1990 except for the increase in

¹⁷ The Commission assessment was also based on the report from the Economic Policy Committee on "The impact of ageing populations on public finances: overview of analysis carried out at EU level and proposals for a future work programme" (October 2003). The Danish calculations are overall compatible with the EPC projections.

1997-1999, which coincided with the closing for new entrants of the transitional early retirement scheme (see box 2 below).

Figure 18: Labour force, employment and unemployment



In the absence of further reforms, but on the basis of already implemented measures, employment is estimated by the Danish authorities to remain largely unchanged to 2010. In other words, a “no reform” scenario would thus, all things being equal, require a fiscal adjustment of close to 1% of GDP in order for the public finance projections in the 2010 Plan to materialise (Table 6)¹⁸.

¹⁸ Medium- and long-term calculations of this kind are sensitive to the underlying assumptions. Recent projections by the Welfare Commission and the Danish Economic Council suggest that the requirements for fiscal sustainability are greater than foreseen by the Government. In its base scenario to 2020, the Welfare Commission (2004) finds that a fiscal tightening of 3.7% of GDP (or an increase in employment of more than 9 per cent of the labour force) will be necessary to achieve long-term sustainability. A difference in the assumptions is a longer expected average life length. The Danish Economic Council based on a time horizon similar to that of the Government (2011), estimates that the necessary fiscal tightening is 1.9% of GDP (an increase in employment corresponding to 5 per cent of the labour force). A different assumed growth of public consumption contributes to explaining the difference in relation to the Government’s calculations.

Table 6: Contribution to higher sustainable employment

	Change from 2003 to 2010	Fiscal adjustment needed
	1.000 persons	(% of GDP)
Demographic baseline (constant participation rates)	-42	
Reduced inflow to early retirement schemes and estimated contributions from other reforms	41	
- of which 2003 labour market reform	10	
- of which earned-income tax credit.	3½	
- of which lower marginal tax rates	10-12	
No additional reform scenario	-1	0.9
Non-implemented rise in sustainable employment	53	
Rise in sustainable employment to comply with the projections in the 2010 Plan	52	0.0

Source: Convergence Programme for Denmark, 2003

As recognised by the Danish authorities, further measures are therefore needed to achieve the projected increase in employment and labour supply. Among the areas mentioned where actions could be taken are better integration of immigrants in the labour market, a faster flow through the education system and the age of retirement from the labour market. However, the content and direction of such further reform efforts have not yet been spelt out in any detail. The Welfare Commission has been set up with the task of making proposals on issues related to the future financing of the welfare state¹⁹.

On this basis and building on the recommendations in the BEPGs, the following sections focus on three areas to increase labour supply: income taxes; the combined effects for work incentives of taxes and benefits; the scope for increasing the labour supply of older workers.

2.3. Taxation of labour and the effects on work incentives

2.3.1. High taxation of labour in Denmark...

Reflecting collective choices of the society, Denmark ensures a relatively equitable distribution of living standards, as indicated by measures of inequality. According to Osberg (2000) the Gini coefficient remained broadly stable throughout the 1990s and this after-tax measure was relatively low in an international context. The high equality of the income distribution is partly due to the compressed wage structure and comparatively high progression of the tax system, but also due to the highly redistributive transfer system.

The Danish personal income tax system comprises three largely proportional components (labour market contributions; local government tax and the “ordinary” state tax – i.e. bottom state rate)

¹⁹ The Welfare Commission was appointed by the Danish government in September 2003, in order to advise on issues concerning the welfare state. The Commission is chaired by Torben Andersen, economics professor at the University of Århus, and consists of eight independent experts. Its main task is to analyse different ways to finance the welfare system and to come up with proposals for increasing both the labour force and employment. The specific tasks of the Commission are to analyse the expected developments of the demands on the welfare contributions until year 2020 and the possibilities of financing these without increasing taxes; describe and analyse the different possibilities of financing the welfare system; propose suggestions for reforms of the welfare system, and highlight relevant international experience in this context. The Commission has been asked to initiate a wide-ranging public debate of the central issues of its remit. It is due to present its final report by end-2005.

and progressive components (the intermediate and top state rate). The latter two components entail a sharp progression in the tax system. In 2003, the marginal tax rates were approximately 49 per cent on medium and 63 per cent on higher incomes, up from 44 per cent on lower incomes²⁰. In Denmark, the level at which top marginal personal income tax rate is reached was only 110 per cent of the average production worker wage in 2001. At the same time, nearly 90 per cent of the full-time-employed taxpayers in Denmark pay one of the progressive taxes, i.e. the medium or top tax bracket²¹ (Ministry of Taxation, 2002).

2.3.2. ...lowered in the 2004 tax reform to increase labour supply

The key objective of the tax reform implemented in 2004 (box 1 below) is to enhance labour supply by limiting possible income-tax related disincentives to work. In this vein, there are two main elements in the reform. First, the tax reform includes an increase in the threshold for the medium tax bracket and thus attempts to raise the attractiveness of extra work over leisure for many of the employed. The threshold for the medium tax bracket was raised, lowering the marginal tax rate by 6 percentage points for some 750,000 persons (close to 30 per cent of the employed). Secondly, the introduction of an earned income tax credit (EITC), in practice an across-the-board tax cut, implies the tax credit of 2.5 per cent of the taxable income below the new threshold for the medium tax bracket. The measure should improve the work incentives by raising the gains from employment relative to benefits, in particular for the low-wage earners, and thus induce higher employment. The authorities made the choice to extend the EITC to all working people rather than targeting lower wages. Such an extensive EITC makes the measure relatively costly and less well-targeted as it also enhances incomes of people whose work incentives are not affected (OECD, 2003). On the other hand, a tapering of the tax credit as incomes rise is estimated to have an overall negative effect on labour supply as it would increase marginal taxes as incomes rise (Ministry of Taxation, 2003).

²⁰ For details on the structure of income taxation in Denmark, see the web page of Ministry of Taxation: <http://www.skat.dk/foreign/english/2177.html>

²¹ The top tax rate of 63 per cent applied to around 40 per cent of full time workers, but a high proportion of those in the top bracket have incomes only marginally above the threshold, as the income distribution in Denmark is relatively even.

Box 1: Recent tax policy in Denmark: 2004 tax reform and tax freeze

In 2003 the Government found parliamentary support for its *tax reform*. It was originally intended to be gradually implemented through 2007, but as a part of the Spring 2004 fiscal package all the tax reductions were implemented in 2004. The reform consists of two main elements:

- the threshold for paying the medium income tax (6 p.p. above the bottom rate) is raised by DKK 49,600 (6650 euros). The increase of the threshold will imply a tax reduction of some DKK 3,000 if the income is above the new medium-tax threshold, a lower tax reduction if income is between the new and the old threshold and no tax reduction for incomes below the old threshold.
- an earned income tax credit (EITC) of 2.5 percent of the taxable income below the new threshold for the medium tax bracket. For persons with income above the new threshold the earned income tax credit is a fixed deduction per year of DKK 7,000. The value of the tax credit is around one third as it is deducted against the municipal tax (average around 33% in 2004).

These changes will result in an estimated loss of fiscal revenue of some DKK 10 billion in 2004. (0.7% of GDP)

The government estimates that reform related tax reductions will raise labour supply by some 10-12,000 persons (in full-time equivalents) over the period till 2010. Of this amount, the raising of the middle tax bracket would primarily increase the number of hours worked (two thirds of the estimated amount) and the earned income tax credit would primarily increase the number of employed persons (one third).

An important element in the fiscal strategy is the *tax freeze*. The tax freeze, introduced by the present Liberal-Conservative government when it took office in November 2001, implies that no direct or indirect tax may be raised, irrespective of whether it is expressed and legislated in percentage or *kroner* value terms. In addition, a ceiling is put on nominal property value tax. If there are compelling reasons for introducing or raising a tax rate, another tax rate has to be reduced by an amount which leaves total tax revenues unchanged.

The purpose of the tax freeze is to prevent tax increases, which would raise the already high tax burden. The tax freeze is also intended as a mechanism of public expenditure control in support of the objective of a lower growth in public consumption, not least at local government level. As local governments are restricted in access to raising capital via borrowing, the tax freeze is intended to bring about a stricter prioritisation of expenditure, as the overall tax outtake for the local governments is not allowed to increase. By freezing taxes expressed in *kroner* value terms, the tax freeze itself contributes to a lowering of the tax burden (0.6% of GDP by 2010).

Due to the offsetting impacts of the income and substitution effect, an assessment of the potential employment effect of any change in taxation on labour, including the size and direction of the labour supply responses, becomes an empirical matter, involving a high degree of uncertainty. Detailed micro data are typically lacking, as different individuals face different marginal tax rates and also possessing different wage elasticities. Results of the research, which attempts to assess the importance of tax changes for labour supply, vary across studies. Carone and Salomäki (2001) present two “consensual” results of the empirical research. First, tax (and also benefit) changes seem far less likely to induce relevant labour supply response for prime age-males, whereas partners in couples (usually married women) are generally found to be most responsive to tax changes. Second, the cross-country studies indicate that the responsiveness to tax changes in terms of entry or exit from the market is likely to be higher than in terms of hours supplied.

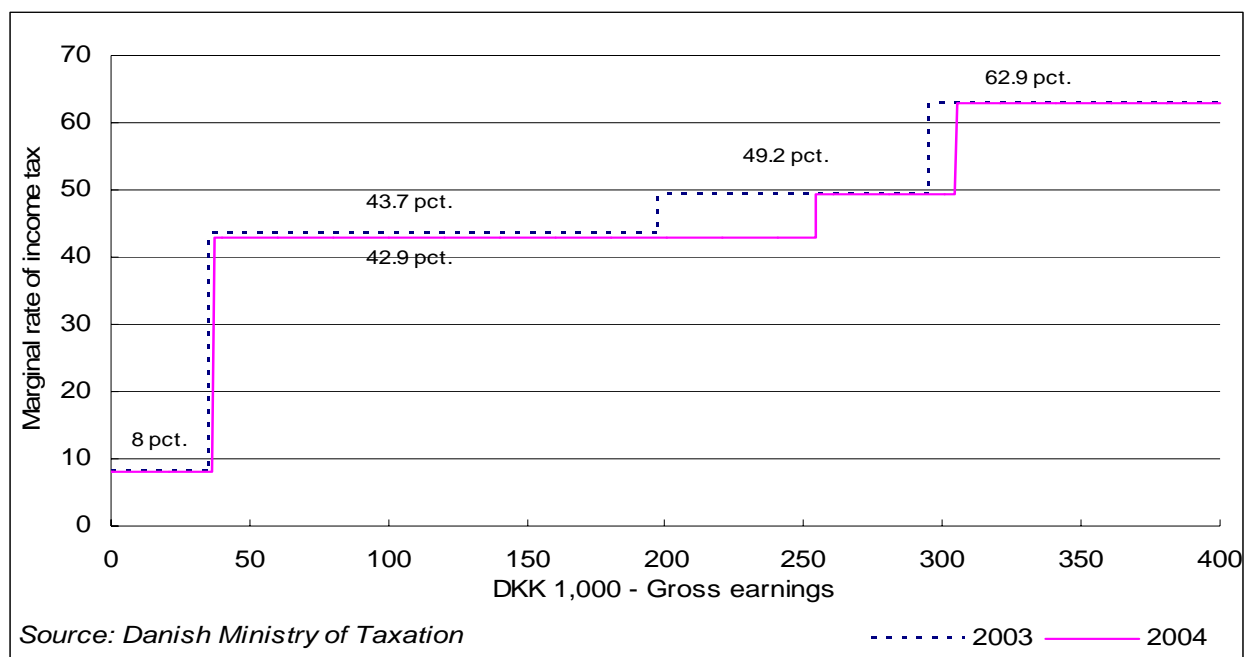
The total effect of the tax reform on labour supply is estimated to be an increase of 0.4 per cent of the labour force (Ministry of Finance; 2003), with 2/3 of the “labour force equivalent” induced from an increase in working time (so-called “intensive margin”) and 1/3 from higher employment (“extensive margin”). The expected estimated impact may seem to be in contradiction with the analytical results suggesting that the stronger effects of income on labour supply are normally to

be found at the extensive margin (see also Heckman, 1993), i.e. at the point of labour market entry and exit, where labour supply responses are substantial. However, the empirical estimates may not fully capture the specific features of the Danish labour market - already high employment rates, high marginal income tax rates and generous welfare benefits - which might induce a significant response to the tax cut also along the intensive margin²².

The high marginal income taxes may drive up the tax wedge to very high levels. In this situation, more leisure might be spent on “do-it-at-home” work rather than on an increase of the hours worked through a purchase of the service on the market. As shown above, the average hours worked per year - already low by EU standards - have fallen over the last decades, partly because of the high marginal tax rates on labour (OECD, 2000). This decline coincides with a widening of the tax wedge and such a correlation is consistent with the predictions of theoretical models. However, the Danish Ministry of Finance (2002) links the halt in the decline of hours worked in the mid-1990s to the lowering of marginal tax rates in the tax reforms of 1987, 1994 and 1998.

The tax reform raises the threshold for the intermediate tax bracket significantly, while the threshold for the top rate increases only marginally (Figure 19). However, the top rate of 63 percent still applies to more than 40 percent of full time workers. Recent empirical studies (see for instance Frederiksen, 2001; Danish Economic Council, 2001) conclude that a measure targeting the top tax bracket, instead of the intermediate tax bracket, would be more effective in inducing larger labour supply response. According to the same studies, such a measure would, however, also have the largest effects on income distribution. The choice made to raise the threshold for the middle bracket has to be understood as striking a balance between labour supply effects and equity concerns. Nevertheless, the full implementation of the tax cuts for the middle-bracket in 2004, instead of gradually through 2007 as initially intended, should result in a speedier realisation of the effects of the reform.

Figure 19: The structure of income taxes in Denmark - effects of the 2004 reform



²² For a discussion of the relation between income taxation and hours worked in Denmark, see Frederiksen, 2001.

A study by the OECD suggests that raising the threshold for the top personal income tax rate would be effective in encouraging work at a reasonably modest fiscal cost (OECD, 2002b). In this vein, Frederiksen (2001) investigated the labour supply reactions in Denmark to tax cuts in the light of the fiscal cost of different tax reforms. The study focused on the incentives for overtime work or dual job, i.e. of already employed persons to supply an additional number of hours worked, in the medium and upper income ranges. For each reform scenario, the study calculated the “rate of self-financing”, i.e. the ratio of the additional tax revenue²³ stemming from an increase in the labour supply and of the financing costs of the reform. Given the wage and income elasticities, estimate of the rate of self-financing varied between 0.2 and 0.6, depending on the type of reform. In other words, a tax cut corresponding to 1% of GDP would entail between 0.4% and 0.8% of GDP in foregone fiscal revenues. Overall, the study concludes that tax reform focusing on a substantial reduction of the highest marginal tax rate in Denmark would be the most preferable from the point of view of the related fiscal costs of the reform²⁴.

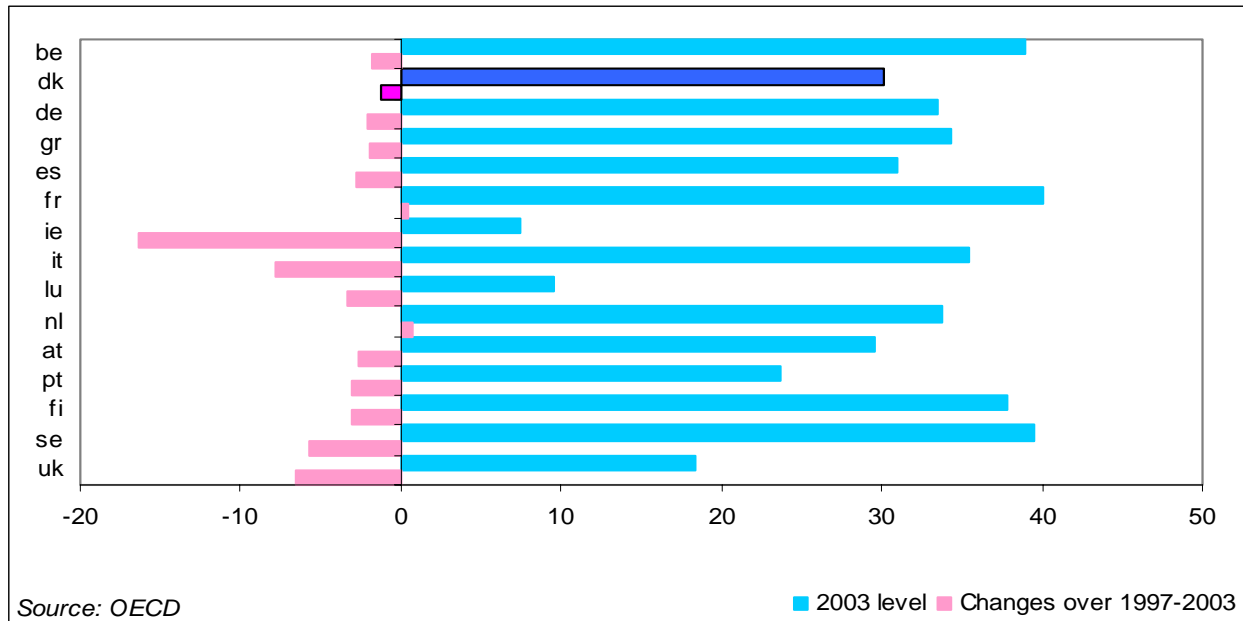
Due to the absence of commonly agreed quantifications, it is difficult to draw firm conclusions on labour supply effects of tax changes. However, based on the estimations presented above, the characteristics of the recent tax reform would seem to imply rather modest positive effects on labour supply. Figure 20 also suggests that the burden of labour taxation, as measured by the tax wedge indicator, has not decreased substantially in the period from 1997 to 2003 and also its absolute levels remain comparatively high²⁵. Looking ahead, the question therefore remains how further tax measures could contribute to providing sufficient work incentives to realise an increase in labour supply, in view of projected demographic trends. As some studies indicate, a more vigorous labour supply response could be expected from raising the threshold of the top rate bracket and the degree of “fiscal” self-financing could be stronger in the longer run due to the effects of the assumed high work incentives of skilled workers. However, the trade-off with respect to the distributional effects would persist.

²³ The analysis presented by Frederiksen (2001) is partial in the sense that the potential effects on consumption - and thus indirect tax revenues - are not considered.

²⁴ Another way of assessing tax reforms that reduce the tax burden on labour income is to estimate the direct revenue loss (per unit reduction in average marginal tax rate), without considering the labour supply response effects. Estimations from the Danish Ministry of Finance suggest that for Denmark, the least costly way to increase labour supply would be an increase of the threshold level for the medium or top tax bracket. The option of a reduction in the low bracket rate would imply more foregone revenues, since this would bring large tax cuts throughout the income scale and thus would not effectively target the reductions to the low-wage earners. These results are broadly consistent with those of Frederiksen (2001).

²⁵ For a discussion of the structure of the tax wedge and related tax issues, see for instance Bingley and Gauthier (1999).

Figure 20: Tax wedge, level and recent change (1997-2003)



Note: The tax wedge is defined as the income tax plus employee and employer contributions minus cash benefits (as % of labour costs). Figures are calculated for an employee earning wages equal to the average production worker in a one-earner family with two children

A lowering of taxes on labour could also be financed by compensating increases in other taxes. A strict interpretation of the tax freeze (box 1 above), however, could stand in the way of such a revenue-neutral shift in the tax burden by not allowing any tax to be raised. While safeguarding against overall tax increases, the tax freeze may thus also contribute to an excessive preservation of present tax structures and rates. Moreover, the tax freeze in itself implies a reduced tax burden over time by reducing the real tax take on property and goods submitted to excise duties. By contributing to a lowering of the tax burden, this can be a welcome effect. However, it is not the result of an explicit prioritisation, but results from the fact that these (specific) tax rates are expressed in *kroner* and not in percentage terms. With increasing labour supply considered a policy priority, gradual tax reductions on tax bases such as property value as a result of the tax freeze do not appear optimal.

All in all, the 2004 tax reform risks falling short regarding the aim of increasing labour supply. Moreover, the scope for more substantial tax cuts is limited by the need to maintain fiscal revenue to finance the commitments of the welfare state. As the results presented above suggest, the tax cuts are not self-financing and resulting increases in labour supply thus do not solve the long-term public finance problem. The fiscal leeway for the present tax reform is largely a projected lower future growth of public consumption. Growth in real terms of public consumption was lower in 2003 than in 2002 and the present trend could therefore be encouraging. In view of past trends, however, uncertainties remain as to the viability of this source of fiscal leeway. To further strengthen the effects on labour supply, room for future tax cuts could be created by expenditure cuts. A less strict interpretation of the tax freeze, including allowing for the tax on property value to be indexed to prices, could also contribute to creating room for further reductions in taxes on labour.

2.4. The tax and benefit system: effects on labour market participation

2.4.1. Unemployment benefits – weak financial incentives for low-wage earners...

The effective labour supply can increase either because persons are willing to move from inactivity to the labour force or because already employed persons exploit an incentive to work more. While the discussion of tax-related work incentives mainly focused on the challenge to increase the number of hours worked, issues related to the incentive effects of taxes and benefits address the trade-off between work and welfare benefits that low wage earners may face. Here, the potential effects of policies are thus primarily on the number of persons employed.

Unemployment benefits pursue efficiency as well as equity goals. The income support provided counteracts poverty during spells of unemployment, while allowing the search for a job matching the qualifications of the unemployed. However, it should also contribute to the maintenance of appropriate work incentives and longer-term fiscal sustainability. The work incentives for, in particular low wage earners, are mainly determined by the combined effects of taxes and social benefits, but are also affected by the eligibility criteria attached to the benefits. In practice, unemployment benefit systems in combination with taxes often tend to create unemployment traps, a situation where taking up employment is not financially rewarding.

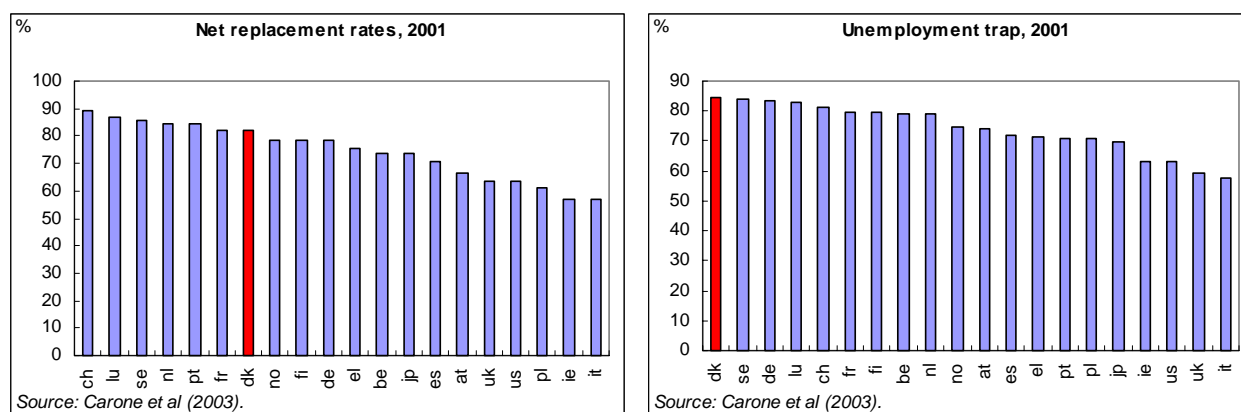
Table 7: Wage taxation in selected countries (in %)

Nominal Wage (average wage in manufacturing = 100)	Denmark	Sweden	Netherlands	France	Germany
75-125	41.7	49.9	39.6	43.3	48.9
125-175	46.3	53.4	41.3	45.1	51.1
175-225	49.3	56.1	43.1	45.7	49.8
225-275	50.9	57.5	44.8	46.1	48.6
Difference top-bottom	9.2	7.6	5.2	2.8	-0.3

Source: Danish Ministry of Finance, 2001 (1998 rules).

As shown in Table 7 above, the taxation of low wages in Denmark is not the highest in the EU. The tax rate averaged 41.7% in 2001 for the lowest income bracket in manufacturing (75% - 125% of the average manufacturing wage). This is lower than in France and markedly lower than in Germany and Sweden. Unemployment benefits, on the other hand, are comparatively high, particularly for low-wage earners, as confirmed by international comparisons of the benefit-replacement rates. The net replacement rate expresses the share of disposable income from employment that is provided by total benefits. Figure 21 shows average net replacement rates for two earning levels (average production worker wage level (APW) and two thirds of APW), along with the unemployment trap indicator, which measures the marginal effective tax rate for an unemployed person when taking up a job. According to these measures, Denmark is among the countries with the highest average net replacement rates among the EU-15 and has the weakest incentives to re-enter the labour market of the OECD countries at the income levels in question.

Figure 21: Net replacement rates and the unemployment trap



Note: Average of six family types (Single, Single parent, 2 children, 1 earner couple, 1 earner couple with 2 children, 2 earners couple, 2 earners couple with 2 children) at two earnings levels (67% and 100% of APW).

Table 8 presents net replacement rates for different family and income categories. The unemployment benefit amounts to 90% of the wage (up to a ceiling that is set at about 70% of the average wage, which means that the gross replacement rate begins to decrease from a relatively low wage level). With rising income, the replacement rate falls and the weak financial incentives to work are thus accentuated at the lower end of the wage scale. For certain family types, however, replacement rates are relatively high also as the income rises.

Table 8: Net replacement rates in Denmark for unemployment benefits at different income levels (2001)

	Percent		
	0.67 APW	APW	1.5 APW
Single person aged 50	85	60	45
Single parent aged 40, two children	96	76	61
Two-earner couple, two children, second earner receiving benefit	93*	78*	66*

*Source: EU-OECD, 2003. APW: Average production worker.
* The wage level of the first earner is fixed at 67% of the APW wage, while the pre-unemployed wage level of the second earner is indicated in each column.*

In a recent study on the financial incentives to work in Denmark, Smith et al. (2003) find similar weak financial incentives for many low-wage earners, but also that the incentives to work have increased in recent years. The average net replacement rate in 2001 is estimated at 72½% per cent (down from 76¾% in 1996). The share of persons who are estimated to have a negative or only a slight financial gain from employment is 12¾% (14½% in 1996). According to the Danish Ministry of Finance (2002), the weak financial incentives apply to somewhat fewer persons. On the whole, these measures coincide in signalling weak financial incentives to enter or stay in the labour market for low-wage earners in Denmark.

A proper design of taxes and benefits is therefore important for the incentive structures on the labour market. With high replacement rates providing weak work incentives, in particular for low wage earners, the duration of unemployment benefits and the requirements for participation in activation programmes becomes very important. The maximum duration of unemployment benefit in Denmark has been shortened to four years and activation does not entitle to a new benefit period. This duration is, however, comparatively long in an international context (Table 9). After the four years, the unemployment benefits are replaced by social assistance benefits,

which are also conditional on availability to the labour market. The long duration of unemployment benefits has weakened the effectiveness of active labour market policies. Although the activation is generally provided after one year's unemployment, the remaining entitlement to unemployment benefits has provided an easy return to benefit reciprocity and often resulted only in short employment periods.

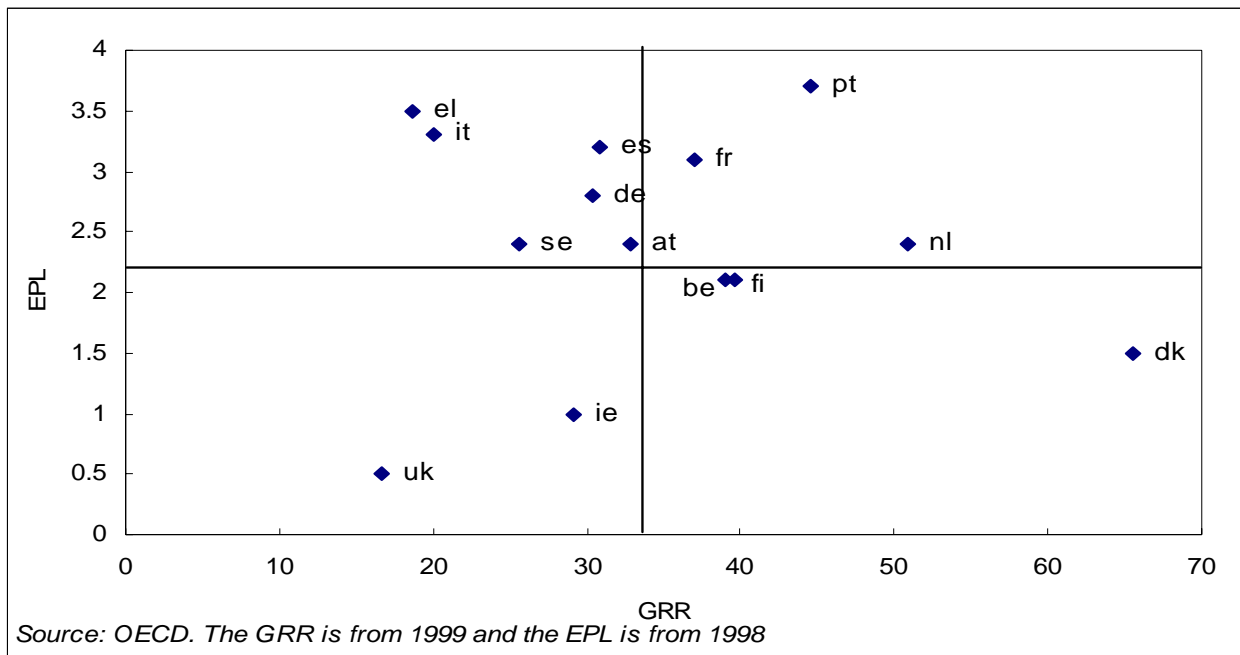
Table 9: Rules governing unemployment insurance benefits in EU-15

Country	Benefit duration, months	Entitlement conditions ⁽¹⁾
Belgium	No limit	14 / 18
Denmark	48	12 / 36
Germany	6 – 32	12 / 36
Greece	5 – 15	4 / 4
Spain	4 – 24	12 / 72
France	4 – 60	4 / 8
Ireland	15	9 / 12
Italy	6 – 9	12 / 24
Luxembourg	12	6 / 12
Netherlands	6 – 60	6 / 9
Austria	5 – 12	12 / 24
Portugal	12 – 30	18 / 24
Finland	23	18 / 24
Sweden	14	10 / 24
UK	6	6 / 12
<i>Source: European Commission, MISSOC 2000</i> ⁽¹⁾ Expressed as the number of months that the unemployed person must have been employed and contributing to the insurance unemployment scheme (first figure) within the investigated period of time (latter figure)		

2.4.2. ... but strict conditions surrounding eligibility rules

Most studies underline the importance of financial incentives for effectively addressing unemployment traps. However, it can be argued that it is feasible to maintain high unemployment benefit levels without generating excessive work disincentives, but this places high demands on labour market policy and institutions. For reasons of equity, the Danish strategy has been to maintain comparatively high benefit levels. The generous employment benefits should, however, be seen in the context of the relatively easy employment protection legislation (EPL), with hiring and firing rules which are among the least onerous in the EU. Using various indicators, the academic literature has pointed to a possible trade-off between unemployment benefit generosity and the strictness of labour market regulation. In particular, some authors claim that employment protection and unemployment benefits can be substitutes (Buti, Pench and Sestito, 1998; Bertola and Boeri, 2001). In Figure 22, Denmark is in the quadrant with high benefits and less strict EPL.

Figure 22: Gross replacement rates and the employment protection legislation indicator



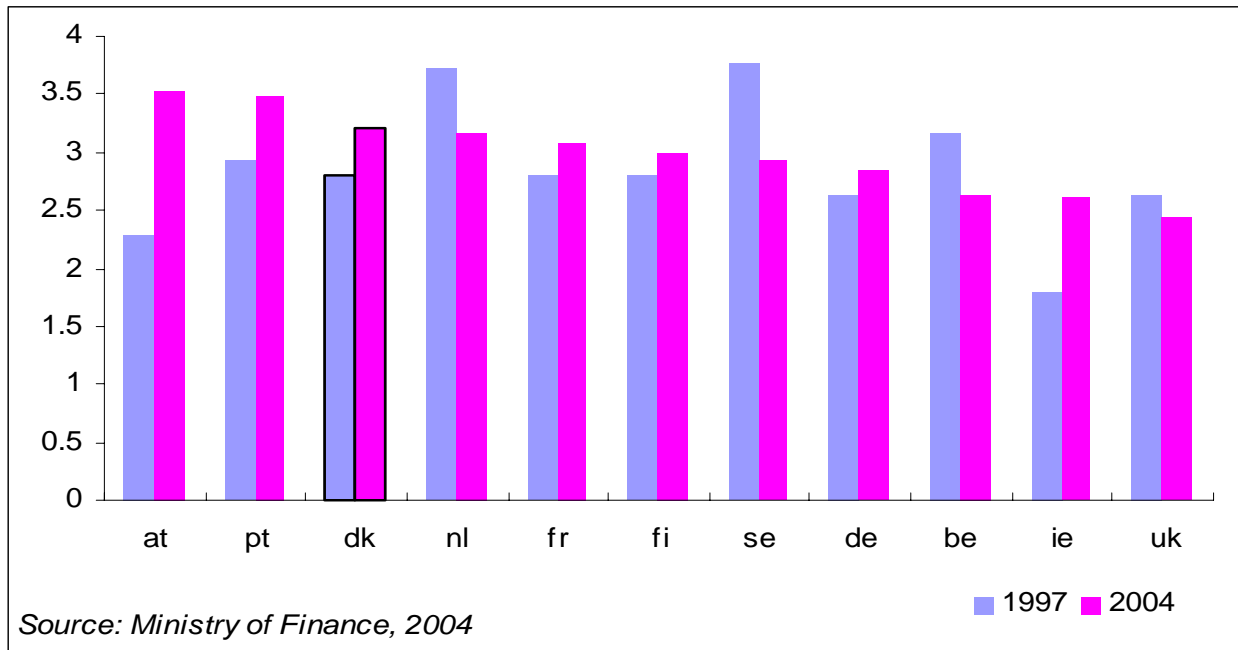
Note: The Gross Replacement Rate is a proxy for benefit generosity calculated by the OECD. The estimate is based on gross earnings and benefits (i.e. before taxes) and excludes family and housing benefits. It is calculated as the average of three family types (Single, 1 earner couple, 2 earners couple) over a five-year period at two earnings levels (67% and 100% of APW). The EPL is the OECD indicator of the strictness of employment protection legislation. The lines indicate the average for all countries.

In an assessment of the unemployment benefits and their effects on work incentives, the eligibility criteria for the benefits are also relevant. With strict and effectively enforced eligibility criteria, excessive disincentives of generous unemployment benefits can be avoided (Carone and Salomäki, 2001). Eligibility criteria can be difficult to compare between countries, in part due to difficulties in measuring to what extent sanctions are actually applied (for a discussion of eligibility criteria, see Grubb, 2000). In a comparative study (Ministry of Finance, 2004), Denmark ranks above average among EU-15 countries in a composite measure of strictness of eligibility criteria²⁶. Denmark applies relatively strict criteria for eligibility to benefits, with the argument that strict eligibility criteria affect only those who do not comply with the tougher criteria, while a lowering of the unemployment benefit affects all unemployed, regardless of their search activity. Since the same measurement was made in 1998, Denmark has increased the strictness of its eligibility rules²⁷ (Figure 23).

²⁶ The indicator consists of demands on job search activity, availability during job search, participation in active labour market programmes, occupational mobility, geographical mobility, extent of valid reasons for refusal of job offer, benefit sanctions in case of self-induced resignation, benefit sanctions in case of refusals without valid reasons, and benefit sanctions in case of repeated refusals.

²⁷ According to the study, Danish rules are strict regarding demands on occupational mobility and on demands on job availability when participating in a labour market programme, with easier rules regarding sanctions when job or activation offers are refused.

Figure 23: Indicator of strictness of rules relating to the availability of unemployment benefits in selected countries, 1997 and 2004



In general, the rules governing the labour market in Denmark have been tightened in successive labour market reforms. In the early 1990s, an active labour market policy was enacted implying “right and duty of activation” after a certain period of unemployment. In 1994, the right to regain entitlement to benefits through subsidised employment and activation programmes was abolished. The duration of employment benefits was reduced in 1996 from seven to five years and subsequently in 1999 from five to four years. In the same vein, the criteria for eligibility for unemployment benefits have been tightened in recent years.

The most recent labour market initiative, “More people into employment”, was implemented in 2003. Among the measures are:

- harmonised rules for unemployment insurance recipients and recipients of cash benefits,
- the distinction between periods of activation and of cash benefits is abolished,
- the scope to keep earned income without losing means-tested benefits is increased and the cash benefit for married breadwinners after six months of unemployment is reduced,
- an obligation to accept a job from the first day of unemployment and demands on geographical and occupational mobility are increased.

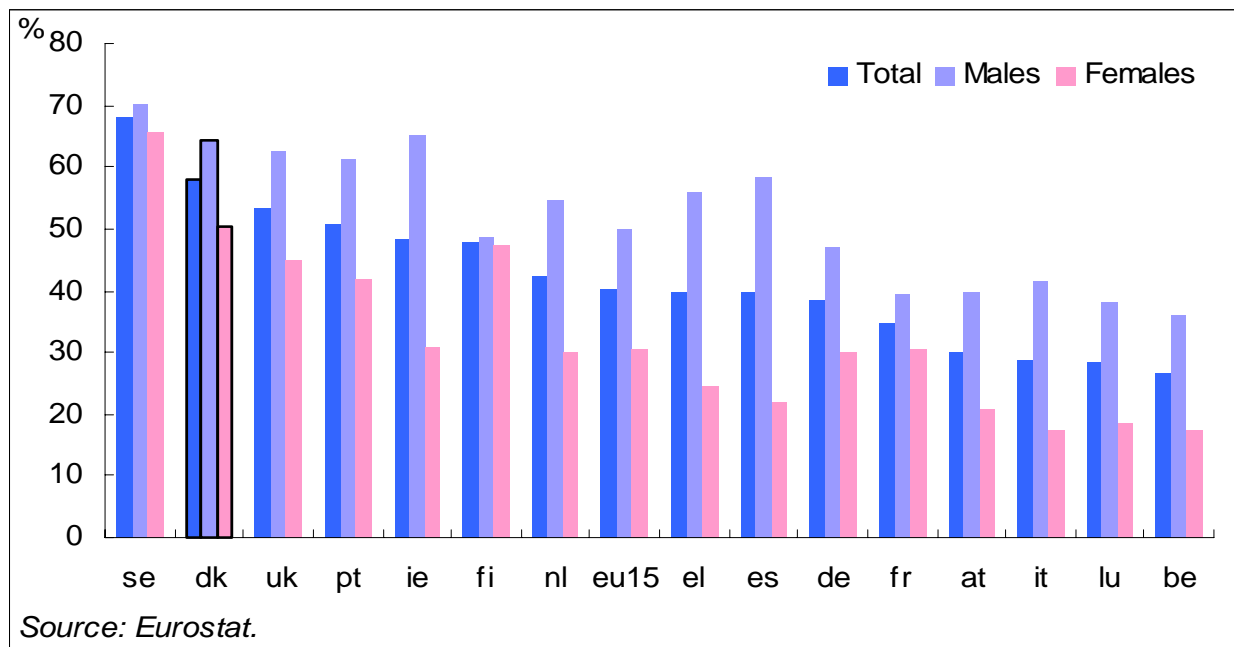
In 1996, the so-called Special Youth Package was introduced to address youth unemployment and to stimulate low-skilled young persons to take up paid employment or to seek education, instead of being on passive support. If young persons are still unemployed after six months, they have the right and duty to enrol in full-time special vocational education or training for a period of at least 18 months. To create an incentive for accepting a job offer or taking part in training before they have been unemployed for six months, the unemployment benefits are cut during the participation in the training. For young persons without formal education, the benefit is cut by 50 per cent. Refusal to participate in the courses is followed by a loss of entitlement to unemployment benefits. The effects have overall been positive and youth unemployment is lower than in the euro area, although the difference has narrowed in recent years.

In order to improve the functioning of the labour market and enhance labour supply, Denmark has taken a series of measures in recent years, mainly to strengthen activation and tighten eligibility criteria for receiving unemployment benefits. The level and duration of unemployment benefits, however, remain high. Financial incentives to work therefore remain weak for many low wage earners. Further measures addressing the incentives for unemployed with low potential wages could therefore involve unemployment benefit reform. By also contributing to fiscal savings, measures reducing public expenditure, such as unemployment benefits can have a double impact on fiscal sustainability. If lowering the initial benefit level is undesirable for equity reasons, an option could be a shortening of the benefit period or a gradual scaling back of the unemployment benefit. This has been proposed by, among others, the Danish Economic Council (2002). Such a step would reinforce the present scaling down of benefits after four years, at which time an unemployed person moves to (the lower) social assistance. Such a step-wise lowering of benefits is applied to social assistance as the benefit is lowered for couples after six months of unemployment. Moreover, the obligation for young unemployed people to accept activation also after six months at a lower benefit level represents the same principle and has shown positive results.

2.5. Increasing labour supply by targeting specific groups – older workers

As the overall labour market participation rate is already high in Denmark, efforts to increase labour supply should target groups where scope for increased labour market participation can be identified, such as older workers. At 58% (2002) the employment rate of older workers (55-64 years) is high in an international comparison, in the EU second only to Sweden. The EU-15 average is 40% (Figure 24).

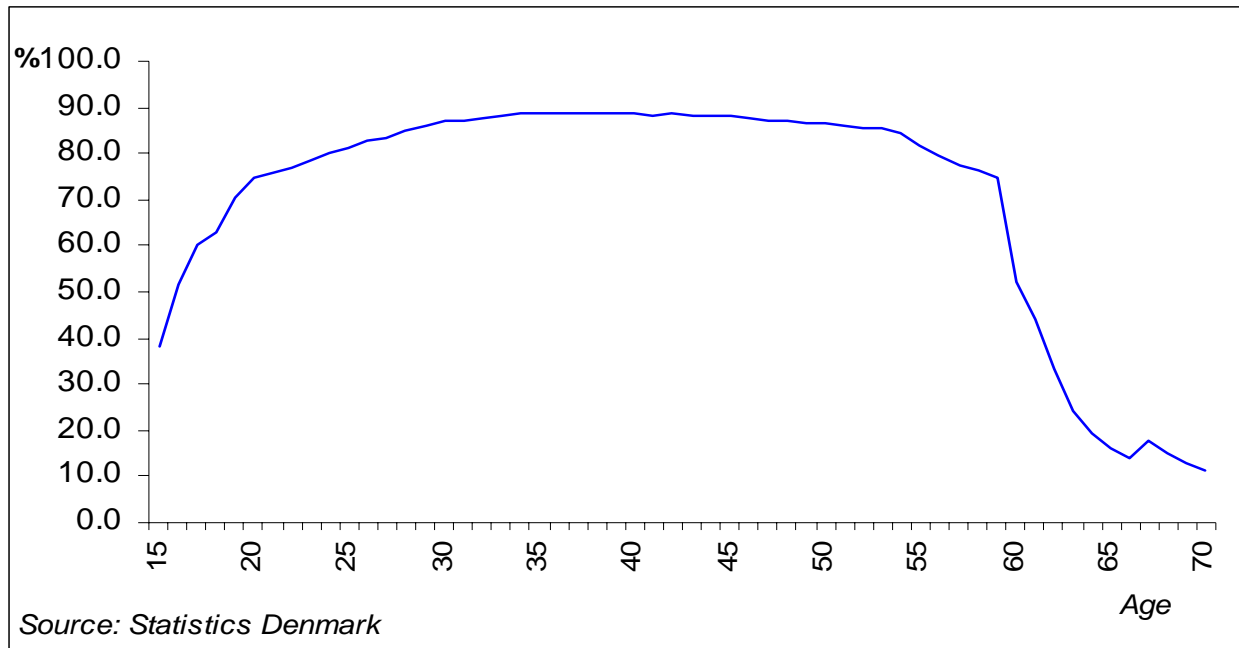
Figure 24: Employment rate (55 to 64 years)



However, the participation rate in Denmark falls sharply around the age of 60 (Figure 25) and for the age group 60-64, the participation rate is around the EU-15 average, below countries like

Portugal and Ireland. After France, it is the largest fall in the participation rate between persons aged 55-59 years and those aged 60-64 years. This phenomenon can also be seen in the average age of withdrawal from the labour market where Denmark is close to the EU average. A key factor behind this development in Denmark are the incentives related to early retirement, which have lead to lower participation rates among older workers.

Figure 25: Participation rate per age, 2002



Falling labour market participation among older workers has been a trend in Europe in recent decades. This is due to policy measures in many countries since the 1960s which have contributed to making it financially unattractive to continue working after the age of 55 (Blöndal and Scarpetta, 1998). By reducing the labour force, early retirement leads to lower potential output and puts additional pressure on public finances. The costs of early retirement measured as a loss of potential GDP in Denmark has been estimated at 7¾% of GDP²⁸. This figure is relatively low compared to many EU countries, but above the average for the OECD countries (Herbertsson and Orszag, 2000).

2.5.1. The voluntary early retirement scheme lowers labour supply...

In Denmark, this situation is to a large extent due to the availability of voluntary early retirement. Table 10 shows the composition of the persons aged 55-66 who are outside the labour force. By far the largest share of the persons outside the labour force aged 60-66 are recipients of the voluntary early retirement benefit scheme (VERB, see box 2 below). Introduced in 1979, this scheme reduced the labour force by more than by 100,000 persons (more than one birth cohort) within a few years. In 2003, there were some 180,000 benefit recipients of this benefit, close to 5% of the working age population.

²⁸ In 1998.

Box 2: Early Retirement Benefit schemes in Denmark

The *Transitional early retirement scheme* (“overgangsydelsen”) is an early-retirement scheme for older unemployed. Introduced in 1992 for the 55-59 year olds, it was extended in 1994 also to 50-54 year old persons. When it was closed to new entrants in 1996, 46,000 persons benefited from the scheme. In 2003, there were some 11,000 beneficiaries.

The effects of the closing of this scheme are relevant in a discussion of the VERB. After a fall in employment of 25,000 between 1993 and 1997, the period coinciding with the transitional early retirement scheme, employment increased by 30,000 and the participation rate increased by 8 percentage points for the same age category 1997-2002. Closing the scheme for new entrants thus seems to have boosted employment in that age category, and persons who earlier could have used the scheme have not gone to unemployment. The developments in labour market participation for persons aged 55-59, have thus been positive for a number of years. This effect should be even stronger for the VERB scheme as it is not linked to being unemployed.

The *Voluntary Early Retirement Benefit (VERB) scheme* was introduced in 1979 as a development of the unemployment insurance scheme. Its introduction was in part motivated by a wish to offer worn-out (but not disabled) people a way to leave the labour market before the age of 67, but also to make room for young unemployed. The scheme gives insured members at the age of 60 the possibility of receiving an allowance in connection with full or partial withdrawal from the labour market until the official retirement age. The VERB scheme thus provides an exit route from the labour market, and the largest part of early retirees receive this kind of benefits, which is not dependent on reduced working ability. This is in contrast to most other countries, where disability pension schemes provide the dominant path to early retirement.

The VERB scheme is available independently of the income of the spouse and of possible savings or wealth. To those with pension capital, a deduction is made in the amount of benefit. To beneficiaries who work at the same time, a reduction related the wage income is made in the benefit, on an hour-to-hour basis.

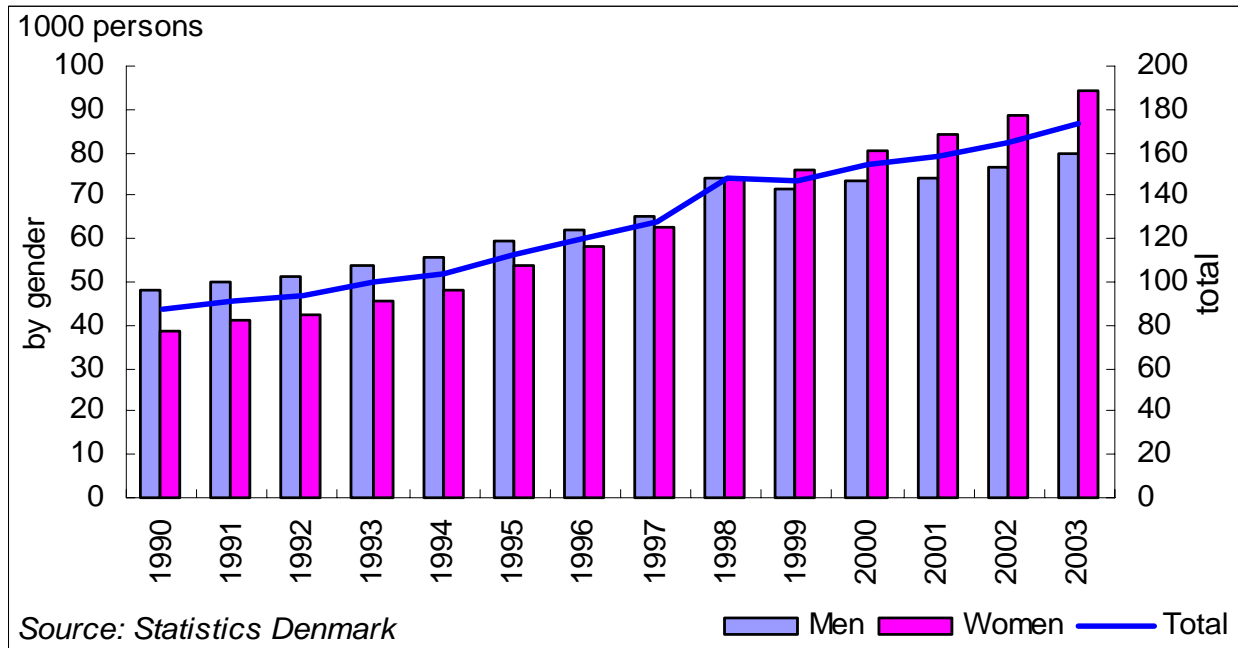
Since its inception, the inflow to the scheme has steadily increased and in 2003 there were some 180,000 benefit recipients, around 44% of the population in the eligible age group. New VERB recipients alone have accounted for more than half of the increase in the total number of public transfer recipients.

Table 10: Older persons of working age outside the labour force (2002)

Per cent	55-59 years	60-66 years
Outside of the labour force	21.8	70
Early retirement benefits ¹	4.8	43.6
Disability pension	12.4	21.7
Other public welfare measures	1.8	0.6
Not publicly supported	2.8	4.1
¹ VERB or transitional early retirement scheme <i>Source: Danish Employers' Federation</i>		

Figure 26 shows the steady increase in VERB scheme recipients since 1990. The VERB scheme was conceived, in a context of high unemployment, on the presumption that older workers are difficult to employ and that their exit from the labour market would create necessary room for younger persons. However, employment rates of older workers in most countries go hand in hand with participation rates for this age group. This indicates that where the employment rates of older workers are high there is a demand for these workers to match the supply (OECD, 2002a).

Figure 26: Participation in the Voluntary early retirement scheme (VERB)



Indeed, the VERB scheme is likely to contribute to making it more difficult for persons in their late 50s to find employment as potential employers may perceive a risk that the person leaves employment for the VERB scheme at 60 (Smith et al, 2003). If a positive correlation existed between unemployment and entry into the VERB scheme in the first half of the 1990s, this no longer seems to be the case. Most entrants to the VERB scheme come from employment, not from unemployment or from a situation of weak links to the labour market. This development reinforces the character of the scheme as a welfare benefit, not as a labour market scheme, for which it was originally conceived.

The replacement rate implied by the VERB scheme - the pension a person receives as a percentage of the after-tax income prior to retirement - can be a strong financial incentive to retire. The scheme has a strong income distribution effect through its relatively flat-rate benefits. Low-income earners are the most advantaged and they also have the weakest economic incentive to stay in work. As shown in Table 11, net replacement rates can be very high, in particular for spouses of primary earners, with replacement rates of more than 90% for low-age earner couples, and high replacement for couples also above average production worker wage. VERBs are in most cases lower than unemployment benefits; these are, however, subject to eligibility criteria linked to requirements of job search and availability whereas the VERB benefits are not.

Table 11: Net replacement rates for VERB at around 60 years of age for different income levels

Percent	0.67 APW	APW	1.5 APW
Single person	68	42	28
One-earner couple	73	47	32
Two-earner couple, primary earner in early retirement	95	62	53
Two-earner couple, secondary earner in early retirement	94	88	78

Source: Salomäki (ed.), 2003

It should be noted that the net replacement rates in this study were calculated on the basis of disposable income after deducting housing costs, which leads to lower replacement rates than in those of the EU-OECD study (table 8).

2.5.2. ...which does not seem to be remedied by the reform of the scheme

In the late 1990s it was recognised that the VERB scheme was negatively affecting growth potential and labour supply, and it was therefore reformed in 1999. The reform focussed on changing economic incentives rather than directly restricting access. One of the modifications to the VERB scheme in the 1999 reform was the introduction of individual contribution to the scheme²⁹. In spite of the reform, the VERB scheme remains a long way from being actuarially fair, where each person would receive in benefits the net present value of their contribution. Contributions only cover 20-25 percent of the future benefits. A person aged 45 today will in 15 years get back some 10 times the money on contributions if entering VERB at the age of 60 (Danish Economic Council, 2002). The scheme thus implies a strong subsidy of early retirement, distorting the basis on which individuals make decisions about their future economic situation.

As part of the 1999 reform of the voluntary early retirement scheme, the official retirement age in Denmark was lowered from 67 to 65 (fully effective from 2006). This decision, which goes in the opposite direction of the trend in most countries, can be seen as a consequence of the “success” of the VERB scheme: the lowering of the statutory retirement age shortens the maximum period of the voluntary early retirement benefit by two years and eases the burden on public expenditure, as VERB benefits are higher than public pensions³⁰.

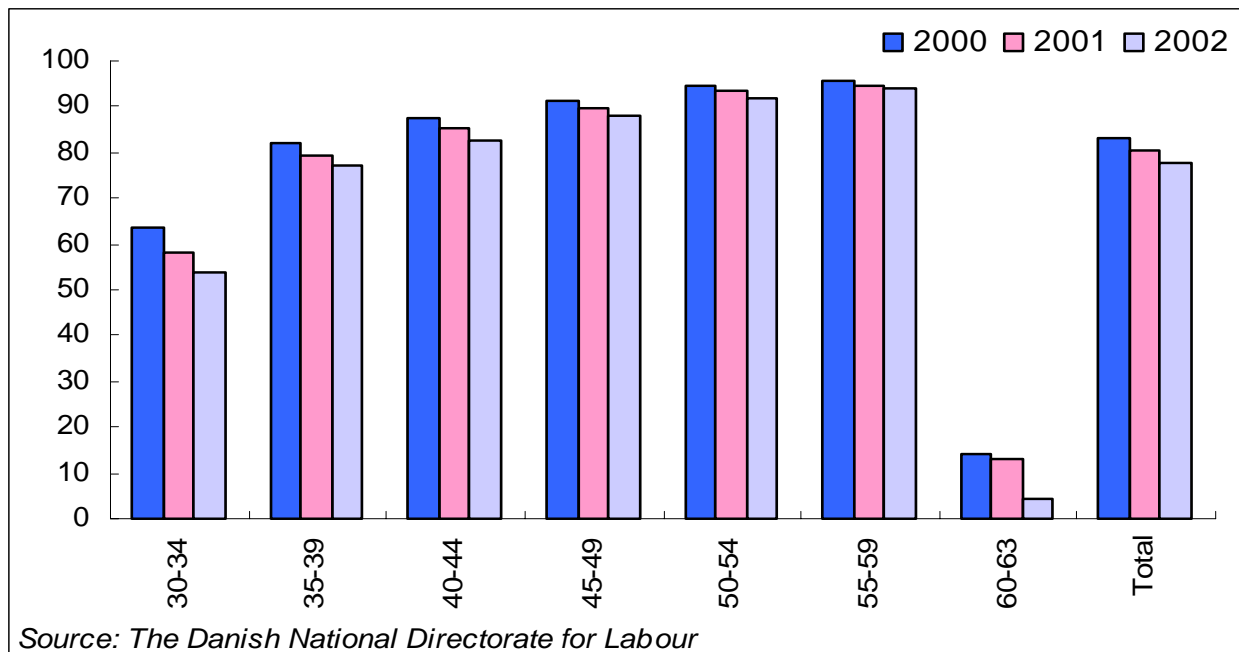
The development of the number of VERB recipients in future – and the ensuing effects on labour supply and public finances - is difficult to estimate. A certain number of factors could dampen entry into the scheme over time. First, the average level of education should pull in this direction. The number of persons with tertiary education is projected to increase after 2010 (and those with only primary education decrease), which should dampen the number of entrants, as the use of the scheme is more frequent by persons with low education, due to higher financial incentives to withdraw from the labour market. Moreover, an indication of lower future VERB entry into the scheme could be the number of persons paying their contributions to the scheme has been decreasing, in particular among the young. The contribution rate of 30-34 year olds fell from around 64% to 54% from 2000 to 2002³¹. The total percentage of persons making contributions has also fallen in the last years, but more modestly (Figure 27). This development could indicate a weakening belief in the viability of the VERB scheme in the longer term. However, the still very high percentage of persons aged 50-59 indicate that large inflows from these cohorts are likely in the next decade.

²⁹ For eligibility, the contribution to the scheme has to have been paid in 25 of the last 30 years, (in the earlier system, unemployment insurance fees had to be paid in 20 of the last 25 years).

³⁰ Another element in the VERB reform was that recipients of the benefit are now allowed to work an unlimited number of hours while in the scheme, against a maximum of 200 hours per year previously. However, to the extent that persons left employment for VERB because it was possible to work, the net effect may have been a lowering of effective labour supply. Finally, pensions are reduced to a larger extent. This rule could discourage persons with large pensions from entering VERB. If those who are in the scheme receive less benefits, it does not affect labour supply, only public expenditure.

³¹ The minimum period of contribution is 25 years. In the 30-34 years age category it is therefore not necessary to contribute in order to receive the benefit from 60 years of age.

Figure 27: Share of members of unemployment insurance fund who pay VERB contribution



As intended, finally, a result of the recent reform of the VERB is an increase in the labour market participation rates for the 60 and 61 year olds. As shown in Table 12, the increase in the participation rates for these age cohorts between 1999 and 2002 was largely due to a decreased VERB scheme participation. Many chose to postpone their entry after the introduction of the reform and the effect was a markedly higher inflow in 2002.

Table 12: Contributions to change in labour market participation 1999-2002

1999-2002	60 years	61 years	62 years	63-64 Years	65-66 years
	Percentage points				
Change in labour market participation rate	5.5	7.6	1.5	-0.4	-1.2
Contribution from					
VERB	2.4	4.6	-2.4	-4.7	-6.2
Disability pension	1.9	3.1	3.7	3.6	3.8
Other public welfare measures ¹	-0.3	-0.4	-0.3	-0.2	-0.1
Not publicly supported	1.5	0.3	0.5	0.9	1.3

¹ Cash assistance, job leave, training

Source: Danish Employers' Federation (2003)

The inflow into the VERB scheme in 2003, however, was only slightly lower than in 2002, indicating a continuing upward trend. As a result of the reform, the average period in the VERB scheme may thus decrease, dampening the negative effects of the scheme on labour supply (in relation to a baseline without any reform). However, the total number of recipients is increasing; there were some 180,000 participants in the scheme in 2003, 30,000 more than in 1999, when the reform of the scheme was introduced. Demographics have so far not been the driver in the

increase in VERB recipients, but will increasingly count in future, with the population of the persons aged 60-66 projected to increase by 37% to 2010³².

In sum, the VERB scheme has clearly outgrown its original purpose of allowing for older workers to retire earlier from the labour market while benefiting from an allowance. The popularity of the scheme, however, has contributed to making any modifications to scheme - and, a fortiori, its abolition - politically sensitive and the recent reform has made further reform a contentious issue. By creating incentives for a later entry into the scheme, the recent reform was a step in the right direction. However, the longer-term effects of the reform are uncertain and the scheme is likely to continue to contribute to a lower labour supply and thus represents a substantial burden on public finances. The VERB scheme therefore constitutes an important obstacle to raising labour supply. It would therefore appear that the scheme needs further reform if the longer-term challenges of securing the financing of Denmark's welfare commitments are to be seriously addressed.

³² With the 2002 rates of entry into the scheme, there would be 245,000 VERB recipients in 2010, 70,000 more than in 2002 (Danish Economic Council, 2002)

Glossary

Activity Rate – see Participation Rate

Average Production Wage (APW) - average gross wage earnings of adult, full-time workers in the manufacturing sector.

Benefit Replacement Rate, net – A measure that expresses the level of net benefits to net earnings. More precisely, it is measured as the relation between disposable income provided by benefits when out of work and disposable income when in work, taking into account also taxes and means-tested benefits.

Dependency Ratio - A measure of the portion of a population which is composed of dependents (people who are below or above the age limits of the working-age population). The dependency ratio is equal to the number of individuals aged below 15 and aged 65 or more (in Danish national statistics, 67) divided by the number of individuals aged 15 to 64 (in Denmark, 15-66), expressed as a percentage.

Dependency Ratio, old age - A measure of the portion of a population which is composed of old dependents (people who are too old to work). The dependency ratio is equal to the number of individuals aged 65 or more (in Denmark, 67) divided by the number of individuals aged 15 to 64 (in Denmark, 15-66), expressed as a percentage.

Employment Rate - the proportion of total number of employed persons to the total number of working age population (in the case of Denmark, between 15 and 66).

Income Gap - the difference between the monthly disposable income for a full-time employed and a full-time unemployed person.

Labour Force (or Persons in the LF) - the population of 15-64 years old (in the case of Denmark the age of 66) who are available for work. It includes those who are either employed or unemployed.

Participation Rate (also Activity Rate) - proportion of the total number of persons in the labour force to the working-age population aged between 15-64 years.

Effective Labour Supply – a labour supply concept incorporating also the number of hours worked for those who are employed. The effective labour supply can increase either because a greater number of people are willing to move from non-participation to labour force or because already employed persons exploit an incentive to supply an additional number of hours worked.

Eligibility Criteria – a term used broadly for criteria that allow the receipt of and restrict the access to social benefits.

Minimum Wage – the lowest wage fixed by law that an employer has to pay to a worker.

Non-Accelerating-Wage-Rate of Unemployment (NAWRU) - the level of unemployment consistent with non-accelerating (wage) inflation.

Replacement Rate, Net – see Benefit replacement rate

Underemployed - employed persons who express the desire to have additional hours of work in their present job or in an additional job, or to have a new job with longer working hours.

Unemployed - persons in the labour force who did not work or had no job/business during the survey reference week but were reported available and were actively looking for work.

Unemployment Rate, Open - proportion of the total number of unemployed persons to the total number of persons in the labour force.

Unemployment trap – A term used for a situation where benefits paid to the unemployed and their families are high relative to earnings and where, therefore, the financial incentives to take up a job are low, i.e. “the work does not pay”. More precisely, it can be measured as a change in effective tax rate (the rate at which taxes are increased and benefits withdrawn) or as an increase in disposable income when a person takes up a job.

Working Age Population - the population aged 15 to 64 years at a specified time (in the case of Denmark to the age of 66).

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