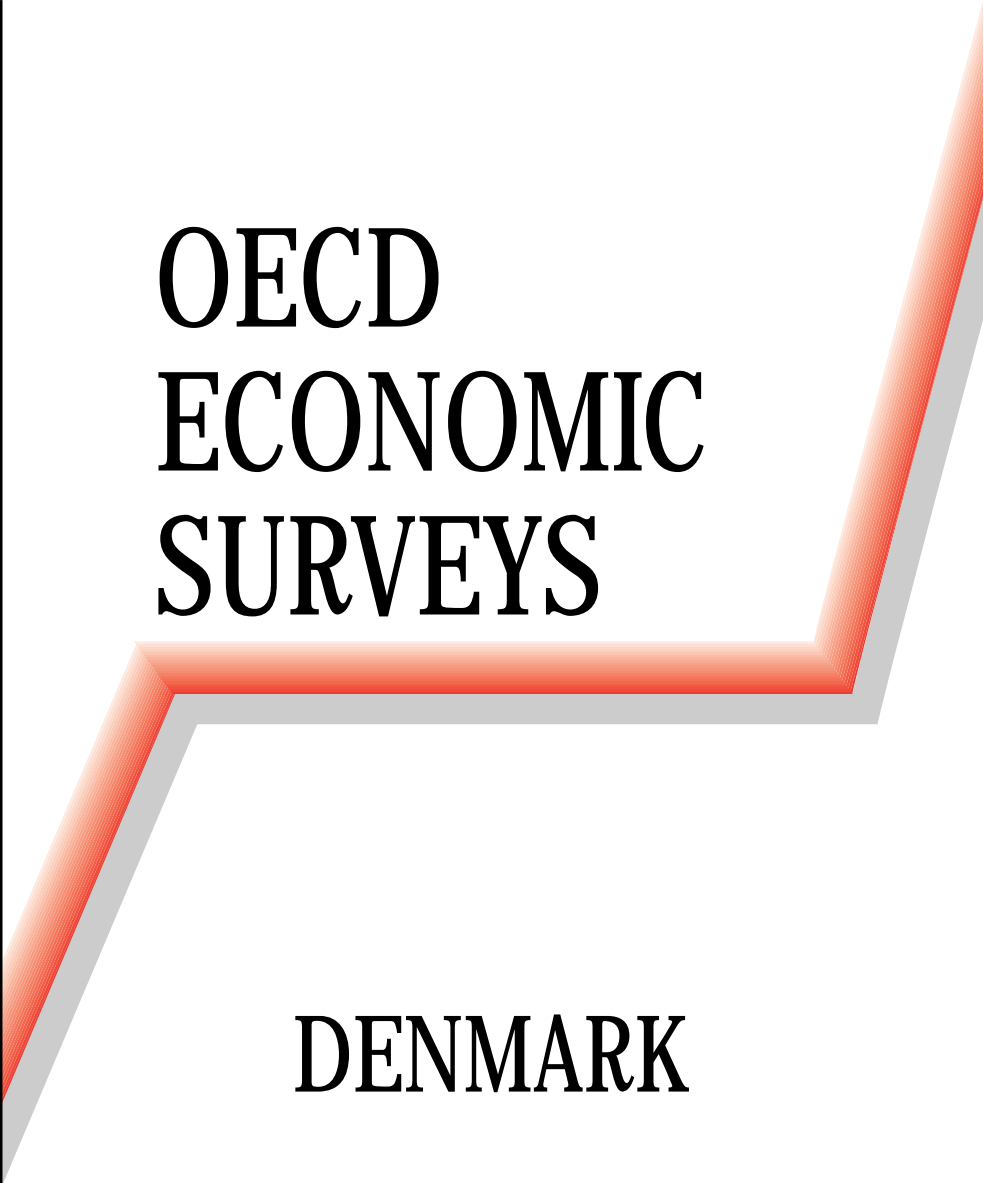


# OECD ECONOMIC SURVEYS



## DENMARK

# 1997

### **SPECIAL FEATURES**

- EDUCATION, TRAINING  
AND  
LABOUR MARKET REFORM

**OECD  
ECONOMIC  
SURVEYS**

**1996-1997**

**DENMARK**

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## BASIC STATISTICS OF DENMARK

### THE LAND

Area (1 000 sq. km)	43	Inhabitants in major cities, 1.1.1996	
Agricultural area (1 000 sq. km) (1994)	27	(thousands):	
		Copenhagen	477
		Aarhus	280
		Odense	184
		Aalborg	160

### THE PEOPLE

Population, 1.1.1996, thousands	5 271	Civilian employment, 1995, thousands	2 617.1
Number of inhabitants per sq. km	122	By sector:	
Net natural increase		Agriculture	127.8
(average 1991-1995, thousands)	6	Industry	499.0
Net natural increase per 1 000 inhabitants,		Construction	151.7
1995	0.8	Market services	915.0
		Community, social and personal services	909.5
		Other	14.1

### PRODUCTION

Gross domestic product, 1995		Gross fixed capital formation in 1995	
(Kr million):	967 724	(Kr million):	151 957
GDP per head (1995 US\$)	33 144	Per cent of GDP	15.7
		Per head	5 289

### THE GOVERNMENT

Public consumption in 1995		Composition of Parliament (Number of seats):	
(percentage of GDP)	25	Social Democrats	63
General government current revenue in 1995		Liberals	44
(percentage of GDP)	58	Conservatives	28
Public gross fixed capital investment in 1995		People's Socialists	13
(percentage of GDP)	2	Progressive Party	11
		Social Liberals	8
		Left Alliance	6
		Centre Democrats	5
		Independent	1
		Total	179
Last general elections: 21.09.1994		Next general elections: 21.09.1998 (at the latest)	

### FOREIGN TRADE

Exports of goods and services as percentage of GDP, 1995	34	Imports of goods and services as percentage of GDP, 1995	30
Main exports in 1995, percentage of total merchandise exports:		Main imports in 1995, percentage of total merchandise imports:	
Agricultural products	13	Intermediate goods for agriculture	3
Canned meat and canned milk	2	Intermediate goods for other sectors	44
Industrial goods	72	Fuels and lubricants	4
Other goods	13	Capital goods	12
		Transport equipment	6
		Consumer goods	31

### THE CURRENCY

Monetary unit: Krone		Currency units per US\$, average of daily figures:	
		Year 1996	5.798
		April 1997	6.518

*Note:* An international comparison of certain basic statistics is given in an Annex table.

*This Survey is based on the Secretariat's study prepared for the annual review of Denmark by the Economic and Development Review Committee on 8th April 1997.*

•

*After revisions in the light of discussions during the review, final approval of the Survey for publication was given by the Committee on 2nd May 1997.*

•

*The previous Survey of Denmark was issued in February 1996.*

## Assessment and recommendations

### *Overview of current policy issues*

When the Danish economy was last reviewed, in December 1995, economic activity had been expanding rapidly over the two preceding years, setting unemployment and budget deficits on a downward trend. With inflation remaining moderate and interest rates falling, domestic demand was expected to sustain an expansion of GDP of about 3 per cent a year. In the event, the pace of economic expansion slowed in late 1995, mainly as a result of weaker international growth. But the underlying strength of the domestic economy has quickly reasserted itself, stimulated by falling long-term interest rates and a lower effective exchange rate. The focus of economic policies is now on sustaining the expansion through structural policies aimed at reducing unemployment and establishing the public finances on a sound longer-term base. Against this background, the present *Survey* begins by analysing the characteristics of the current expansion and the role of monetary and fiscal policy in ensuring balanced growth, in the context of Denmark's intended non-participation in stage III of the EMU and the challenges (including future adverse demographic developments) faced in establishing a viable medium-term fiscal balance. The *Survey* then examines overall progress in implementing the recommendations made under the *OECD Jobs Strategy*, both with respect to labour-market policies proper and to competition-related policies which indirectly affect labour-market outcomes. Improving the competencies of the workforce and reducing

the large proportion of youths who do not obtain a vocationally-qualifying education are particularly central to the medium-term economic strategy of the Danish authorities, and the final chapter deals in more detail with the challenges posed in this field.

***Buoyant domestic demand is making for a continuation of economic growth***

After a temporary weakening in late 1995 and early 1996, reflecting an initial stagnation in export markets which set off a downward adjustment in business inventories and a pause in business investment, economic growth picked up during 1996. Household demand has remained buoyant, with the growth of private consumption in 1996 being about 2½ per cent. Increasing employment, falling interest rates and capital gains from a persistent rise in house prices have all served to boost consumer confidence. These factors are expected to continue to operate in 1998, feeding into higher housing investment. Reflecting stimuli from both exports and domestic demand, business fixed investment should remain robust, broadening from a concentration on machinery and equipment to higher spending on structures. Incorporating a contribution to growth from the expansion of oil and gas activities in the North Sea at ¾ percentage point in 1997 and ½ percentage point in 1998, overall GDP-growth should pick up from 2½ per cent in 1996 and 1997 to around 3 per cent in 1998. The current account surplus, which peaked in 1993 at 3.6 per cent of GDP, has been gradually eroded with the strength of domestic demand, but is projected to stabilise at close to 1 per cent of GDP.

***... while wage moderation has made for low inflation***

Total employment expanded by 1 per cent during 1996, principally due to gains in building and construction and in private services, and it is expected to continue to grow at this pace in 1997 and 1998. Unemployment fell strongly in both 1995 and 1996, as the effects of higher labour demand were reinforced by a falling labour force stemming from

government-sponsored schemes for paid leave and early withdrawal of the older long-term unemployed. By the end of 1996 registered unemployment was close to 8 per cent (national definition). Wage growth has remained subdued in the face of a tighter labour market. With the early withdrawal scheme being phased out and leave schemes pared down, wage moderation is being bolstered by an upward trend in labour supply and the effects of labour-market reforms in lowering structural unemployment. Central negotiations have produced a wage outcome which should sustain present trends, but the overall result will depend on local agreements. With profit levels high and productivity growth improving, the incidence of higher wage growth into prices would, in any case, be partial and slow to come through, allowing consumer price inflation to stay below  $2\frac{3}{4}$  per cent.

***Easing monetary conditions have helped the expansion as policy credibility has strengthened***

Monetary developments have played an important supportive role in the expansion, as the long-term commitment to a policy of exchange-rate stability has reaped the benefits of price stability and falling interest rates. Danish interest rates have more than matched the downward trend in Europe, falling by  $3\frac{1}{2}$  percentage points since spring 1995 for short rates and  $2\frac{3}{4}$  percentage points for long. The past year has witnessed a strengthening of the credibility of the monetary policy framework and with the bilateral exchange rate against the Deutschemark now closely shadowing the ERM central parity, the short-term interest-rate differential with Germany has fallen to about  $\frac{1}{2}$  percentage point. The fall in bond yields has brought the 10-year yield differential towards Germany down to about  $\frac{3}{4}$  percentage point. Strict adherence to the fixed exchange rate policy has implied less volatility against other core ERM currencies, reinforcing the effect of favourable economic fundamentals on financial market confidence. The benefits of lower credit costs for the private sector were enhanced by lower spreads

between the yields on mortgage and government bonds and between banks' lending and deposit rates, as competition improved within the banking sector.

*... but long-term  
inflation  
expectations have  
not yet been  
broken*

There are however a number of caveats with respect to monetary conditions in the current conjuncture. Wage setting behaviour during the 1990s would appear to have been broadly consistent with the nominal anchor implied by ERM participation. The increased steepness of the yield curve, which has broadly mirrored developments in Germany in recent years, together with the premium on krone-denominated debt instruments, may be seen as embodying the risk that inflation may rise over the medium term. In this respect, given the referendum decision not to take part in stage III of the Economic and Monetary Union, Denmark may be perceived by financial markets as maintaining an accommodating monetary policy option which demands a higher risk premium than if the intention were to participate. Continued adherence to the fixed exchange-rate regime will provide an effective anchor for wage and price developments over the medium term. But in the short term an inflation risk would seem to stem from the possibility of ERM-wide monetary conditions being unsuitable to the more advanced cyclical development of the Danish economy. The present monetary environment would appear to be more stimulatory than at any time during the 1990s, the impact of lower interest rates being reinforced by the fact that the nominal effective exchange rate has depreciated in 1996 (after substantial appreciation in 1994-1995). With signs of excess demand for labour already appearing in several regions and occupations, and with house prices rising, the eventual risk of deteriorating wage competitiveness – with adverse employment consequences – and of an inflationary consumption-led boom cannot be fully discounted.

*... calling for  
a rebalancing  
of the policy mix*

With monetary policy discretion necessarily limited by the fixed exchange rate commitment, fiscal policy has to play a more prominent role in balancing overall demand. This is reflected in the Danish medium-term strategy, which envisaged a continuous tightening of fiscal policy as activity picked up over the years 1995-98 following the more stimulatory stance of the 1993-94 budgets. Assisted by the strength of the economic upturn, this strategy has so far been successful in reducing the deficit in public finances and the general government budget is projected to be back in balance in 1997. However, the planned tightening of fiscal policy in 1996 was not realised, in part because of slippage in local authority budgets. While the room to pursue interest rate reductions was not utilised in full, it remains to be seen if the policy mix has been fully consistent with inflation stabilisation objectives: the possibility of a pro-cyclical policy response is a general and long-standing problem with fiscal activism. For the next few years, fiscal policy is programmed to be restrictive, in line with the medium-term needs of the economy. The fiscal instrument will thus provide a valuable counterweight for inflation pressures if these were to re-emerge. Varying fiscal stance with perceived short-term demand fluctuations should be avoided in favour of a fiscal stance which consistently anchors expectations in the medium term.

*Public finances  
are approaching  
balance, but  
this may not be  
sufficient*

Acknowledging Denmark's consolidation effort, and the concomitant fall in gross public debt from 80 to less than 72 per cent of GDP over the two years 1993-95, in the spring of 1996 the European Union removed Denmark from the list of countries under surveillance under the excessive budget deficit-procedure of stage II of EMU. However, budget balance is being achieved at a time during the economic cycle when resources are relatively fully employed. While structural budget norms cannot be identified precisely, looked at from the perspective of the need to

balance the budget over the cycle, a higher level of surplus would be desirable for ensuring medium-term stability. Progress made towards fiscal retrenchment has been based on a strongly declining expenditure-to-GDP ratio, as transfers and public consumption growth have slowed, while the overall tax-to-GDP ratio has remained broadly unchanged, reflecting *inter alia* increasing revenue from corporate taxation. Efforts to improve the structure of public finances at central government level have been undermined by insufficient control over local government finances, with local taxes being increased to finance consumption. While the framework for the annual agreements between central government and the municipalities and counties is very flexible, in order to allow for local preferences to be combined with overall control of public finances, the recent increase in local expenditures and taxes has raised questions about the sustainability of a system which depends on completely voluntary agreements. Moreover, the achievement of overall budget balance coincides with the highest level of public consumption and one of the highest transfer levels among OECD countries – although the Danish practice of generally providing transfers gross-of-taxes should be borne in mind in cross-country comparisons. Determined efforts are required to create a restructuring of public finances which does not impede long-term growth of the economy. While short-run demographic trends are not unfavourable, it is also important that the improvement of public finances be sufficient to deal with the demands posed by the adverse demographic developments projected somewhat further ahead.

***Reform of tax expenditures should be used to broaden the tax base and lower tax rates***

While the 1994-98 tax reform has broadened the tax base and reduced marginal income tax rates, the heavy burden of taxation, affecting households in their capacity as suppliers of labour, as savers and as consumers of goods and services, still gives rise to distortions in the labour market and depresses private savings. Such distortions are in general



magnified by opportunities to shift income from highly-taxed to less heavily-taxed components. Tax expenditures in Denmark have recently been estimated as costing an amount equal to 3 per cent of GDP, and if tax expenditures for owner-occupied housing and pension savings in life-insurance companies and banks – still to be assessed in more detail by the Danish authorities – are included, it would appear that the amount is significantly higher. There is thus substantial further scope for broadening the tax base and lowering marginal tax rates. Tax expenditures for owner-occupied housing have been reduced substantially by tax reforms implemented over the last ten years, and consumer confidence could be damaged in case of uncertainty over housing taxation. However, given the underlying strength in the housing market, where price increases of 15 to 20 per cent have been registered over the last two years, a further gradual reduction of tax expenditures for owner-occupied housing might serve a double purpose, restraining the economic upturn as well as moving towards an equalisation of the tax treatment of real and financial savings.

***Further efforts  
are required to  
make budget  
developments  
sustainable***

At present, tax-favoured pension savings help to skew the composition of household portfolios to the extent that financial assets are held basically only in this form. Insofar as there is a substantial dead-weight loss incorporated in the present schemes, tax deductions of DKr 1.8 billion being necessary to secure private savings of DKr 1 billion in one case according to a recent study, public and national saving would benefit from their phasing out. Withdrawing tax expenditures and levelling the tax treatment between financial instruments should also serve to clarify households' responsibilities for saving for their own retirement, which would be in keeping with the present efforts to incorporate occupational pensions in wage bargaining agreements. As noted in the 1996 *Economic Survey of Denmark*, the public

sector is deeply involved not only in the provision of services but also in redistributing income both between individuals and within their life-time. Efforts to strengthen individual and collective responsibility in life-time redistribution, made possible by more efficient and deeper capital markets, would prove beneficial in shouldering the prospective long-term increase in expenditure for the elderly, estimated at 4 per cent of GDP, without resorting to tax increases or discretionary cuts in prioritised public programmes. The long history of budget deficits has created a generational imbalance in the disfavour of future generations, necessitating additional efforts to make budget developments sustainable.

***Structural reform  
should continue***

As emphasised in the *1996 OECD Economic Survey*, a reduction in structural unemployment would be a highly effective way of addressing budget imbalances. Moreover, in a wider perspective, unemployment is a major factor in preserving earnings inequality. Following the broad framework set out in the *OECD Jobs Study*, the previous *Survey* recommended that Denmark improve wage formation structures, reduce unemployment insurance and related benefits, reform labour-market policy and its financing, enhance skill and competence acquisition and extend product markets. These recommendations were given against the background of significant changes in Danish labour market policies from 1994 to early 1996, so that a wide range of efforts were already in the process of adoption or implementation. Reflecting the priorities of the Danish authorities, progress has been significant with respect to lowering the duration of unemployment benefits, tightening eligibility criteria and activating the unemployed, particularly youths with an incomplete education. The tax wedge on labour is being lowered, with a tax reform gradually implemented over the years 1994-98, while the paid-leave schemes, which were broadened in scope in 1993, have

been made less generous and access to early withdrawal benefits for long-term unemployed (50 to 59 years of age) abolished. The active labour-market system has been reorganised, with responsibility for the system being decentralised, *inter alia*, to encourage county labour-market boards to monitor and design actions against possible regional bottlenecks.

***... covering both  
labour and  
product markets***

The results of the reform are still emerging but are so far encouraging. In the face of falling unemployment, the relatively moderate outcome of the spring 1997 wage negotiations could indicate that labour-market reforms have managed to lower the structural unemployment rate. With respect to the labour market for youths, higher demands on job seekers, combined with reduced generosity of benefits, have been effective in motivating youths to complete their basic education or seek non-subsidised jobs. Developments in the labour market for older workers have been less satisfactory, insofar as the effective retirement age has continued to fall. The tendency for enterprises to dismiss mainly older workers when downsizing or restructuring may be connected to the possibilities for older workers to enter an early retirement scheme or receive unemployment benefit until early retirement. For the social partners to take responsibility to deal effectively with this issue within the wage bargaining framework, it would be advisable to make the exit possibilities represented by government-funded early retirement schemes (60 to 66 years of age) less accessible. To stimulate labour-market incentives, tax reforms should be carried further in the direction of lower marginal tax rates. Continued efforts to improve labour market adaptability also need to be underpinned by enhanced product market competition, with wider powers for the competition authority to intervene *vis-à-vis* the public utilities than embodied in the present proposal for the new Competition Act. Business sector dynamism and job creation would also

benefit from efforts to lower subsidies and the energy sector should be exposed to deregulatory efforts similar to those evident in other countries and in other Danish utility sectors.

***The education strategy has so far not given a satisfactory return***

The education and training of the workforce have pivotal roles in Danish economic policy, not only in raising long-term economic growth and productivity in the aggregate, but also in upgrading the competencies of least-skilled workers to validate the current level of bargained minimum wages. In terms of economic resources, formal education in Denmark – from compulsory education in primary and lower secondary schools, through general and vocational education at upper secondary level to tertiary education at universities, business schools and colleges – receives close to 9 per cent of GDP if student grants are included, the highest share of resources devoted to this sector among OECD countries. Public involvement is also extensive in adult education and training, with the government covering about 75 per cent of expenditures amounting to 2<sup>3</sup>/<sub>4</sub> per cent of GDP. Pressures on resource use are characterised by a high degree of asymmetry since at lower levels declining pupil numbers are only partially matched by lower expenditure, whereas increases in pupils are matched fully by expenditure increases. Tertiary and adult education are characterised by far higher flexibility in resource use, but the increased coverage and generosity of students' grants is the single most important source of expenditure growth.

Despite these heavy resource claims, in terms of educational output formal education in Denmark has not so far achieved the same results with respect to proficiency in reading, writing, mathematics and science as other proponents of the Nordic educational model such as Sweden and Finland. Indeed Danish results are on the middle to low side in international comparisons, reflecting, to some

extent, the Danish educational tradition of stressing the importance of early character development, and they improve substantially in the final years of primary schools. The share of youths not graduating at upper secondary level – by international experience crucial for future labour market outcomes – is about 20 per cent, though falling markedly over the past few years. Youth unemployment remains relatively low in Denmark, which testifies to the quality and relevance for employers of the education provided. But in terms of the overall economic return on resources invested in human capital formation, the Danish economy seems in some respects to have been unable to benefit fully from its educational effort. Incentives to select education of high expected social value are on the whole weak, with wage differentials giving little guidance. Reflecting the objective of making higher education open to all, generous educational grants mean that student choices do not have to reflect differences in costs, or social value, between educational programmes. Although grants incorporate incentives for students to finish their education within the allotted time, and there is some margin for changes of programme, Danish students enter higher education at the average age of 23 and tend to stay on longer than in most other countries.

***Primary and secondary education: resources are ample and could be utilised more fully***

Responding to the above weaknesses, the 1990s have been a period of extensive educational reform in Denmark. At higher levels of education, the basic approach has been to broaden access to existing institutions and stimulate individuals to continue their formal education. At the level of compulsory schooling, the mainstream model based on a unitary school has been implemented in full, and intensive efforts have been directed at lowering drop-outs from formal education, by introducing a wider choice of programmes at upper secondary level, by “bridging” programmes to improve career choice, and by erecting a

“safety net” of apprentice places to supplement the supply from enterprises. It would appear that resources are ample at primary and secondary level. The pupil-to-teacher ratio and teaching hours per year are both low in an international context. A more intensive use of available resources, both with respect to the utilisation of pupils and teachers’ time, is clearly an option. This could improve educational output by allowing a faster learning process in basic skills. Incentives would also improve if there were greater resort to performance-related pay for teachers, based on systematic reviews of educational progress made. One of the government’s recently launched initiatives to improve the quality of primary and upper-secondary education is to institute a more differentiated wage system in the public sector, and a move in this direction forms part of the recent wage agreement.

***Tertiary  
education:  
incentives  
structures should  
be reappraised***

The incentives for institutions in the tertiary sector, and more recently the vocational upper-secondary sector, to adapt to students’ demands for educational programmes have improved with the introduction of the “taximeter” financing system, whereby resources are matched to student achievement at each institution. Nevertheless, incentives elsewhere in the system would not seem to provide clear signals for students to invest in education. In particular, the high rate of pay at the lower end of the wage scale weakens incentives to complete an upper secondary education in order to secure a position as a skilled rather than as an unskilled worker. Although the risk of unemployment is much higher for the less-educated, so that their relative life-time income tends to be much lower than the pay structure suggests, high minimum wages and the strong progressivity of the Danish tax and transfer system at the lower end of the income scale discourage the investment in human capital. At the tertiary level, the disincentives created by the wage structure have been offset by providing generous

student grants, with state-guaranteed loans diminishing in importance as a means of financing studies. This generosity is costly in budget terms and encourages students and employers to use academic credentials as a screening device for job aptitude, especially since wage costs differ little according to qualifications. Moreover, there is a risk of declining returns to further investment in higher education, especially given the present ambition of extending enrolment in this sector. A reformulation of the support scheme for students to provide loans rather than grants, would underline the investment dimension of higher education, while embodying stricter upper time limits. However, such a shift would conflict with the deeply entrenched objective of equal education opportunity.

***Adult education should be the domain and financial responsibility of the social partners***

Extensive public involvement in the provision of adult education and training may also detract from the efficiency of the resources employed for such purposes. The public sector needs to retain an important role in determining the overall amount of resources for this sector insofar as it will maintain responsibility for training for long-term unemployed and for offsetting short-term excess demand for categories of workers (bottlenecks). However, having been set up to offset the negative externalities stemming from the dominance of small-and medium-sized enterprises in Danish industry, and therefore open, in principle to any enterprises, the in-work training system may nevertheless cater more for the needs of larger enterprises who are better able to fit in training needs with production schedules. In general, the amount of adult and in-house training in Danish companies is high. But the system still seems to be better at providing traditional skills than new ones, for which enterprises increasingly depend on private suppliers. It thus increasingly relies on the willingness of enterprises to set aside resources for training and this principle could be extended to the allocation of all training resources. Other

parts of the adult educational system have already demonstrated a capacity to adapt more rapidly to changes in market forces. User fees have been introduced on a limited scale in adult education and should reinforce this capacity. Adult education in general requires a greater reliance on user fees than hitherto applied, with the financing being a matter decided by the wage-bargaining process.

### *Summing up*

Overall, Denmark continues to benefit from the now well-established strategy of fiscal consolidation, exchange-rate stability and labour-market reform. Employment growth and falling unemployment have coincided with low wage and price inflation, a current account surplus and public finances approaching balance. The prospects for continued expansion are good, based on the credibility of the monetary policy framework and the prospects of further budget consolidation. Continuing efforts are needed to lower structural unemployment and reverse the decline in the retirement age, while the educational strategy of the Danish authorities would benefit from a more market-oriented set of incentives to guide educational choice and secure the maximum of economy in the allocation and use of resources. Further steps in the above direction would help to underpin Denmark's relatively good economic prospects, providing the basis for the fuller and more balanced use of the country's resources.



## I. Recent trends and prospects

The Danish economy is now in the fourth year of an expansion which got under way in mid-1993. Domestic demand has been the main driving force, the initial dependence on private and public consumption having broadened to include fixed investment since 1995 (Table 1). Exports, initially benefiting from favourable market developments in 1994, have since been held back by slow growth in continental Europe and a continued loss of market shares, and this weakness provoked a correction in inventory and fixed investment in late 1995 and early 1996 which temporarily depressed economic activity. The strength of domestic demand quickly reasserted itself and GDP expanded at a rate of over 3 per cent during 1996. Employment has been growing at about 1 per cent a year,

Table 1. **Main demand components**  
Percentage changes from previous period

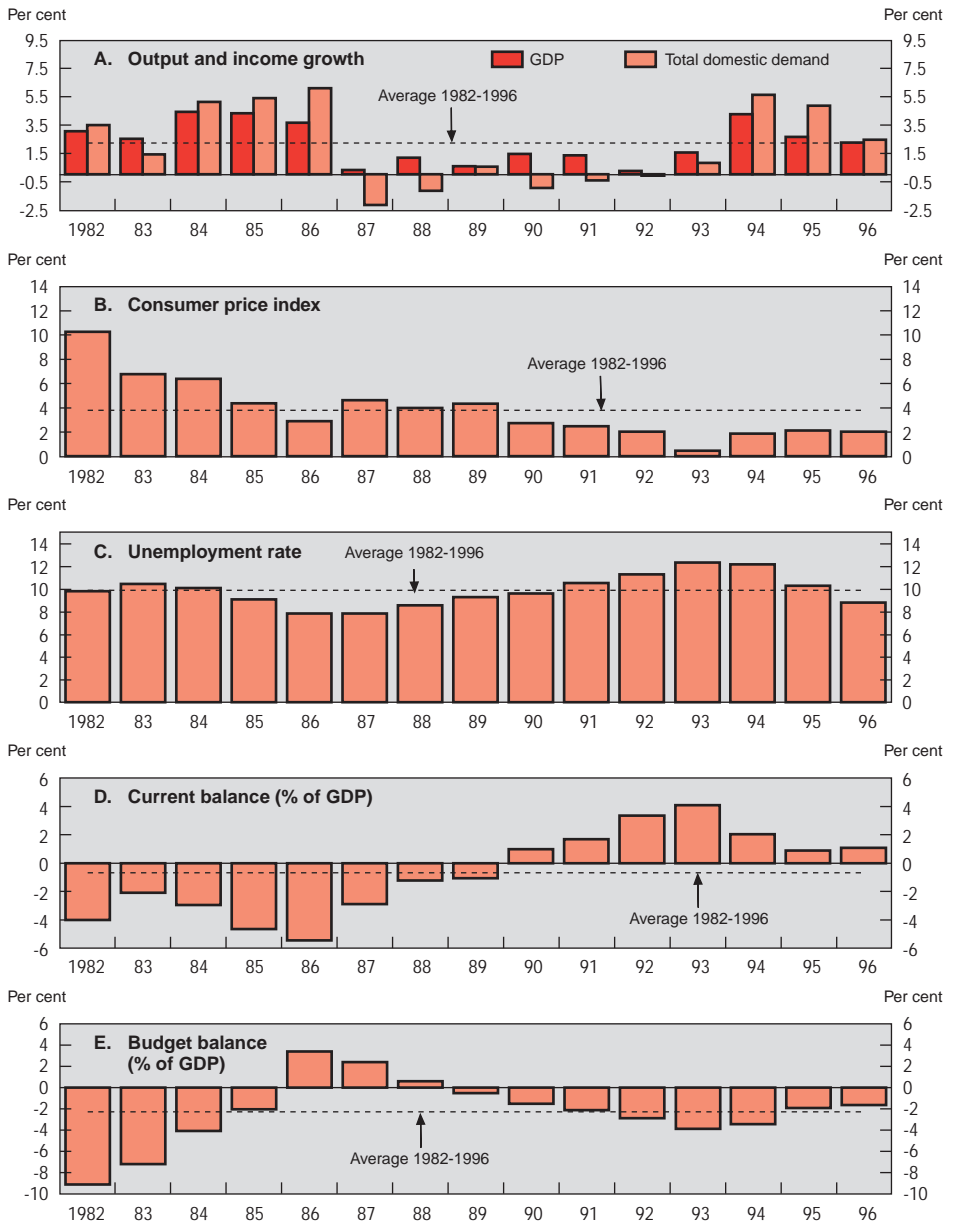
	1993	1994	1995	1996	1995 <sup>1</sup>		1996 <sup>1</sup>	
					I	II	I	II
					Private consumption	2.3	6.6	2.1
Public consumption	3.0	2.0	0.5	2.0	0.4	0.4	1.3	0.9
Gross capital formation	-4.4	0.6	10.7	7.7	7.8	3.4	4.2	3.2
<i>of which:</i>								
Housing	-7.2	11.7	9.4	8.9	4.9	2.3	5.2	4.6
Business	-4.7	-2.7	14.3	8.5	11.0	4.6	4.5	3.2
Change in stocks <sup>2</sup>	-0.5	1.1	1.6	-0.9	1.6	0.1	-0.8	-0.5
Exports	-1.4	9.0	0.7	2.3	-0.7	-0.7	2.0	1.4
<b>Total demand</b>	0.1	6.7	3.5	2.3	2.1	0.8	0.9	1.9
Imports	-3.8	13.6	5.6	1.8	2.6	1.5	0.2	1.6
<b>GDP</b>	1.5	4.2	2.7	2.5	1.9	0.5	1.6	1.2

1. Seasonally-adjusted.

2. Contribution to GDP.

Source: OECD.

Figure 1. MACROECONOMIC PERFORMANCE



Source: OECD.

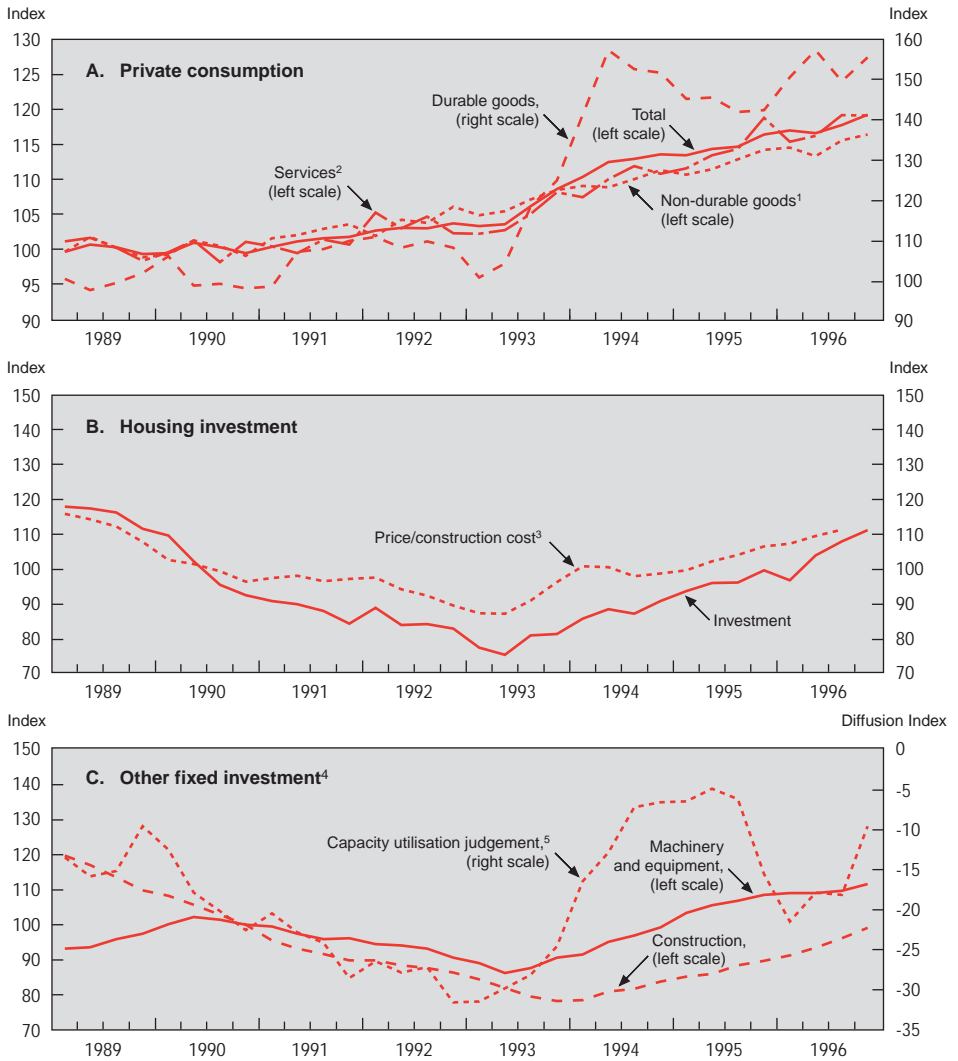
the unemployment rate falling from 12½ per cent at the beginning of 1994 to 8 per cent by early 1997. Nearly half of this decline can be explained by a diminishing labour supply as the result of early withdrawal and paid-leave schemes. Despite the large fall in the unemployment rate, wage inflation remains modest by historical standards and consumer price inflation is 2¼ per cent (Figure 1). From this basis, and given both a supportive monetary policy and the prospect of a pick-up in export demand, economic growth of around 3 per cent a year should be obtainable by 1998, with inflation expected to remain below 2¾ per cent. The recovery has fuelled a surge in house prices, suggesting a parallel with the previous upturn, when private consumption was boosted by rising asset prices and the wage inflation emanating from the building and construction sector spread to other sectors. In general, however, the present expansion appears much more soundly based than its predecessor.

## **Demand and production – a sustained and balanced recovery**

Private consumption has grown briskly since the recovery began in late 1993, increasing by around 2½ per cent in 1996 (Figure 2, Panel A). Durables spending has been particularly strong during the expansion, the number of new car registrations doubling, as pent-up demand has been satisfied. Personal spending has been supported by employment and real wage growth and further underpinned by the pick-up in the housing market. Consumer confidence has been buoyant, with sentiment being particularly upbeat with respect to households' own economic situation and the timeliness of purchasing major household items; a growing optimism about general economic conditions is also evident. The household saving ratio has fallen modestly over the last couple of years, aided by a 2 percentage point fall in long-term interest rates since late 1994.

Housing investment is recovering, driven by strong income growth and falling long term interest rates (Figure 2, Panel B). House prices have increased faster than construction costs,<sup>1</sup> having begun to pick up in 1994 and then accelerating in 1995. By mid-1996, house prices were about one third higher than three years earlier,<sup>2</sup> but they have grown approximately 30 per cent less than income per person since the 1986 peak in house prices. The Danish economy is relatively sensitive to house price movements since Danish households hold an internationally high proportion of their wealth in the form of residential property. While the

Figure 2. **PRIVATE DEMAND**  
 Index 1990 = 100, seasonally adjusted



1. Including semi-durables.
  2. Excluding housing.
  3. Average price of one-family dwelling divided by average residential construction costs.
  4. Four-quarter moving average.
  5. Net figure, share of enterprises experiencing capacity constraints minus enterprises unconstrained.
- Source: Statistics Denmark.

low inflation environment and high real interest rates lessen the attractiveness of housing investment as a hedge against inflation compared with the mid-1980s, unlimited tax deductibility of interest payments at a marginal tax rate of around 46 per cent (applicable from 1998<sup>3</sup>) still favours housing investment over other types of investment.<sup>4</sup> Private consumption is to a degree sheltered from abrupt interest rate movements, as the reliance on fixed long term interest rate housing loans shelters house owners' repayment patterns, thereby containing some of the negative effects from negative equity seen in other countries, such as the United Kingdom.<sup>5</sup>

Business investment has rebounded strongly during the upswing and the investment-to-GDP ratio has recently risen above its historical average. During the early stages of the recovery, investment was directed towards capital deepening, as purchases of machinery and equipment grew faster than buildings. But, as the recovery has matured, existing factory space has been gradually filled and investment in structures has begun to grow in line with machinery investment (Figure 2, Panel C). Overall construction spending owes much to the substantial investment taking place in infrastructure projects, such as energy projects and two major bridges connecting Zealand with another Danish island – Funen – and Sweden, which account for around a quarter of total investment. Investment levels in the government sector have remained unchanged over the past year, as public investment in construction and civil engineering has been held back to avoid bottlenecks emerging. The sustained growth of final domestic demand has been interrupted by erratic movements in stocks and exports. Following an unexpected build-up in stocks in the latter part of 1995 as European growth slowed, a strong destocking took place in the first part of 1996; while producers have since begun to rebuild their stocks, for 1996 as a whole stockbuilding is estimated have lowered overall GDP growth by around 1 percentage point.

Exports of manufactures stalled in the face of the slowing of market growth in late 1995 and early 1996. Moreover, the loss of aggregate export market share apparent in the 1993-95 period continued in 1996, Danish exports of goods growing by an estimated 2 per cent less than its export markets in volume terms. The loss of export share occurred despite a weakening of the effective exchange rate in 1996, and may be partially explained by more rapid growth in Danish unit labour costs than in other countries in the preceding year (Table 2), as well as to the possibility that strong domestic demand caused some exporters to re-focus on

Table 2. **Exports of goods and services**  
Percentage volume changes from previous period

	1993	1994	1995	1996
<b>Exports of goods</b>	-3.4	8.9	3.4	1.5
<i>of which:</i>				
Agricultural products	3.8	10.1	-2.6	-2.7
Machinery and instruments	-10.2	12.2	10.1	3.5
Other manufactured goods	0.0	4.7	7.6	0.6
Total manufactured goods	-3.5	7.3	8.2	1.3
Fuels and lubricants	-11.3	26.5	-5.4	23.8
<b>Exports of services</b>	-6.9	8.9	0.3	8.9
<b>Total goods and services</b>	-4.4	8.9	2.5	3.5
<b>Manufactured products</b>				
Relative export prices	-0.6	1.3	1.4	0.2
Relative unit labour costs	-1.8	0.8	4.0	1.8
Export growth	-4.6	7.7	8.2	2.8
Market growth	-0.7	11.8	9.9	5.9
Export performance <sup>1</sup>	-3.9	-3.7	-1.5	-2.9
<b>Total goods</b>				
Export growth	-3.4	8.9	3.4	1.5
Market growth	-1.0	10.3	7.3	5.4
Export performance <sup>1</sup>	-2.0	-2.3	-2.6	-3.3

1. Calculated as the per cent change in the ratio of Danish exports over the size of the export market.

Source: OECD; Statistics Denmark.

the domestic market.<sup>6</sup> Also, Danish manufacturing exports are heavily weighted towards goods such as food and beverages and wood products, which have a low income elasticity and which tend to lead to falling market shares during an upswing. In addition, the geographical composition of Danish exports acted to inhibit export growth in 1996, since important export markets such as the United Kingdom and Sweden enjoyed an overall favourable bilateral competitive position *vis-à-vis* Denmark. Denmark appeared to gain market shares in new markets in Eastern Europe and, to a lesser extent, in Asia.

The recovery in domestic demand from late 1993 onwards has led to a surge in both domestic production and imports. Value added in the business sector has grown by an estimated 10 per cent since the beginning of the recovery, with a stronger supply response and productivity growth in the manufacturing and construction industries than in the private service sectors (Table 3). Signs of

Table 3. **Growth in value added by sector**

Percentage changes from previous period<sup>1</sup>

	Share in 1994	1994	1995	1996	1995 <sup>2</sup>		1996 <sup>2</sup>	
					I	II	I	II
					Agriculture and fishing	3.9	-0.8	3.1
Mining and offshore	1.7	7.5	2.3	13.6	2.8	0.0	7.3	11.9
Manufacturing	19.4	4.2	4.1	-0.3	3.7	2.3	0.6	0.5
Electricity, gas and water	1.5	3.3	3.8	4.7	2.2	3.2	5.1	-3.9
Construction	3.6	-0.2	6.4	9.1	5.3	1.7	4.5	7.1
Private services	48.9	3.8	1.1	2.6	-0.5	1.6	1.8	0.0
Public services	21.0	2.3	1.7	1.7	1.4	0.7	0.8	1.0
Total economy	100.0	3.3	2.1	2.1	1.2	0.6	1.4	0.8

1. At factor prices.

2. Seasonally-adjusted.

Source: Statistics Denmark.

capacity constraints began to emerge during 1995, but as growth slowed at the end of 1995 and beginning of 1996, these signs abated. Capacity utilisation, nevertheless, seems to have remained at a high level.

The stock adjustment cycle explains the slowdown in import growth during the first half of 1996, with a particularly strong effect on the import of raw materials and investment goods, whereas imports of consumption goods reflected the continued growth in household demand (Table 4). Moreover, increasing North Sea oil and natural gas production<sup>7</sup> (up 15 per cent in 1996) has continued to replace energy imports, as a result of which the share of energy in overall imports has been lowered from 17 to 4½ per cent over the past decade. In addition, energy exports have been increasing, boosted further by the temporary cut-back of hydroelectric power production in the other Scandinavian countries. Indeed, it has been calculated that without North Sea oil and natural gas the current account would be in deficit in 1996.<sup>8</sup> The trade balance remained broadly unchanged from 1995 to 1996, and with only small changes occurring in both transfers and interest payments, the current account surplus remained at about 1 per cent of GDP (Table 5). The counterpart to the surplus on the current account in 1996 is primarily to be seen in increasing foreign exchange reserves and a repayment of foreign debt by the public sector, while the private sector actually increased its external debt.

Table 4. **Imports of goods and services<sup>1</sup>**

Percentage volume year-on-year change

	1994	1995	1996	1995		1996	
				I	II	I	II
<b>Imports of goods</b>	12.5	3.9	1.6	6.9	1.0	-3.2	6.6
<i>of which:</i>							
Raw materials	9.0	7.4	-2.3	12.3	1.6	-4.9	0.8
Energy	1.1	-5.7	-3.6	-13.0	2.3	1.9	-8.0
Capital equipment	20.4	11.9	-0.8	19.0	7.4	1.6	-4.0
Transportation	51.6	8.2	-1.0	23.1	-6.0	-4.4	3.7
Consumer goods	13.4	4.5	4.8	4.4	5.2	1.7	6.0
<b>Imports of services</b>	24.0	9.9	6.5	7.4	12.3	9.3	-0.6
<b>Total goods and services</b>	15.4	5.5	3.0	7.0	4.0	0.2	4.5
<i>Memorandum items:</i>							
Total domestic demand	5.8	4.8	2.2	4.5	4.6	1.6	2.1
Private goods consumption, excluding purchase of motor vehicles	10.7	-2.6	5.5	-2.5	-2.7	4.7	6.2

1. OECD definition.

Source: Statistics Denmark.

Table 5. **Balance of payments**

DKr billion

	1992	1993	1994	1995	1996
Trade balance	43.4	49.2	45.6	36.6	39.8
Non-factor services	22.3	19.4	11.1	10.2	9.1
Net investment income	-34.0	-30.4	-30.7	-27.0	-26.8
Unrequited transfers	-7.2	-7.8	-9.0	-9.6	-9.8
<b>Current account</b>	24.5	30.4	17.0	10.2	12.3
<i>Memorandum item:</i>					
As a per cent of GDP	2.9	3.5	1.8	1.1	1.2
Direct investment	-7.3	2.0	5.4	6.5	-9.9
Portfolio investment	63.5	83.5	-74.3	36.5	34.3
Borrowing and lending <sup>1</sup>	-23.6	-13.1	-18.6	-10.9	2.6
Banks' external position	-54.6	-140.6	83.8	-6.6	0.1
<b>Private sector capital account</b>	-22.0	-68.2	-3.7	25.4	27.0
Autonomous posts <sup>2</sup>	2.5	-37.8	13.3	35.6	39.3
Financed by:					
Government lending in foreign currency	4.9	56.7	-27.5	-22.2	-8.8
Other factors <sup>3</sup>	-8.5	5.9	-1.2	0.0	-9.7
Change in international liquidity	-1.1	24.8	-13.0	13.4	20.8

1. By households and enterprises.

2. Current account plus private sector capital account.

3. Includes valuation changes and unrecorded capital flows.

Source: Danmarks Nationalbank; OECD.



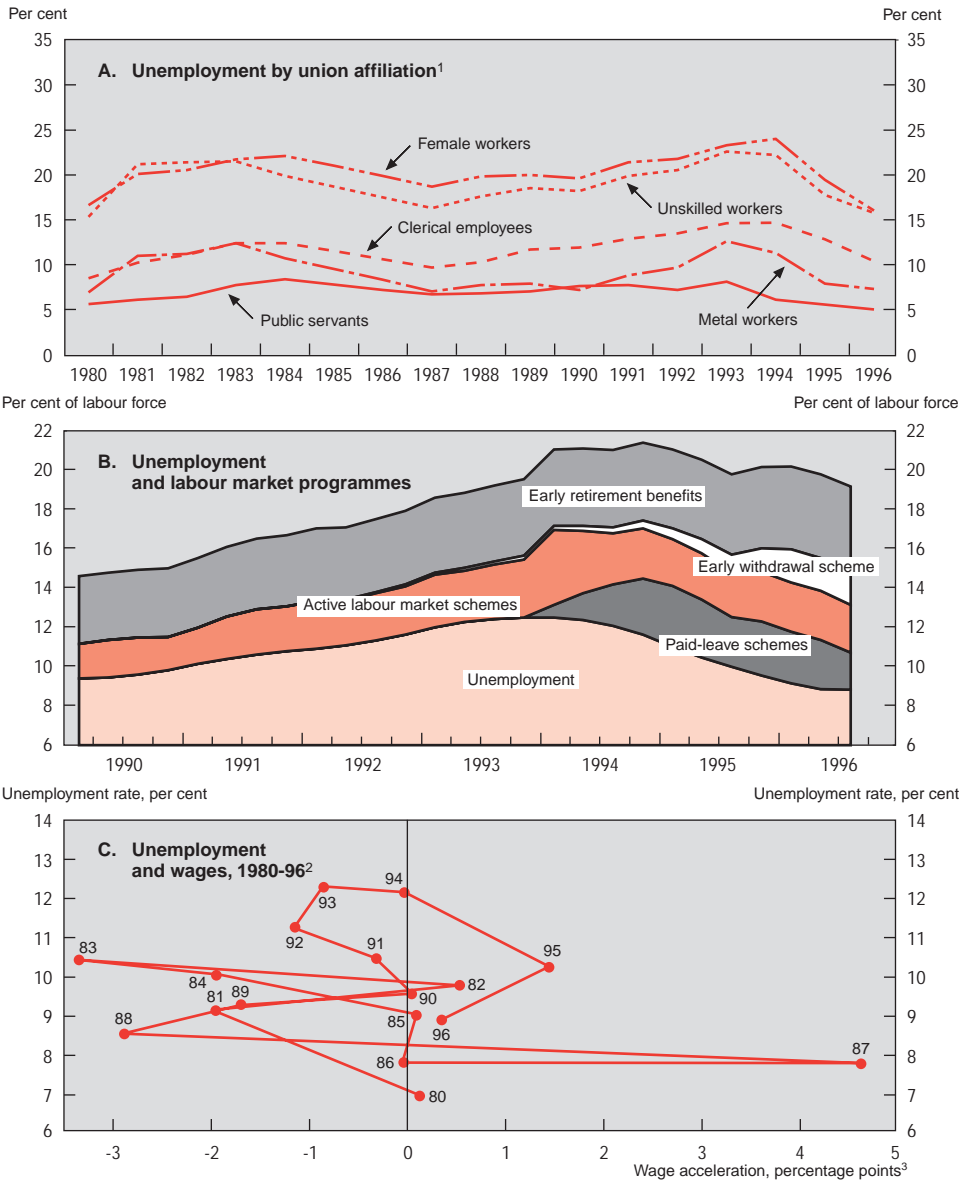
## The labour market and inflation

The sustained economic upswing has led to a  $2\frac{3}{4}$  per cent increase in employment (nearly 70 000 persons) since the end of 1993. Employment growth has been fairly broadly-based<sup>9</sup> (Figure 3, Panel A), almost two-thirds taking place in the private service sector. Following the slow-down in late 1995, employment growth in the construction sector has revived, while manufacturing sector employment has been falling slightly. The public sector, on the other hand, has accounted for only a small share of employment growth. In fact, public sector employment has only recently returned to its 1993 level following a considerable drop in public employment in 1994, when the number of subsidised jobs in that sector fell due to delays in the implementation of labour market reforms. Also, to a lesser extent, vacant positions increased as the posts left by employees taking paid leave went unfilled.

The number of registered unemployed has fallen by around 100 000 from 1994 to 1996. Besides higher labour demand, the fall in unemployment reflects a tightening of unemployment benefit criteria for young unemployed and a reduction in the labour supply arising from the now terminated withdrawal scheme for long-term unemployed between 50 and 59 years old. The effect of the withdrawal and early-retirement schemes has been to reduce the labour supply by around 50 000 persons, leaving the cyclical expansion of the labour force at around 20 000. The labour force surveys indicate a somewhat larger expansion, reflecting greater involvement by marginal workers beginning to look for jobs without having registered. Indeed, survey-based unemployment has fallen by less than registered unemployment – a fall of 2 percentage points compared with 4 percentage points. The  $6\frac{1}{4}$  per cent survey-based unemployment rate is still significantly lower than the registered figure of  $8\frac{1}{4}$  per cent.<sup>10</sup>

The number of people involved in active labour market schemes, early withdrawal and early retirement schemes has increased by around 20 per cent (50 000 persons) between 1994 and 1996 (Figure 3, Panel B), although participation trends have varied between the different schemes. The number of publicly-supported jobs has decreased by 15 000. The scope of the early withdrawal scheme for older unemployed had increased by 40 000 by early 1996, just before the scheme was discontinued, and by another 8 000 in the 60 to 67 age range who have taken early retirement since 1994. In mid-1996 a total of around

Figure 3. UNEMPLOYMENT AND LABOUR MARKET PROGRAMMES



1. Insured unemployed persons as a percentage of all insured persons in the relevant UI Fund.  
 2. Data for 1996 are estimated.  
 3. Wage index for workers in manufacturing.  
 Source: Statistics Denmark.

168 000 persons were participating in the various schemes for early leave from the labour market, about a quarter being on the early withdrawal scheme and the remainder on early retirement. As for paid-leave schemes, benefits for those participating in the child and sabbatical paid leave schemes were reduced in 1995, leading to a falling participation in these two schemes, while educational paid leave (which was not subject to benefit cuts) has become more popular. The total number on paid leave at the end of 1996 was smaller than at the end of 1994, and lower benefits should reduce the number of participants in future. The total of open unemployed and participants in withdrawal and retirement schemes and in active labour market policies has fallen by 49 000 over the same period.

Wage increases have recently been running at below 4 per cent and have shown no tendency to rise despite the considerable decline in registered unemployment (Figure 3, Panel C). The stability in wage rises should be seen against the background of labour market reforms, which appear to have lowered the structural unemployment rate, and of changes in the pattern of employment growth. Neither of the traditional wage-setters, manufacturing and construction, have experienced large increases in labour demand. Moreover, within the service industries the fastest growing sectors have been wholesale and retail trade, together with restaurants and hotels. These are industries which display a high degree of substitution among their relatively low-skilled employees and have a ready supply of labour, enabling them better to resist excessive wage demands. Wage negotiations concluded in the spring of 1997 (Box 1) suggest that wage inflation could be in the region of  $3\frac{1}{2}$  to 4 per cent during the agreement period if changes in bargained minimum wages are mirrored throughout the wage structure. However, most of the increases agreed at central level pertain only to the lowest paid in each sector, while the remaining wages are set fully at enterprise level for those covered by the minimum wage area agreements (85 per cent of wage earners). This makes it difficult to calculate the actual outcome of the negotiations as this depends on the feed-through into all other wages.

Consumer prices were increasing by slightly more than 2 per cent in early 1995 but inflation receded somewhat during the rest of 1995 and the beginning of 1996, due to the temporary slowing of economic growth (Figure 4). During the early stages of the upswing, price increases were held in check by rapid productivity increases. As productivity growth slowed from mid-1995 onwards, consumer price increases were contained by a narrowing of profit margins and

### Box 1. Wage settlements in the spring negotiation round 1997

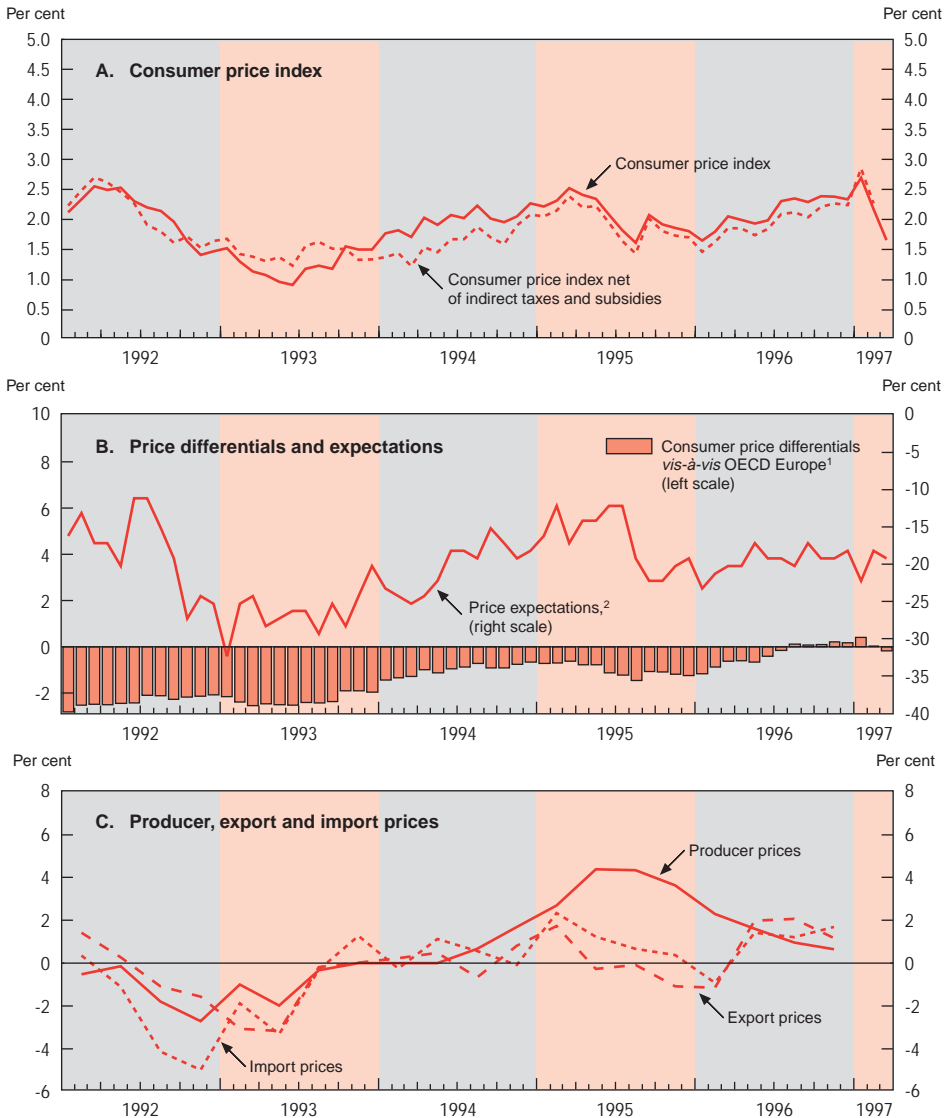
Wage systems in the Danish business sector have developed along two lines: a “normal wage” system where the wage increases negotiated centrally are reflected directly in the final wage with the possibility of locally-negotiated additions (15 per cent of wage and salary earners in the private sector); and a “minimum wage” system where the central bargaining only sets the floor for final wages which otherwise are fully determined at the local level (85 per cent of wage and salary earners). The public sector (30 per cent of the labour market) operates a “normal wage” system with small increments and clauses that adjust wages in view of private sector developments; the scope for decentralised negotiated wages has been modest, but has increased somewhat recently.

On the employers’ side, bargaining in the spring of 1997 took place for industries organised both within and outside the Danish Employers Confederation (DA), with counterparts mainly affiliated with the Trade Union Congress (LO). In keeping with the trend towards decentralisation, bargaining at central level is now mostly focused on non-wage components of labour costs, such as benefits during sickness, maternal leave etc. and the extension of occupational pension arrangements. A contested area in 1997 was the time span for agreements, as manufacturing industries are covered by a three-year agreement running until 1998, while remaining industries – mainly in the sheltered sectors – had two-year agreements which were up for renegotiation this year.

- Within the LO/DA area, “the normal wage” segment (transportation, cleaning and construction sectors) covering 25 per cent of the labour market, concluded an agreement for a one-year increase of 3½ per cent. Within the “minimum wage” segment (distribution, services and clerical sectors) covering 15 per cent of the labour market, the agreement was for 11 per cent over three years.
- Outside the LO/DA area, mainly the agro-industrial industries covered by the “normal wage” system, 5 per cent of the labour market, concluded agreements for 6 per cent wage increase over two years.
- For all segments, the period of sickness with full wages was extended, while public benefits during parental (maternity) leave were topped up to the ordinary wage rate. Pension contributions were increased by 0.9 percentage points each year in the normal wage segment both outside and within the DA area. In the minimum wage segment the contribution was increased by 0.6 per cent each of the three years (two thirds of the rise in contributions are paid by the employer).
- The public sector concluded an agreement with salaries and non-wage cost increasing by close to 6½ per cent over two years, including both the effects of the partial adjustment of public wages relative to private wages and higher pension contributions of 0.3 percentage points. Moreover, the scope for decentralised pay opened up markedly, with a reform to be implemented gradually from 1998, implying a lower guaranteed wage, a moderation of the traditional seniority wage system, and a larger share of total wages being paid in the form of individual wage supplements.

Figure 4. INFLATION DEVELOPMENTS

Percentage changes over 12 months



1. OECD Europe less Turkey.

2. At the beginning of the period. Persons expecting higher inflation minus persons expecting lower inflation over the following 12 months.

Source: Statistics Denmark; OECD, *Main Economic Indicators*.

helped by falling import prices. Overall consumer price inflation remains low, currently at around 2¼ per cent incorporating the effect of increases in “green” taxes, while underlying inflation, in terms of CPI excluding volatile items like food and energy, is running at 1¾ per cent. Recent signs of a revival in the manufacturing sector’s productivity growth, together with still-high profit shares by historical standards, would seem to indicate continued stable inflation.

## **The short-term outlook**

### *Economic policy assumptions and the external environment*

The projections incorporate a contractionary fiscal stance, the 1997 budget aiming to cut the structural deficit by 1 per cent through higher revenues and slower growth in discretionary spending (Table 6). Fiscal policy is assumed to be mildly contractionary also in 1998, the stated medium-term policy objective of a surplus on the budget over the business cycle being reflected in a proposal already in late spring 1997 for tightening fiscal policy in 1998. Monetary conditions are supportive of growth (see Chapter II), the fixed exchange rate policy *vis-à-vis* the ERM implying a 1.9 per cent depreciation in the effective exchange rate in 1997 on the basis of present rates and the short-term interest rate differential against Germany stabilising close to ½ per cent. The long-term interest rate differential is expected to narrow further in view of the firm fiscal policy stance and continued moderate price inflation, real long term interest rates coming down towards 3½ per cent.

Manufacturing export market growth should be in the region of 7 to 7½ per cent over the projection period, but Danish export growth will be somewhat slower than market growth, due in part, to a high share of low income elasticity goods in Danish exports. Despite the depreciation of the effective exchange rate in recent months, there might also be a loss of external competitiveness, reflecting wage growth above and productivity growth below trading partners.

### *Short term outlook and risks*

Economic growth will continue to rely substantially on domestic demand (Table 7). Household demand should continue to grow, supported by solid employment gains and a stronger housing market. Households’ real disposable

incomes should increase by above 3½ percentage points per year, serving to sustain growth in private consumption over the projection horizon despite an increasing saving ratio. Housing investment should continue to grow briskly. Increasing capacity utilisation, lower interest rates and substitution out of labour should stimulate business investment throughout the projection period, so that private investment should continue to be the most buoyant demand component. The stock adjustment cycle could lead to a small but positive contribution to growth from inventories. Sustained domestic demand should lead to higher imports, but the overall rate of import penetration should decline somewhat as a result of the higher North Sea energy production. With export growth picking up, net exports are projected to have a broadly neutral effect on overall growth. GDP growth should reach 3 per cent in 1998.

Table 6. **Economic policy assumptions and the external environment**

	1996	1997	1998
	Per cent		
<b>Fiscal policy</b>			
General government financial balance (Per cent of GDP)	-1.6	0.0	0.7
Change in general government financial balance (Per cent of GDP)	0.3	1.6	0.7
<i>of which: Cyclical-adjusted</i>	0.2	1.6	0.4
<b>Interest and exchange rates</b>			
Effective exchange rate (1991 = 100)	111.6	109.8	110.1
Three-month German rates	3.3	3.2	3.2
Three-month domestic rates	3.9	3.4	3.6
Ten-year domestic bond yields	7.1	6.3	6.4
<b>Export-market growth for manufactures</b>			
Total OECD	6.8	7.8	8.0
Germany	6.1	7.5	7.8
United Kingdom	6.3	7.9	7.9
Sweden	6.5	7.5	7.5
Norway	6.0	7.3	7.6
<b>Unit-labour cost growth in manufacturing</b>			
Germany	-0.9	-1.2	-0.3
United Kingdom	4.0	2.6	3.0
Sweden	5.2	0.0	2.0
Norway	2.0	2.1	2.9

Source: OECD.

Table 7. **Short-term outlook**  
Percentage change from previous year<sup>1</sup>

	1995	1996	1997	1998
Private consumption	2.1	2.6	2.9	2.8
Government consumption	0.5	2.0	1.0	0.5
Gross fixed investment	10.7	7.7	5.4	5.6
Business	14.3	8.5	5.2	5.2
Housing	9.4	8.9	9.5	10.0
Government	-4.7	0.8	0.4	0.5
Final domestic demand	3.1	3.3	2.9	2.8
Change in stockbuilding <sup>2</sup>	1.6	-0.9	0.1	0.1
<b>Total domestic demand</b>	<b>4.8</b>	<b>2.2</b>	<b>2.9</b>	<b>2.9</b>
Foreign balance <sup>2</sup>	-1.8	0.4	-0.2	0.2
Exports of goods and services	0.7	2.3	3.0	4.8
Imports of goods and services	5.6	1.8	4.0	5.0
<b>Gross domestic product (market prices)</b>	<b>2.7</b>	<b>2.5</b>	<b>2.5</b>	<b>2.9</b>
Private consumption deflator	2.1	2.1	2.2	2.7
GDP deflator	1.9	1.9	2.7	3.2
Current account, per cent of GDP	1.1	1.2	0.9	0.8
Total employment	1.6	1.0	1.3	1.5
Labour force	-0.5	-0.6	0.5	0.7
Unemployment rate <sup>3</sup>	10.3	8.8	8.1	7.4

1. 1997 and 1998 figures are OECD projections.

2. As a per cent of GDP in the previous year.

3. Level, per cent of labour force.

Source: OECD.

Economic growth of this order should allow employment growth to out-strip the increase in the labour supply even if the latter is boosted by the reduced scope of paid-leave schemes. The fall in the unemployment rate over the projection period may nevertheless be only about  $\frac{1}{2}$  percentage point from the present level. Thus, the recently concluded wage agreement of around  $3\frac{1}{2}$  to 4 per cent and some pick-up in wage drift may result in wage cost growth in the area of  $4\frac{1}{2}$  per cent. Consumer price inflation may remain below  $2\frac{3}{4}$  per cent, as productivity growth picks up somewhat but import prices increase.

The main risks to the projection relate to possibly slower external demand growth on the one hand and faster domestic demand growth and higher inflation on the other. The effects on exports from the recovery in the international demand may well be weaker than foreseen, leading to slower growth over the projection period. On the other hand, while the recent wage settlements seem to indicate that labour market reforms so far have managed to lower structural



unemployment, the effects of the elements of the labour-market reform under implementation have still to come through, and there is some uncertainty about the size of the output gap. With house prices rising and financial conditions relatively supportive, the possibility of inflationary pressures arising from the residential property and construction sectors and feeding through into wages cannot be ruled out. The policy background to this issue is discussed in the next chapter.

## **II. Macroeconomic policies**

The medium-term economic strategy set out in 1993 and later updated in convergence programmes submitted to the European Union, covers both macro-economic and structural policies and embraces a commitment to the same fiscal discipline and exchange rate stability as underlies the process towards Economic and Monetary Union in Europe. While the referendum in 1993 entailed that Denmark will not participate in the third stage of EMU, its economic performance over the past few years makes it one of the five EU countries not at present subject to surveillance under the excessive-deficit procedure applying under the second stage. However, the decision to stay outside the euro-currency area has burdened Denmark with a permanent premium on its debt instruments, the long-term interest-rate differential with Germany being above  $\frac{1}{2}$  percentage point, despite a strengthening in the ties with other core ERM countries. The Danish krone now closely shadows the Deutschemark and is on a par with the Austrian, Belgian and Dutch currencies in this respect. The present chapter assesses in more detail the issues underpinning monetary policy credibility and the requirements for restructuring public finances in order to improve overall economic performance and to prepare for the demographic challenges which will arise in the years ahead.

### **Monetary policy**

#### ***Implementing the exchange rate strategy***

The exchange rate has been the main target of Danish monetary policy throughout the post-war period. Adjusting the peg in face of domestic imbalances was common until the early 1980s, but with the introduction of the hard currency policy in 1982, the monetary policy authorities have sought to impose the disciplining effects of a fully credible target. Prior to August 1993, the parity grid

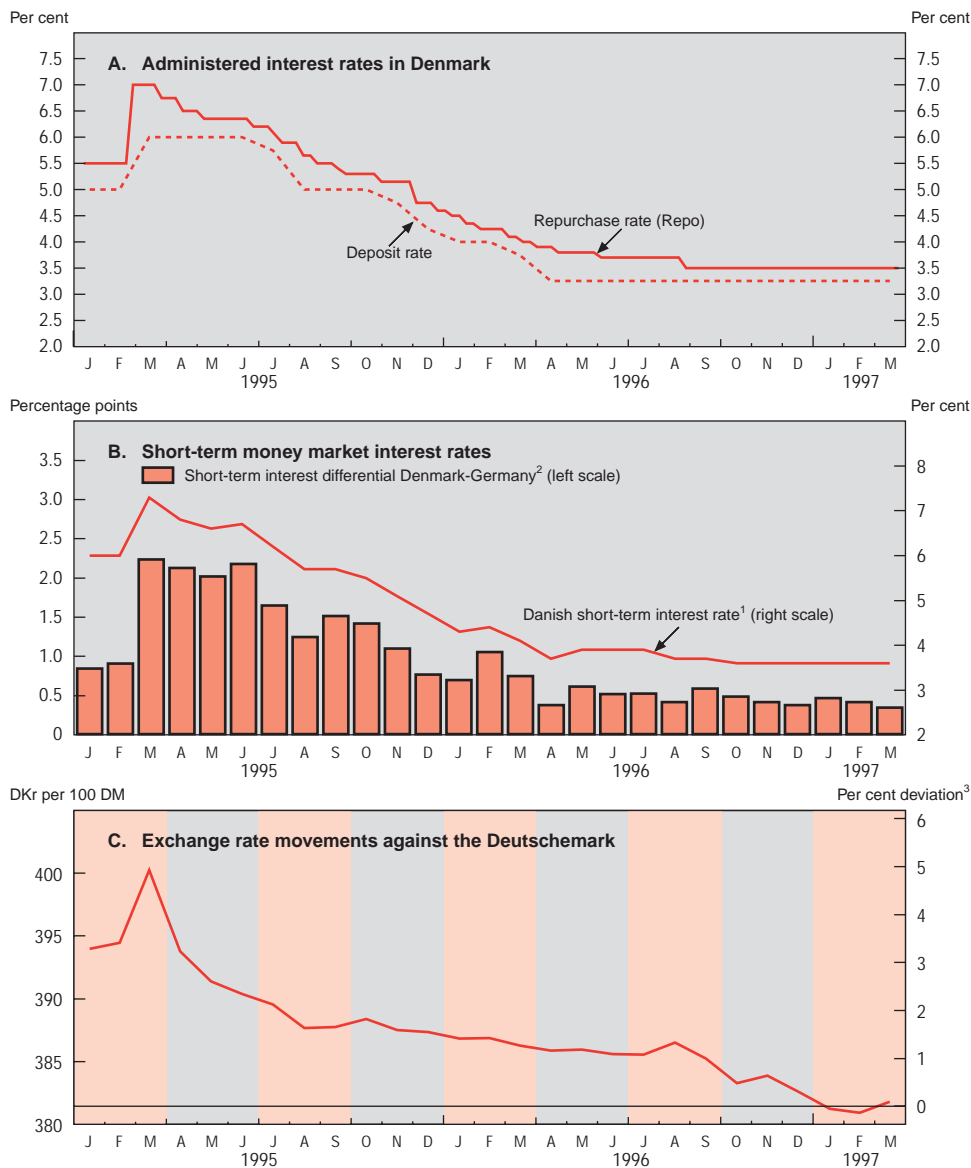
implied by the  $\pm 2\frac{1}{4}$  per cent band of the Exchange Rate Mechanism (ERM) imposed narrow limits on exchange rate movements. Subsequently, the widening of the bands to  $\pm 15$  per cent necessitated a clarification of Danish exchange-rate policy, focusing on a stable nominal exchange rate towards the other core countries of the ERM. For some time this seemed to require short-term interest rates of the Danish krone well above those of the predominant anchor currency, the Deutschemark, and it was only by mid-1995 that underlying financial-market confidence in the Danish economy began to strengthen as the strong upturn in 1994 gave way to a more sustainable expansion and as inflationary pressures remained subdued.

In response to an appreciation of the krone/mark exchange rate from mid-March 1995 to the end of the year, the central bank was able to make continued reductions in the deposit rate for banks (the discount rate), its key signal rate (Figure 5, Panel A) while increasing its foreign exchange reserves. Central bank interventions in the currency market amounted to an inflow of DKr 34 billion. This trend continued into 1996, the foreign-exchange inflow reaching DKr 25 billion, concentrated at the beginning of the year. The deposit rate was lowered to  $3\frac{3}{4}$  per cent by mid-April, where it has since remained. The short-term interest rate differential *vis-à-vis* Germany, having declined from  $2\frac{1}{2}$  to 1 percentage point during 1995, fell during 1996 to  $\frac{1}{2}$  percentage point (Panel B). The gradual strengthening of the krone *vis-à-vis* the Deutschemark has since continued (Panel C), and by early 1997 it was trading close to the central ERM rate against the Deutschemark, in company with other core ERM currencies such as the Dutch guilder, the Austrian schilling and the Belgian franc.

### ***... has resulted in lower long-term interest rates***

While 1995 saw a strong downward shift in the yield curve, with interest rates at maturities of two to three years declining more strongly than for longer maturities (Figure 6, Panel A), the fall in the yield curve during 1996 was less pronounced. Bond yields nevertheless fell by  $\frac{3}{4}$  to  $\frac{1}{2}$  percentage point. With long-term German interest rates more or less stable during 1996, the differential between Danish and German 10-year rates continued to narrow, from close to  $1\frac{1}{4}$  percentage points in late 1995 to about  $\frac{3}{4}$  percentage points in early 1997 (Panel B). As noted in the *1996 Economic Survey of Denmark*, over the years 1992-94 bond yields, while obviously reflecting the relative volatility of the

Figure 5. **SHORT-TERM INTEREST RATES AND THE EXCHANGE RATE**



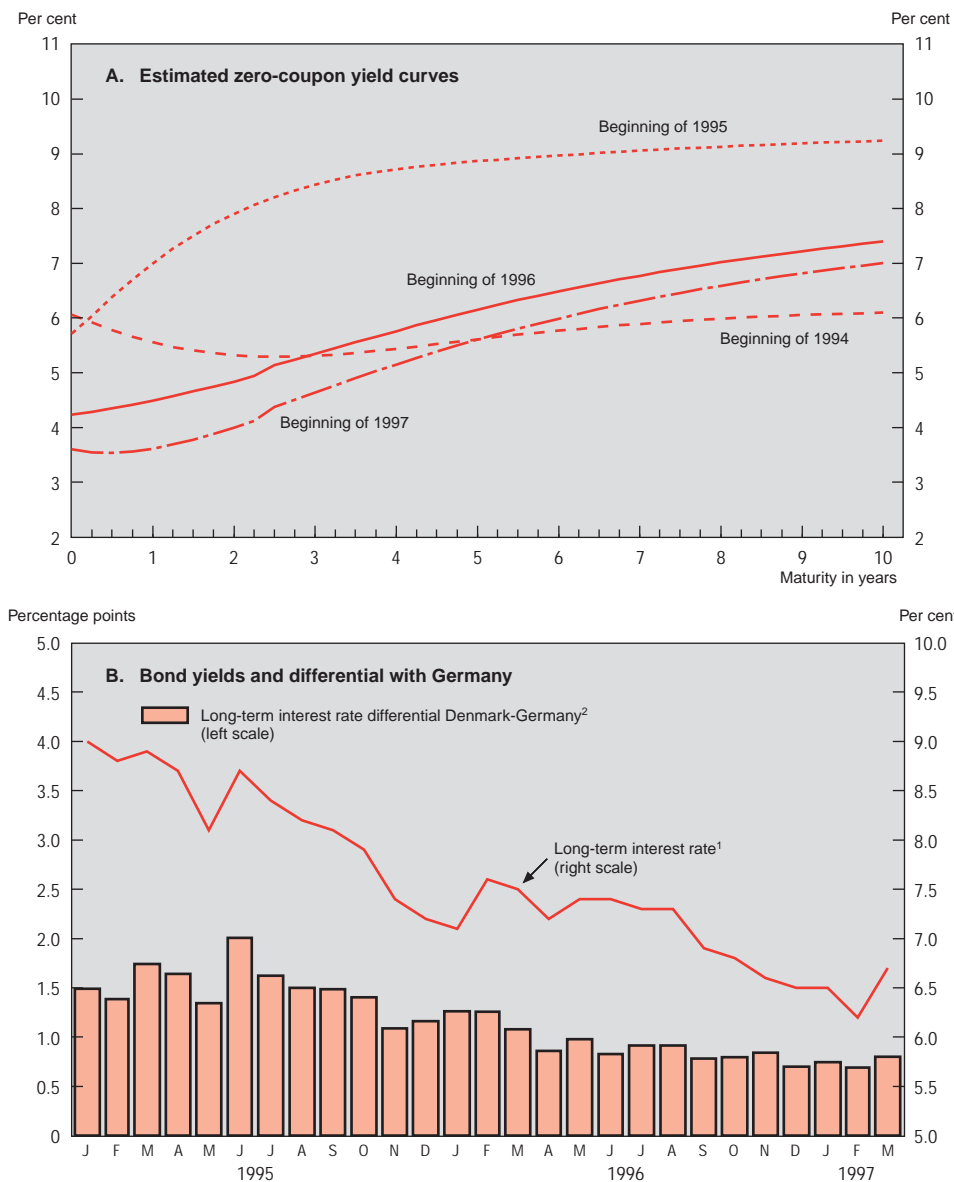
1. 3-month interbank rate.

2. 3-month Fidor.

3. From central DM parity in the ERM (381.44 DKr per 100 DM).

Source: Danmarks Nationalbank; OECD, *Main Economic Indicators*.

Figure 6. **LONG-TERM INTEREST RATES**



1. 10-year Central Government bonds.

2. Benchmark government bonds (10 years).

Source: Submission from Danmarks Nationalbank; OECD, *Main Economic Indicators*.

Danish krone at the time, did not seem to fully reflect the favourable performance of the Danish economy. The recent narrowing of the interest rate differential can be seen as incorporating both the favourable economic fundamentals and the benefits of adherence to the fixed exchange-rate policy, which has served to lower volatility. Unless economic fundamentals improve significantly beyond present expectations, further falls in the interest rate differential will, however, be limited by the Danish decision to stay outside the third stage of the Economic and Monetary Union (EMU) of the European Union, which may be expected to entail a lasting premium to long-term interest rates. Five-year forward interest rates, pertaining to January 1999-2004, indicate that market rates incorporate such a premium (Table 8). Offsetting this cost requires in particular stricter discipline both in the formulation of fiscal policy and in wage and price setting. The framework for exchange rate co-operation between the eurocurrency area and other union states is described in Box 2.

Table 8. **Interest rate expectations: forward interest rate differentials against German rates<sup>1</sup>**

	Forward interest rates, January 1999				
	1/1/1995	1/7/1995	1/1/1996	1/8/1996	24/1/1997
	Basis points				
<b>Core ERM countries</b>					
Netherlands	37	-6	-8	-2	-12
Austria	10	3	11	-2	-7
France	42	3	5	-26	-32
Belgium	72	25	46	14	-11
<b>Countries with opt-outs for third phase of EMU</b>					
Denmark	112	130	90	84	54
United Kingdom	101	88	74	116	140
<b>Former high interest rate countries</b>					
Sweden	315	325	147	206	99
Italy	322	373	345	228	84
Spain	388	406	271	186	47

1. Forward rates for five-year government bonds.

Source: Danmarks Nationalbank.

## **Box 2. The exchange rate co-operation between “ins” and “outs” in stage 3 of EMU**

After the referendum rejecting full adherence to the Maastricht Treaty on the European Union in June 1992, Denmark negotiated a new set of conditions for its future relationship with other EU countries, confirmed by the Edinburgh agreement of December 1992 and approved in a new referendum in May 1993. In the monetary field, Denmark will not participate in the third stage of EMU, embracing the single currency (the euro) and a single monetary policy, but retains an option to join the monetary union if it should decide to do so, on the basis of a later referendum. Given the decision to remain outside the EMU and the Danish commitment to fixed exchange rates, the framework for exchange rate co-operation between central banks of EU countries outside the euro area and the future European Central Bank (ECB) takes on particular significance for Denmark. The guidelines endorsed at the meeting of the European Council in Dublin in December 1996 envisages the following relationship between the ECB and national central banks:

- The new mechanism will replace the ERM with effect from January 1999, with membership voluntary for non-euro countries.
- The new exchange rate mechanism will be based on central rates against the euro. The euro will thus be at the centre of the mechanism, whereas the ERM is based on a parity grid defining the width of exchange rate fluctuations between participating currencies.
- It is envisaged that the standard fluctuation bands will be relatively wide, probably corresponding to the present  $\pm 15$  per cent. In addition to the limit on exchange rate fluctuations between non-euro countries implied by this, such countries may also agree on bilateral bands to limit them further. The exchange rate policy co-operation between non-euro area central banks and the ECB could be strengthened by narrowing the fluctuation bands depending on the degree of convergence.
- The sustainability of exchange relations will be closely monitored with a view to avoiding misalignments and undertaking adjustments in a timely fashion.
- Both wide and narrow bands will be supported by automatic and unlimited intervention at the margin. Interventions should be used as a supportive instrument in conjunction with appropriate fiscal, monetary and structural policies conducive to economic convergence. The ECB and the non-euro area central banks may also suspend interventions if they were to impinge on the primary objective of maintaining price stability.
- Intramarginal interventions procedures will be maintained.

Of particular importance in the Danish case is the possibility to enter arrangements with narrow fluctuation bands and the underpinning given to the new exchange rate co-operation by putting the means of the new ECB at automatic disposal for defending chosen parities. However, it is, like its predecessor the ERM, a system that encompasses

*(continued on next page)*

*(continued)*

the possibility of exchange rate adjustments. Although Denmark is one of the five EU countries deemed not to have an excessive budget deficit and it fulfils the convergence criteria, the Danish decision not to join the third phase of EMU implies *per se* even stronger requirements with respect to budgetary performance.

### ***... and affected portfolio composition***

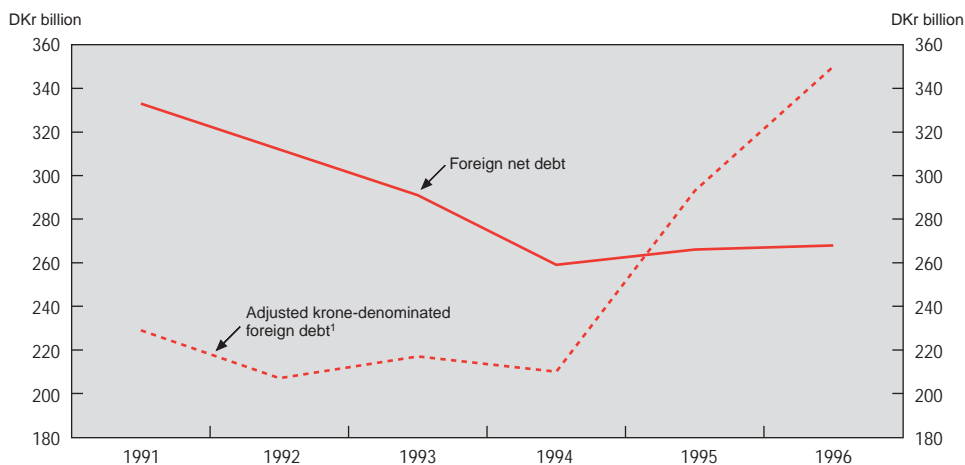
The surpluses on the current account since 1990 have allowed Denmark's substantial net external debt to be brought down, from about 40 per cent of GDP in 1991 to about 25 per cent at end-1996. Over the same period, the outstanding amount of krone-denominated net debt held abroad increased by DKr 180 billion, while the foreign-currency-position *vis-à-vis* non-residents has been transformed from a net debt into a net asset position. This change in currency composition of Denmark's external position is explained *inter alia* by the reduction of the interest rate differential *vis-à-vis* the other core ERM currencies, making foreign currency borrowing less advantageous for Danish enterprises. For a long time foreign holders of krone-denominated debt instruments hedged their krone exposure in the forward market. However, with the gradual return to the central parity of the krone in the ERM mechanism through 1995 and 1996 this exposure has been reassessed and forward hedging positions abandoned (Figure 7). While institutional features may have served to increase the attractiveness of Danish mortgage bonds, a major source of inflows in 1996, the main reason for the change in portfolios should be seen in the underlying stability of economic policies. Needless to say, such positions could easily be reversed in the case of imbalances re-emerging.

### ***Credibility: the role of inflation expectations***

The ultimate measure of monetary policy credibility is its restraining effect on inflation expectations. As in the case of direct inflation targeting, such expectations are central to any assessment of the effectiveness of exchange-rate targeting, insofar as they may point to possible future inconsistencies between domes-



Figure 7. EXTERNAL DEBT



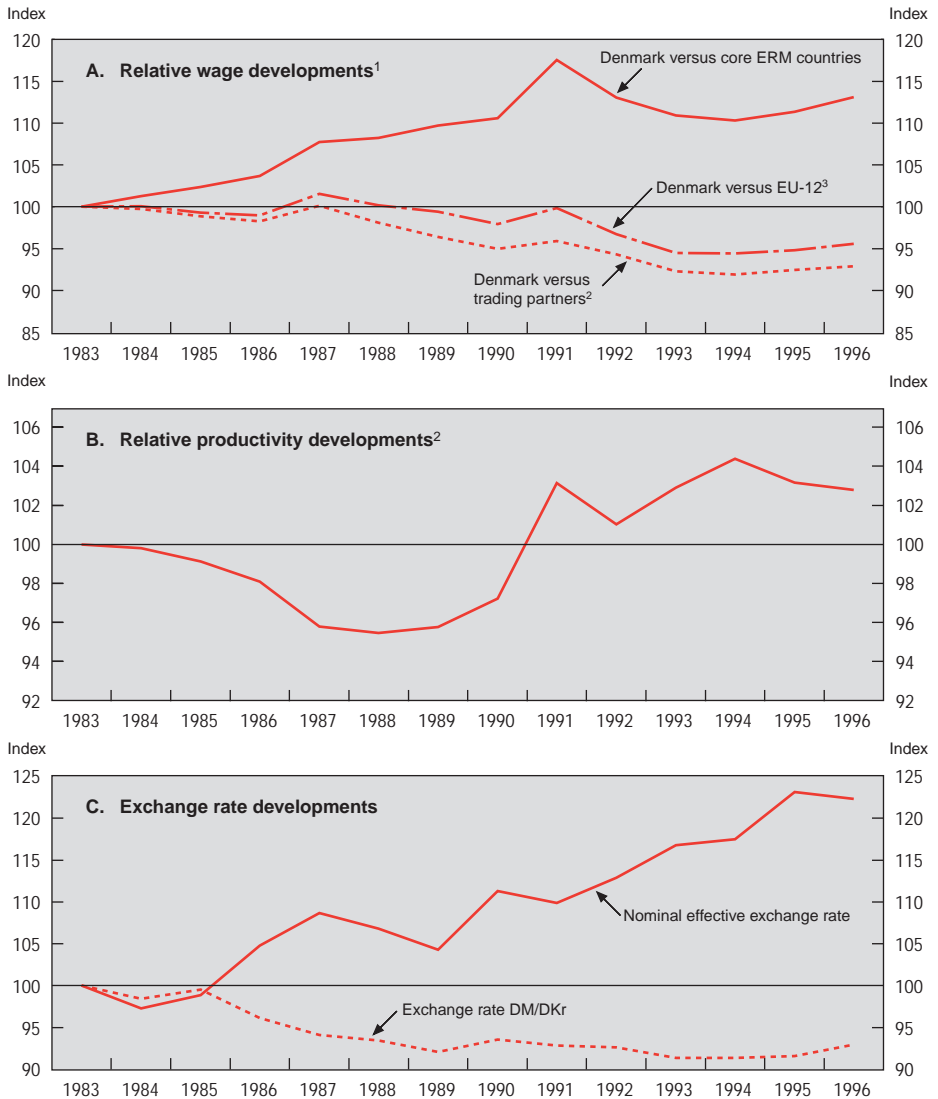
1. Krone-denominated foreign debt, adjusted for non-residents net forward sale of Danish Kroner.  
 Source: Submission from Danmarks Nationalbank.

tic nominal developments and the external constraint. In the Danish case, direct measures of inflation expectations prevailing in the labour market are not available, but *ex post* wage developments over the 1980s were clearly higher than warranted by the chosen peg (Figure 8, Panel A). By contrast, the 1990s show on the whole a parallel movement in wages in Denmark and core ERM countries. And with the peg gradually exerting a stronger effect on nominal developments, wage costs in Denmark have grown more slowly than the average of its trading partners over the 1990s.<sup>11</sup> However, since relative productivity has slowed during the recent upturn, unit labour cost developments have been less favourable (Panel B). While relative unit labour cost movements tend to be dominated by exchange-rate developments (Figure 8, Panel C), a crucial point for longer-run competitiveness is the extent to which wage moderation depends on fairly high slack in the labour market as in the early 1990s, and whether such moderation can be maintained while economic growth and labour utilisation are above those in other countries (see Chapter III).

Corroboration that inflation expectations have substantially adapted to the prevailing exchange-rate regime can be seen in the inflation expectations of

Figure 8. **COMPONENTS OF RELATIVE UNIT LABOUR COST**

Index 1983 = 100



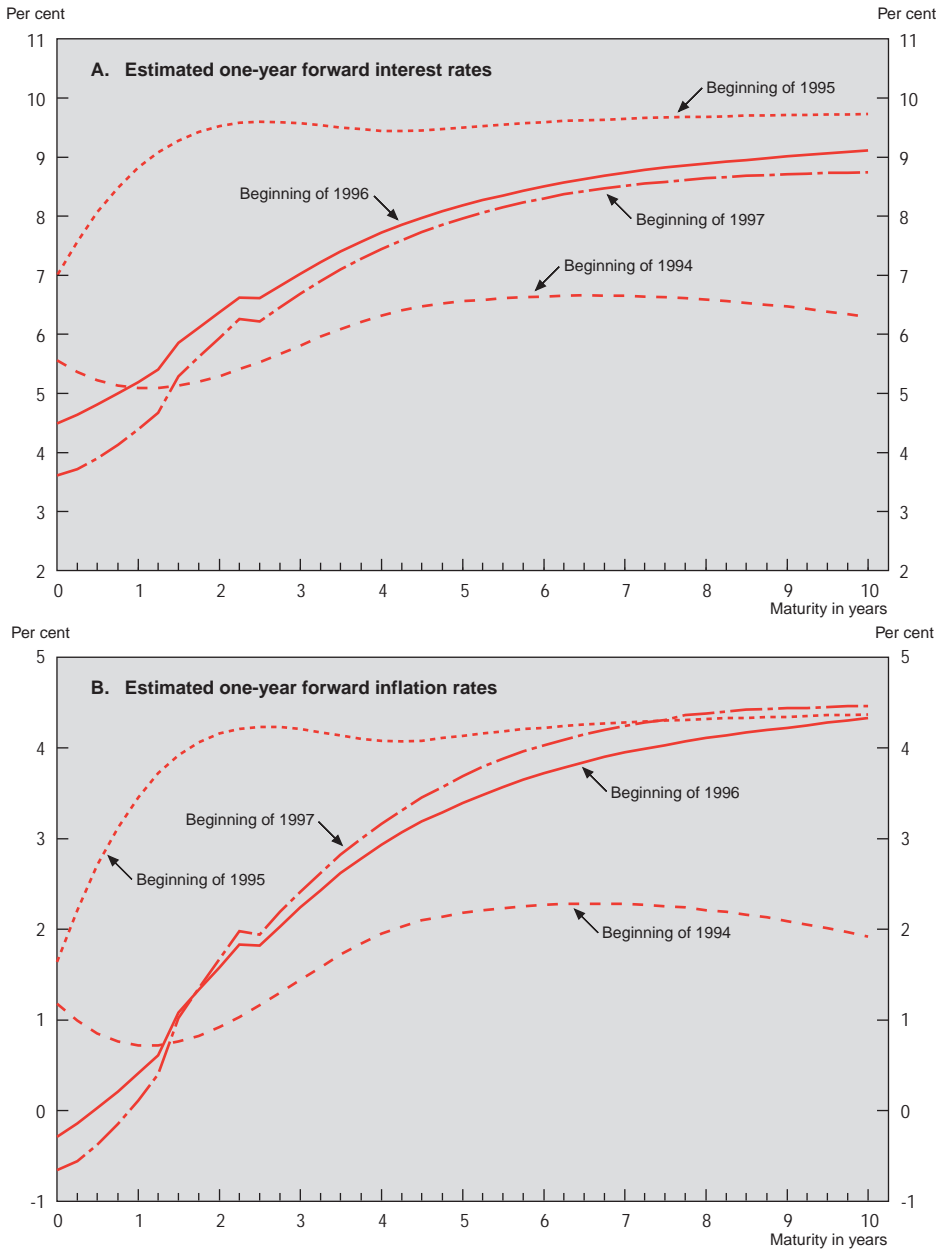
1. In the business sector. In national currencies using OECD competitiveness weights. From 1991 overall Germany.
  2. Versus OECD trading partners excluding Czech Republic, Greece, Hungary, Iceland, Ireland, Mexico and Turkey.
  3. Excluding Greece and Ireland.
- Source: OECD.

households, which were revised somewhat upwards after bottoming out in 1993, but which do not incorporate any upward trend in price inflation in the short run.<sup>12</sup> Expectations embodied in the price-setting in financial markets are more ambivalent. The increased steepness of the yield curve over the past few years, while reflecting the close link with other European markets, implies that expected short-term interest rates have fallen more sharply for the immediate years ahead than for those further into the future (Figure 9, Panel A). Indeed, the forward rate for two to three years ahead has come down by 3 to 3½ percentage points since the early 1990s, while the forward rate nine to ten years ahead has fallen by only 1 percentage point and remains close to 9 per cent.<sup>13</sup> While the information content of Danish index-linked bonds is blurred owing to the differences in taxation compared to nominal bonds, it would nevertheless appear that inflation expectations for the near future have shifted strongly downward from early 1995, while for the more distant future they have remained broadly unchanged (Panel B). The EMU opt-out premium, reflected in the very divergent movement of short- and long-run price expectations after 1992, is a reminder that a fixed exchange rate may not have quite the same impact on wage behaviour as a common currency.

### ***Monetary conditions and the domestic economy***

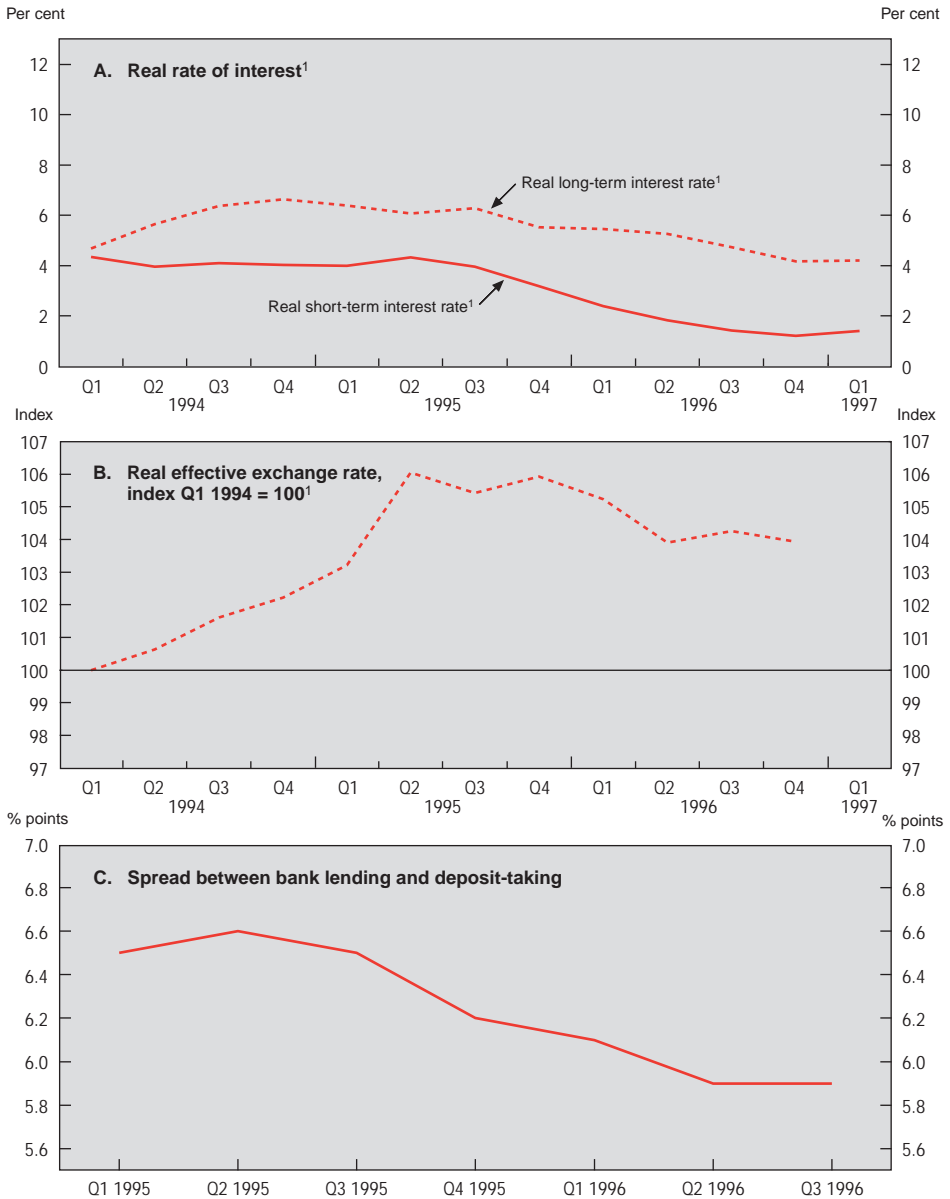
Overall monetary conditions affect the domestic economy mainly through the development of interest rates in the bond market, the Danish bond market being the largest in the world relative to the size of the economy, and of the real effective exchange rate (Figure 10). Real interest rates, both short-term and long-term, have followed nominal rates downwards (Panel A), imparting an expansionary effect on the economy. Falling market rates imply a decline in banks' opportunity cost of lending and borrowing, and their nominal lending rates have fallen by 2.2 percentage points from a peak in the second quarter of 1995, about 1 percentage point more than bond rates. Reflecting *inter alia* lower loss provisions and more fierce competition, banks have also squeezed their margins between lending and deposit-taking<sup>14</sup> (Panel C). As a consequence, the upward trend in mortgage lending already apparent in 1995 continued in 1996, with the volume of outstanding loans increasing by 4 per cent (Table 9). A similar increase was recorded for bank lending, which started to grow in 1995 after several years of decline. Mortgage and bank lending to households have both

Figure 9. INTEREST AND PRICE EXPECTATIONS



Source: Submission from Danmarks Nationalbank.

Figure 10. **MONETARY CONDITIONS**



1. Deflated by the CPI.  
Source: OECD.

Table 9. **Money and credit**  
Percentage year-on-year changes, end of period

	1994	1995	1996			
			Q1	Q2	Q3	Q4
Money stock	-5.4	4.1	5.4	5.2	7.0	7.2
Bank lending						
Total	-5.9	5.2	6.4	6.5	7.3	7.2
Businesses	-9.9	3.1	5.0	6.1	10.0	7.3
Non-businesses	0.9	8.5	8.4	7.2	3.5	7.0
Mortgage lending	1.1	4.1	5.5	5.0	6.4	4.7

*Source:* Danmarks Nationalbank.

been fed by and are feeding into the boom in house prices, which have risen by 10 per cent over the past year.

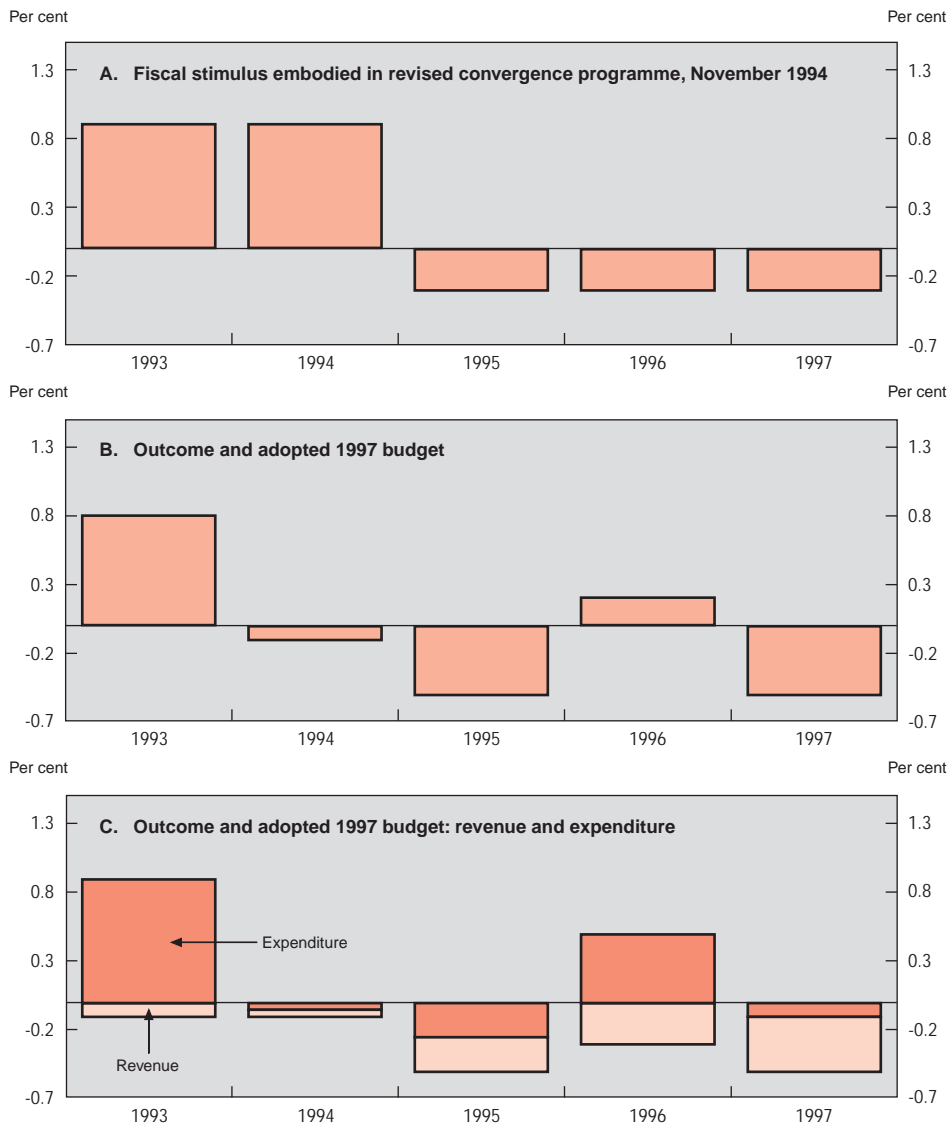
The downward trend in the nominal effective exchange rate since mid-1996 reflects the strong appreciation of the US dollar and sterling, with only a small offsetting effect coming from the weaker Japanese yen and the closing of the gap to the central parity with the Deutschemark. The contractionary effect of relatively high wage growth on the real exchange rate has thus been temporarily neutralised, implying, with lower long-term interest rates, expansionary overall monetary conditions which have served to sustain the growth in domestic demand. Indeed, there would seem to be a relatively strong underlying stimulus emanating from the medium-term trend in the financial variables conditioning spending decisions of households and enterprises. Both short- and long-term real interest rates are now at their lowest levels during the 1990s, at a time when resource utilisation is relatively high.

## **Fiscal policy**

The guidelines for economic policy take as their point of departure the medium-term strategy outlined in 1993, as later updated in the convergence programmes to the European Union, most recently in spring 1996. With the fixed exchange rate involving a more active role for Danish fiscal policy relative to monetary policy in overall short-term demand management than in many other countries, the medium-term fiscal strategy was based upon stimulating the

Figure 11. **SHORT-TERM DEMAND IMPACT OF FISCAL POLICY<sup>1</sup>**

Per cent of GDP



1. For general government. The underlying method was revised in the Medium-term Economic Survey (*Finansredøgørelse*) 1996. Panel A is therefore not fully comparable with remaining panels.  
 Source: Ministry of Finance, *Budgetoversigt* (various issues).

Table 10. **Government budget balances: intentions and outcomes**

Per cent of GDP

	1994		1995		1996		1997
	Budget	Outcome	Budget	Preliminary outcome	Budget	Estimated outcome	Budget
<b>Administrative basis</b>							
Central government	-5.9	-4.3	-4.0	-3.2	-2.8	-2.5	-0.6
<b>National accounts basis</b>							
Central government <sup>1</sup>	-5.5	-4.1	-3.3	-3.3	-2.3	-3.0	-1.1
Social security funds	1.1	0.9	1.1	0.9	0.9	1.1	1.1
Municipalities	-0.4	-0.2	-0.3	0.5	0.5	0.2	0.2
General government	-4.8	-3.4	-2.5	-1.9	-0.8	-1.6	0.2
<i>Memorandum item: Gross public debt</i> <sup>2</sup>	..	76.0	78.0	71.9	73.0	69.8	67.1

1. Central government budget on administrative basis adjusted for government lending transactions and adjusted from a cash basis to an accrual basis.

2. Maastricht definition.

Source: Ministry of Finance, *Budgetoversigt* (various issues); Ministry of Economic Affairs, *Economic Survey* (various issues).

economy in 1993 and 1994 before gradually withdrawing that stimulus from 1995 and through the remaining years of this decade (Figure 11). On the basis of its fiscal position in 1994, the annual assessment of the EU in 1995 deemed Denmark to have an excessive budget deficit according to the criteria for the second stage of EMU. However, the assessment made one year later placed Denmark among the three EU countries at that time not having an excessive budget deficit, the budget deficit of the consolidated government sector having fallen to 1.9 per cent of GDP in 1995 (Table 10), and the gross public debt relative to GDP having fallen by 8 percentage points between 1993 and 1995.

### ***Implementing budgetary policy***

Supported by tax reform and by labour market and competition policies designed to lower structural unemployment, the medium-term strategy foresaw public expenditures declining relative to GDP, as the growth in transfers was curbed and an initial front-loading of public investment was scaled back. The underlying tax take was expected to increase, by raising indirect (“green”) taxes and introducing a tax on gross labour income to finance labour market expenditure. The 1995 budget was implemented as envisaged, with restrictive effects



arising both from a low growth in public expenditure and from increases in tax rates, adding up to a negative short-term demand effect of  $\frac{1}{2}$  per cent of GDP. In 1996, fiscal policy objectives were not attained in full, the envisaged tightening of  $\frac{1}{2}$  per cent of GDP giving way to an activity-neutral fiscal policy stance.<sup>15</sup> The main reason was a strong demand impulse from the growth in public employment, partly due to a reduction in the number of participants in paid-leave schemes, who returned to positions held vacant in their absence. It was also partly due to an underlying upward trend in local government spending. The 1997 budget indicates a tighter stance, as expenditures are again assumed to contribute to a dampening of activity, a continued stimulus from public employment being more than offset by further reductions in transfer schemes. With increases in tax rates still being phased in, the overall tightening is estimated to amount to  $\frac{1}{2}$  per cent of GDP.

Controlling the growth of local government expenditure and revenues has been the main fiscal challenge over the past few years. Local authorities enjoy a wide responsibility for implementing national policy objectives in education, health and social services, while servicing the local community. Combined with constitutional independence to set their own taxes, this has given rise to a continuous increase in local tax rates during the 1980s and 1990s. Higher local tax rates have served to undermine the efforts of the central government to improve economic incentives. As part of the 1994-98 tax reform, the central government has committed itself to a ceiling for the highest marginal tax rate faced by wage earners. The effect of increases in local government tax rates in recent years has been to require an offsetting reduction in the central government income tax (*topskatten*) to ensure that the ceiling is not passed. However, this loss of central government revenue has now to be compensated by a levy on the local authorities in question.<sup>16</sup>

Since the late 1970s the central government has concluded annual agreements with the organisations of the municipalities and counties, including the two large municipalities of the Copenhagen metropolitan area. The agreements are based upon an assessment of expenditure and revenue trends over the coming year, including local government tax rates, and they set out how a projected revenue shortfall shall be covered. The main planks of these agreements are the annual block grants from the central to local governments, amounting to about 15 per cent of their revenues. These are adjusted for price and wage trends and

changes in responsibility between central and local governments. Moreover, cyclical variations in expenditures are *de facto* borne by the central government, and municipalities with a weak revenue base are offered a guarantee for revenue increases in line with the national average. For 1997 block grants and other arrangements were set to slow the increase in local taxes; however, the actual increase in the local government tax rate has been 0.76 percentage points, 0.45 percentage points above the agreements reached in the summer. (The municipalities are raising their taxes by 0.34 percentage points instead of keeping them unchanged and counties are raising them by 0.38 percentage points instead of 0.26 as agreed.)<sup>17</sup> It seems that the will of the municipalities to keep within the bounds given by the agreements has eroded over the past few years. The framework put in place for the agreements – formulated to allow for wider local choice within the limits set by the overall budget – has not prevented municipalities from increasing taxes to finance further expansion in public consumption, raising the issue of the sustainability of the present system of completely voluntary agreements.

At the general government level, the dominating trend has been a reduction in public expenditure relative to GDP, while the tax ratio has remained broadly unchanged (Figure 12). From a peak in 1993, the expenditure-to-GDP ratio fell by 4½ percentage points up to 1996, driven *inter alia* by a fall in the transfer-to-GDP ratio of 1¼ percentage points, as the economic upturn reduced the growth in transfers to the working age population, and by a similar fall in the consumption ratio. These trends are expected to continue into 1997. The tax ratio has fallen slightly over the 1993-96 period, reflecting a decline in the taxes on household pension savings with insurance companies and banks (*realrenteafgiften*), but the main effect of the 1994-98 tax reform has been to change the composition of the tax base. Higher revenues from company taxation – the most volatile component of the tax base – resulted in an increase in the tax ratio in 1996 and it is projected to remain at this higher level in 1997.

Reflecting a long history of budget deficits, net government debt climbed above 40 per cent of GDP in the early 1990s, reaching 46½ per cent in 1995 (Figure 13). The associated interest payments have been equivalent to about 3 per cent of GDP, implying the need for a strong primary surplus. Since 1993, when there was a primary deficit of ½ per cent of GDP, the primary surplus has sufficed to stabilise the net debt-to-GDP ratio, and on present projections it will

Figure 12. **GENERAL GOVERNMENT EXPENDITURE AND TAX RATIOS**  
Per cent of GDP

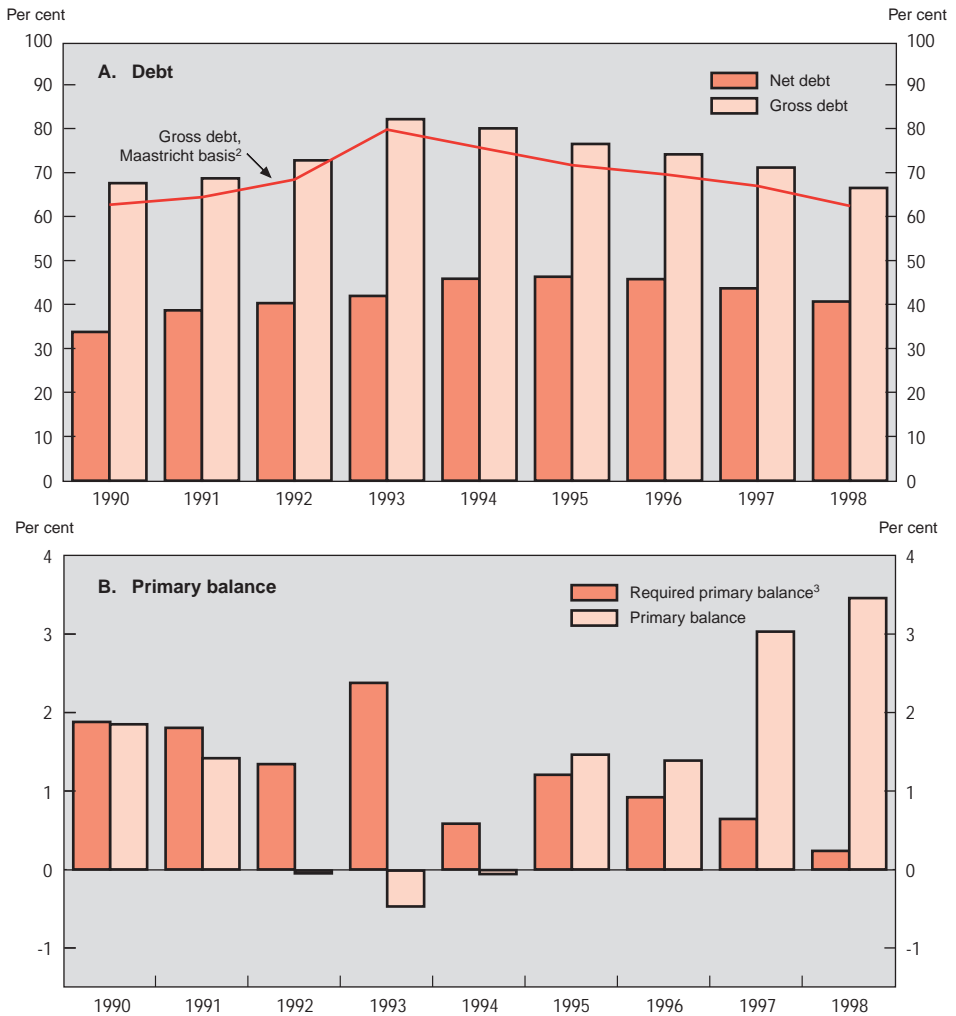


1. 1994-96 exclusive of the effect of making transfers taxable which increases gross expenditure and transfers by 2.0 per cent of GDP, taxes by 1.9 per cent of GDP.  
Source: Ministry of Finance, *Budgetoversigt* (various issues).

fall below 45 per cent of GDP in 1997. Gross debt has remained broadly stable in nominal terms over the past few years, reflecting *inter alia* a parallel reduction in foreign-currency-denominated debt and the central government's net assets with the central bank. As a result the gross debt/GDP ratio has fallen below 70 per cent of GDP.

The projected upturn in the economy and an assumed slowing of growth in public consumption and public transfers should lead to a rapid fall in the expenditure-to-GDP ratio in 1997, making possible a budget balance for the first

Figure 13. **GENERAL GOVERNMENT DEBT AND THE PRIMARY BALANCE<sup>1</sup>**  
Per cent of GDP



1. OECD estimates for 1997-98.
  2. Data are provided by Danish authorities for 1990 to 1996 and are not adjusted for specific Danish institutional features. Estimates for 1998 are derived by projecting forward in line with the OECD projection for general government financial balances and GDP.
  3. Primary surplus needed to stabilize the net debt ratio. Revaluation effects on the debt are excluded.
- Source: Submission from Danish authorities; OECD.

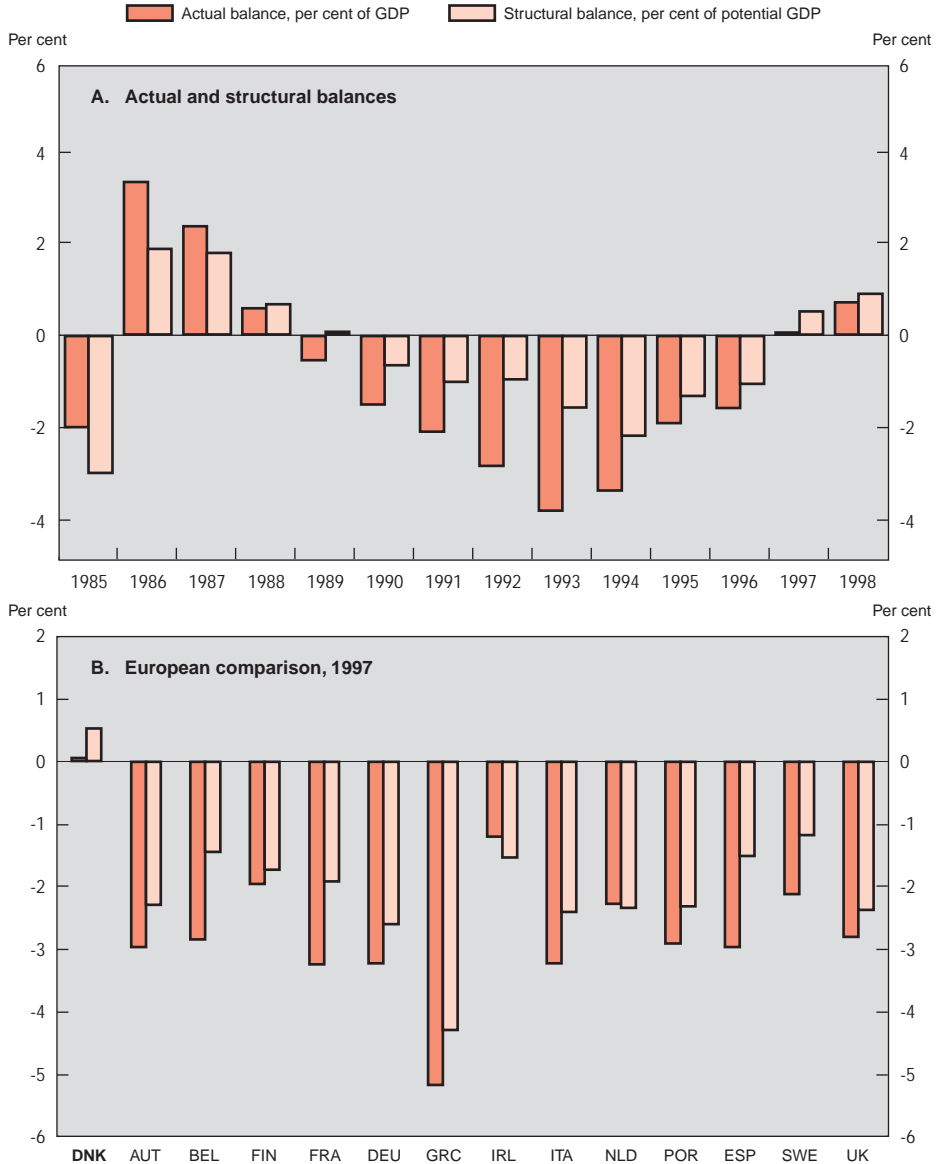
time since 1988. The combination of a closing output gap and budgetary restraint has thus led to a substantial improvement in public finances, and on the most recent estimates the projected tightening for 1997 should also take the structural balance into surplus (Figure 14). Gross debt should fall below 60 per cent by 1999-2000, in line with the objectives set out in the latest convergence programme. In sum, the pursuit of the medium-term economic strategy has succeeded in putting Danish public finances on to a relatively sound footing in a European context. The main caveats are that the stated aim of budget surplus could be threatened by inadequate control over budget developments at the local level, and that achieving a modest surplus at a point in the cycle when resources are relatively fully employed may not be sufficient to balance the budget over the cycle as a whole.

### ***Improving the structure of public finances***

Although Denmark faces far fewer short-term constraints on fiscal policy than most other OECD economies, substantial challenges remain to be dealt with. In an international context Denmark stands out as having the highest tax level at 51.6 per cent of GDP in 1994 (Table 11). Corporate taxes and social security contributions are low, but high personal taxes imply heavy taxation both of labour and savings. With indirect taxes also higher than in other countries, reflecting *inter alia* a uniform value added tax at 25 per cent, Denmark has one of the largest tax wedges on labour among OECD countries, depressing labour demand, particularly at the lower end of the compressed pay scale. The distortions arising from this were an important theme of the 1996 *Economic Survey* chapter on *Implementing the OECD Jobs Strategy*, the requirements of which are summarised in Chapter III below. While high tax and transfer levels partly reflect the Danish practice of providing transfers gross-of-taxes, taxes also serve to finance a wide array of transfer schemes, both as pensions and assistance to the working-age population. The rationale for and the coverage of these schemes and their interaction with the tax system in affecting economic behaviour were discussed in depth in the special chapter in the 1996 *Economic Survey*, which pointed out that the Danish welfare model has produced high labour force participation but low average working hours, with extensive benefit-dependence generating a potentially significant unemployment trap. Moreover, the system contains a fair amount of churning, as re-distribution relates as much to the

Figure 14. **GENERAL GOVERNMENT BUDGET BALANCES<sup>1</sup>**

Per cent of GDP



1. OECD estimates for 1997-98.  
 Source: OECD.

Table 11. **Public sector revenues and expenditures in selected OECD countries<sup>1</sup>**

Per cent of GDP at market prices

	Denmark	Finland	France	Germany	Netherlands	Norway	Sweden	United Kingdom	United States
<b>Revenue</b>									
Taxes on income, profits and capital gains	<b>31.3</b>	18.5	7.8	11.8	11.6	14.5	21.5	13.0	12.1
Personal <sup>2</sup>	<b>27.9</b>	16.6	6.1	10.7	8.3	10.7	18.5	9.7	9.7
Corporate <sup>2</sup>	<b>2.1</b>	1.9	1.7	1.1	3.3	3.8	2.9	3.4	2.4
Social security contributions	<b>1.6</b>	12.5	19.3	15.4	18.8	9.7	14.4	6.2	6.9
Taxes on property, etc.	<b>2.1</b>	1.2	5.3	1.1	2.0	1.2	2.5	3.8	3.3
Taxes on goods and services	<b>16.6</b>	13.9	12.2	10.9	12.1	15.9	11.6	12.2	4.9
Total taxes	<b>51.6</b>	46.2	44.5	39.1	44.6	41.2	49.9	35.2	27.2
Other revenue	<b>7.7</b>	6.6	4.3	6.8	3.7	8.9	8.3	2.3	3.5
Total revenue	<b>59.3</b>	52.8	48.9	46.0	48.3	50.2	58.2	37.6	30.7
<b>Disbursements</b>									
Final consumption expenditure	<b>25.1</b>	21.8	19.5	19.5	14.4	20.3	25.8	21.2	15.9
Interests and dividends	<b>6.7</b>	5.4	3.7	3.7	6.0	2.9	7.1	3.7	2.0
Subsidies	<b>3.7</b>	2.7	1.7	2.2	1.9	3.7	5.1	1.0	0.4
Other current transfers	<b>24.0</b>	26.3	25.4	21.2	27.8	18.4	26.7	14.8	13.7
Total current disbursements	<b>59.5</b>	56.3	50.3	46.6	50.1	45.3	64.8	40.7	32.0
Capital outlays	<b>1.4</b>	1.9	3.3	2.9	2.2	1.8	1.2	2.6	1.0
<i>Memorandum items:</i>									
Gross social expenditures <sup>3</sup>	<b>25.4</b>	28.5	21.5	21.8	23.4	22.5	31.8	17.7	9.8
Gross to net social expenditure adjustment <sup>4</sup>	<b>-7.2</b>	n.a.	n.a.	-3.7	-8.1	n.a.	-8.3	-1.9	1.0

1. 1995, except United States 1994.

2. Excluding taxes not entirely allocable to either sector.

3. 1993 excluding health, comprising both transfers and services in kind.

4. 1993. Includes effects of differences in mandatory social programmes, tax treatment of benefits, indirect taxes and tax expenditures for social purposes.

Source: OECD, *National Accounts and Revenue Statistics*; OECD, SOCX database; Adema *et al.* (1996), *OECD Labour Market and Social Policy Occasional Papers*, No. 19.

reallocation of the life-time income of individuals as to redistribution between individuals.

The other counterpart to high taxes is a high level of public consumption, surpassed only by Sweden, as publicly-produced services are provided free of charge or at prices far below costs. This is seen as an impediment to the allocation of resources and dynamism of the economy:

- With the use of user charges precluded, taxes are not only kept high, but consumers cannot indicate their priorities among services offered, thereby preventing an alignment of public production with underlying demand.
- With the government maintaining a monopoly on the production of a wide range of government-provided services, efficiency may suffer and the expansion of the private service sector – an important source of job creation in many countries – is restrained.

Even if government bodies are the end-providers of services, competitive tenders and outsourcing would increase efficiency in the production of these services. While the central government sector is subject to strict rules with respect to making use of outsourcing and public tenders, the constitutional independence of local government referred to above implies that this sector maintains full discretion with respect to the use of internal *versus* external suppliers of services.<sup>18</sup> EU public procurement rules apply only to those cases for which it is decided to make use of external suppliers. Moreover, many of the tasks which by law are assigned to local authorities, a case in point being care of the elderly, cannot be outsourced unless this is explicitly provided for in the relevant legal acts. A controversial area is the obligation of a new producer of an outsourced public service to enter into the same wage and employment contracts as applies to those already employed in such production, conditions that in general will be renegotiated only when the wage bargaining period expires.<sup>19</sup> While there are clear guidelines and objectives for the central government sector on the use of outsourcing, municipalities and counties have been slow to resort to outsourcing of services, the share of spending for outsourced services in total current costs staying close to 10 per cent over the first half of the 1990s, compared with 17 per cent for central government. For investment expenditure, which accounts for 6 to 7 per cent of total expenditure for goods and services, outsourcing at local level amounts to almost 80 per cent (somewhat above the central government share of



Table 12. **Outsourcing of local government expenditures 1995**

Area	Current expenditures	Investment expenditures
	Per cent of total	
Technical and engineering services	47.8	76.3
Electricity, water supplies, etc.	17.2	70.0
Road transport	42.8	83.2
Education, cultural activities	5.4	81.0
Hospital services	3.8	77.1
Social security and health services	3.8	81.7
Administration	17.4	67.9
<i>Source:</i> Ministry of the Interior.		

75 per cent). In “core” local activities, outsourcing has scarcely begun (Table 12).

Exploiting opportunities to shift income from highly-taxed to less-taxed components may have profound effects on the behaviour of households and incomes, distorting savings and labour supply incentives. Tax expenditures in Denmark are estimated to amount to 3 per cent of GDP,<sup>20</sup> which is on the low side in an international context<sup>21</sup> (Table 13). But tax expenditures related to owner-occupied housing and to premiums to pension savings in pension funds and banks are excluded from this estimate, together with several exemptions from taxation of the portfolio of life-insurance companies. These exemptions alone could amount to 1½ per cent of GDP.<sup>22</sup> Overall tax expenditures may be as high as 6 per cent of GDP. These claims on resources require closer scrutiny and this calls for their integration into the ordinary budget process.

Tax expenditures aimed at business are a major component of the overall tax expenditure. While they may be motivated by a need to offset negative externalities, they tie up resources in unproductive uses and give rise to wage premia that may be aggravated by wage-wage links in the labour market, thus interacting with regulatory structures to impede structural change. (This is covered in more detail in Chapter III.) While tax expenditures for owner-occupied housing have been cut substantially by the tax reforms implemented over the last ten years, a further reduction of such expenditures might under the present conjuncture serve a double purpose: dampening the strong upward trend in house prices – about 25 per cent over the past two years – and thereby preventing the economy from

Table 13. **Tax expenditures in OECD countries**

	Tax expenditures as a per cent of GDP	Year
Australia	3	1994
Austria	3	1993
Belgium	8	1992
Canada	13	1992
<b>Denmark</b>	3	1995
Germany	1	1994
Finland	10	1994
France	5	1994
Ireland	4	1992
Portugal	0	1994
Spain	3	1995
Sweden	5	1995
United Kingdom	16	1995
United States	6	1995

Source: Ministry of Finance (1996), *Skatteudgifter i Danmark*; based on OECD (1996), *Tax Expenditures: Recent Experiences*.

expanding too rapidly while equalising the tax treatment of real and financial savings of households. Danish pension savings receive an intermediate degree of preferential tax treatment in an international context, together with Japan and Sweden, with the return of the bond portfolio of pension funds subject to capital income taxation (*realrenteafgiften*) (Table 14). Full equalisation with ordinary bank deposits would, however, require a removal of the tax-deductibility of pension premiums – the offsetting effect being the removal of the taxation of pension payments – and an extension to all assets held by pension funds (see Box 3 for further details). Moreover, in the present formulation tax expenditures for individual retirement saving seem highly inefficient, possibly lowering national saving while benefiting those at the upper end of the income distribution.<sup>23</sup> Phasing out tax expenditures in this field would improve financial market efficiency and should also serve to clarify households' responsibility for saving for their own retirement.

### ***Preparing for the future***

The demographic developments facing the Danish economy in the years ahead imply that the ratio of the elderly to the working age population will fall

Table 14. Main features of tax rules for private pensions

	Premium	Return of pension funds	Pensions
Australia	Deductible for employer; partly taxed for employee	Taxed	Partly deductible
Canada	Deductible	Exempt	Taxed
<b>Denmark</b>	Deductible	Taxed	Taxed
France	Deductible	Exempt	Taxed
Germany	Deductible for employer; taxed for employee (who only pays a small premium)	Exempt	Taxed
Ireland	Deductible	Exempt	Taxed
Japan	Deductible	Taxed (low rate)	Taxed
New Zealand	Taxed	Taxed	Exempt
Norway	Deductible	Exempt	Taxed
Sweden	Deductible	Taxed	Taxed
United Kingdom	Deductible	Exempt	Taxed
United States	Deductible for employer; taxed for employee (who only pays a small premium)	Exempt	Taxed

Source: Norwegian Official Reports (NOU) 1994:6.

slightly over the next decade, before increasing continually over the following three decades. This may be expected eventually to raise government expenditure net of taxes on transfers to the elderly substantially if the “breathing space” resulting from demographic developments over the next ten years is not used to restore the balance between present and future generations. Indeed, taking as a starting point the public finances as they appeared in 1995, so-called “generational accounts” for Denmark<sup>24</sup> show that all present generations would have to face a reduction of public transfers broadly interpreted<sup>25</sup> of 4½ per cent to restore generational balance. Such accounts measure budget imbalances by the difference in implied net lifetime taxes (taxes paid minus transfers received) borne by present and future generations. Comparison with accounts of other countries indicate an imbalance in favour of present generations slightly above that of Germany and on a par with the United States. However, such calculations are highly dependent on the starting point and on employment and growth trends, and inter-country comparisons are sensitive to these assumptions.

In terms of the burden implied by future transfer commitments, measured as the net present value of future social security payments, Denmark would seem to

### Box 3. Features of tax-favoured pension savings

Tax expenditures have been extensively used in Denmark to stimulate private pension savings with pension funds and banks, by allowing a more favourable tax treatment than that applied to other forms of savings, such as ordinary bank deposits. In particular premiums may be deducted at a higher marginal tax rate than that expected to apply to future pension earnings. With deductions counting against the marginal tax rate, which can be as high as 60 per cent, and pension earnings taxed at 40 to 45 per cent, the result is an additional annual return of 1 to 2 percentage points compared with other assets. Moreover, the income from pension capital dating from before 1983 and shares is exempt from the taxation of capital income of pension funds (*realrenteafgiften*).

These features have made pension savings the preferred mode of household investment. In 1995, the assets in private pension funds and government-administered funds amounted to 81 per cent of GDP, of which 40 to 45 per cent was the counterpart to deferred taxes. In terms of annual deductions about 63 per cent stemmed from occupational pension funds, the remainder from individual pension funds. These schemes are still increasing in scope and are expected to continue to do so for another ten to fifteen years as they are integrated into wage bargaining agreements, implying for the time being a negative effect of  $\frac{3}{4}$  to 1 per cent of GDP on public finances as pension premiums exceed pension payments. As the occupational and individual pension schemes mature, public finances will improve as the outstanding amount of deferred taxes no longer increases. However, if real interest rates were to decline to more normal levels, the base of the taxation of (non-exempted) pension fund assets – the surplus return of bonds above a  $3\frac{1}{2}$  per cent real rate – would erode, adversely affecting public finances.

occupy an intermediate ranking among OECD countries (Table 15). The limitation of public responsibility to a flat basic public pension serves to reduce budgetary exposure to demographic developments. Of crucial importance is the future coverage of occupational and individual pensions, which reduce income-dependent transfer payments for housing purposes etc. Moreover, the ongoing efforts to lower structural unemployment (see Chapter III) are important insofar as they alleviate the need for discretionary cuts in prioritised welfare programmes if successful. If labour market reforms were to bring overall unemployment down by 3 to 4 percentage points from 1995 to the end of the decade and the improvement in public finances were used to retire public debt up to the end of the next decade, the imbalance in favour of present generations could well be transformed

Table 15. **Net present value of social security payments**<sup>1</sup>

Percentage of 1994 GDP

	Baseline	Cost containment <sup>2</sup>	Later retirement <sup>3</sup>
United States	163	142	142
Japan	299	269	263
Germany	348	313	309
France	318	289	253
Italy	401	348	347
United Kingdom	142	147	122
Canada	204	174	166
Australia	97	78	79
Austria	298	268	246
Belgium	300	260	252
<b>Denmark</b>	<b>235</b>	<b>211</b>	<b>179</b>
Finland	384	341	304
Iceland	106	83	91
Ireland	107	106	90
Netherlands	214	181	179
New Zealand	213	178	171
Norway	230	189	201
Portugal	277	228	236
Spain	323	283	298
Sweden	370	354	258

1. The net present value refers to the value today of future payments. The calculation assumes a discount rate of 5 per cent per year over the period 1994-2070 and a productivity growth of 1.5 per cent.

2. Pension expenditures are kept unchanged relative to GDP from 2015.

3. Starting after 2005, the retirement age is raised by 0.5 year annually to reach 70 years of age.

Source: Roseveare *et al.* (1996), *OECD Economics Department Working Papers* No. 168.

into an advantage for future generations. A case in point would be an increase in the effective retirement age by raising the eligible age for the early retirement scheme from its present 60 years, resulting in a simultaneous expansion of the workforce and a reduction in the number of benefit recipients.

### **III. Implementing structural reform: a review of progress**

#### **Introduction**

Within the framework set out by the *OECD Jobs Study*, the 1996 *OECD Economic Survey of Denmark* provided a set of detailed policy recommendations<sup>26</sup> for improving labour market flexibility and reducing structural unemployment and benefit-dependence, thereby also assisting in the overall efforts to move public finances into surplus in preparation for the adverse demographic developments in the decades ahead. The Danish labour market was recognised as embracing broad elements of flexibility, leading to an overall high employment rate and – as evidenced recently – allowing economic growth to pick up without significant acceleration of wage inflation. However, the compression of wages at the lower end of the pay scale, combined with generous transfer schemes accessible for persons of working age, has made for relatively high unemployment among low-skilled labour and made youth transition from school to work overly dependent on publicly-defined avenues. Danish unemployment thus displays a distinct educational profile, with the unemployment rate for those with only compulsory education 8 to 10 percentage points above that of university and college graduates.

Recognising that labour market imbalances were concentrated on clearly defined segments, the proposals contained in the 1996 *Survey* focused on features of wage formation and public intervention in labour markets that contribute to such disparities in performance. The Committee viewed an improvement of labour market outcomes as being highly dependent on:

- *Increased wage and labour cost flexibility*: high marginal tax rates and generous benefits should be reduced; minimum wages – determined in wage bargaining – should be adjusted downwards with the scope provided by lower replacement rates.
- *Reduction of the distortions arising from unemployment insurance and related benefits*: a further reduction in the maximum duration of unemployment benefits, presently at five years, may be required to underpin stricter eligibility criteria and enforcement of job availability criteria while the scope for government-financed early withdrawal from the labour force should be narrowed.
- *Improved efficiency of labour market policies*: in keeping with the aims of the on-going reform of labour market policies, the focus of labour market programmes on increasing employability should be strengthened further.
- *Greater reliance on prices in determining labour market policy outcomes*: public tax-financing of training both for employed and unemployed should give way to greater use of corporate user fees; publicly-financed paid-leave schemes, *inter alia* providing support to participants in training, should be the financial responsibility of the social partners; additional waiting days for unemployment benefits to the two days already financed by the employer could restrain the use of temporary lay-offs.
- *Strengthening skill and competence acquisition*: particular emphasis should be on lowering the high drop-out rate during formal education.
- *Increasing product market competition*: the Competition Act should be revised to comply with the “prohibition” principle underlying EU directives; separation of activities of public monopolies in exposed activities and natural monopolies and more extensive use of public tenders in the provision of public services would strengthen competition in hitherto sheltered sectors.

The recommendations in the 1996 *Survey* were made against the background of significant changes in Danish labour market policies from 1994 to early 1996. At the core of the reform lies a perception of a significant trade-off between employment and income-distribution objectives that renders a strategy based upon a wider dispersion of wage rates to stimulate job creation unaccept-

able to Danish authorities. The disincentives arising from high replacement rates and long duration of transfers are clearly appreciated, implying a stronger emphasis on eligibility criteria and job availability enforcement to sustain effective job search and avoid benefit-dependence. The high taxation of labour, which is *inter alia* a consequence of the high transfer level, has compounded disincentives problems, and in recognition of this, a tax reform was introduced in 1994, to be completed by 1998, which will lower marginal tax rates and broaden the tax base.

In the longer run, the Danish strategy will produce low unemployment and restrict inflows into income maintenance schemes only if productivity and wage relativities are in accordance with one another. A continuous upgrading of the qualifications of the workforce, comprising both the formal education system and adult training, is thus an integral part of Danish labour market policy. Recent initiatives in this area and the challenges confronting educational authorities are the subject of Chapter IV, while the remainder of this chapter is devoted to a review of labour market policy implementation and initiatives subsequent to the 1994-96 reform. The reform is still under implementation, with the final elements of labour market policies proper to be fully implemented only by end-1998. Significant departures from or additions to the reform are unlikely to emerge prior to an evaluation of the measures already implemented or a major reassessment of labour market developments.

## **Progress in structural reform**

The assessment in the 1996 *Survey* was able to take account of a number of policy initiatives which had been adopted and were under implementation. Access to unemployment benefits was restricted as the required period for prior non-subsidised work was doubled, and the duration of unemployment benefits was lowered from nine to five years, while public job offers could no longer be used systematically to restore eligibility. Compulsory activation of the unemployed had been introduced, to take place after two years of unemployment: for unemployed youths without vocationally qualifying education, activation now starts after half a year of unemployment and consists of qualifying training over eighteen months, while benefits are reduced by a half. The possibility of withdrawal from the labour market as early as 50 years of age was abolished in early 1996 and paid leave for child-minding and sabbaticals tightened. The Danish



authorities<sup>27</sup> envisaged that these measures would have to be supplemented by *i*) further efforts to lower the taxation of labour beyond 1998; *ii*) a strengthening of product market competition; *iii*) efforts to reverse the fall in the effective retirement age; and *iv*) lower supplementary (non-core) unemployment insurance (UI) benefits. The latter are still used to finance temporary lay-offs, to compensate the part-time unemployed, during vacations for those not yet entitled to such pay from employers, and as grants to unemployed participants in education and training.<sup>28</sup>

### ***Increasing wage and labour cost flexibility***

The 1994-98 tax reform was based on a gradual reduction in the highest marginal tax rate on labour income from 68 to 58 per cent, with 61 per cent being the operational base for 1996 and 60 per cent for 1997. Reflecting tax increases at the municipal level, the progress was slower than anticipated in 1996, with the top rate finally set at 62 per cent, but it is back on track again with a rate of 60 per cent effective in 1997. However, labour income is also subject to an earmarked contribution to three labour market funds, covering expenses for UI benefits, other transfers and activation measures. Against this background, the overall marginal tax rate<sup>29</sup> will fall from 65.3 per cent in 1996 to 63.8 per cent in 1997 and 62.0 per cent in 1998. Moreover, revenue from “green” taxes levied on enterprises is channelled back to employers, allowing a reduction in the employers’ contribution to the above-mentioned funds by 0.1 per cent in 1997 and 0.3 per cent in 1998 (from 0.3 and 0.6 per cent respectively). Proposals for continued tax reform beyond 1998 have not yet been presented. However, considerable attention has been paid to the possibility of modifying the tax system to stimulate labour demand for low-skilled workers by introducing in-work benefits (earned income tax credits). In general it has been found<sup>30</sup> that Danish institutional features do not lend themselves easily to such a modification, see Box 4.

While the labour market reform goes some way towards improving incentives for youths to seek out employment or qualifying education, an accompanying modification of wage structures has yet to materialise. The focus of wage bargaining, involving the social partners and the government, has been on enhancing the possibilities of older workers to preserve their labour market attachment in the face of structural change. The approach adopted in this domain (“senior policies”) is to make more jobs available at less than full time, or with

#### Box 4. **Would an in-work benefit be suitable for Denmark?**

As in most other countries, unemployment in Denmark is unequally distributed among workers, with the low-skilled being exposed to more frequent and longer unemployment periods. In the absence of initiatives that can serve to modify the present wage compression, the tax system might be used to effect a reduction in the pre-tax wage for the low-paid by allowing them an income tax credit that serves to maintain their post-tax wage. The effectiveness of such an instrument depends on several features of the labour market, the wage distribution and tax and benefit systems.

In the Danish case, generous unemployment benefits and a high minimum wage combine to create high reservation wages and a compressed wage distribution at the lower end, which price workers with below-average skills out of jobs. Because unemployment is concentrated in this relatively low-paid segment, it may be argued that only a minor in-work benefit would be needed for enterprises to recoup the cost of employing the majority of such workers, while the extra cost in terms of public spending would be lower than in countries where unemployment benefits are less generous. However, even in the Danish case, the extra finance needed for the benefit could be substantial and needs to be taken into account. If it has to be effected through higher marginal tax rates, disincentives could be pronounced for other categories of workers. With compressed wages, the increase in tax rates will affect a substantial number of persons in work if a steep increase in marginal tax rates is to be avoided. And if only a limited number of wage earners is to be affected, the result would be a segment of the tax schedule with extremely high marginal tax rates. In both cases, the high combined effective tax rate which follows from the interaction with income-dependent benefits would rise even further. With high replacement rates, unemployment traps would spread to new segments of the labour market. In this respect, it should be noted that the distortionary effect of raising tax rates is greater, the higher is the initial level of tax rates, and these are already high in Denmark.

In the Danish case it has been calculated that a 10 per cent in-work benefit, with a ceiling of DKr 13 000, which would allow a reduction in the minimum wage of 6 per cent, would require increases in marginal tax rates between 6.9 and 11.5 percentage points, given reasonable assumptions about the level at and range over which they were to be applied. Against the background of both a high average level of personal taxes and still significant progressivity of the system, such effects should be avoided and other instruments relied on to eliminate differences in unemployment risk. As an example, it should be noted that the so-called Home Services scheme, introduced in 1994 and made permanent in 1996, relies on direct subsidies to promote a few selected services sectors with a particularly high representation of low-skilled labour. Although the merits of such subsidies are highly debatable in the first place, the approach taken by the Danish authorities reflects the fact that alterations to the tax system would be a less precise and therefore a far more costly means of intervention. More generally, schemes to reduce the

*(continued on next page)*

(continued)

unemployment rate of low-skilled workers while keeping intact their net income at full employment will act as a disincentive to skill acquisition, which would be in contrast with the overall strategy of the Danish government.

less stringent requirements, to delay retirement. Recent wage agreements also incorporate some special jobs, with the possibility of wages below standard levels. This seems to be the preferred option as opposed to a broader strategy where overall wage structures would adapt to prevent significant job losses for older workers in general. Moreover, with generous transfer schemes available – unemployed over 50 years of age may keep UI benefits uninterrupted until 60 years of age when early retirement becomes available – there is a presumption that enterprises will continue to concentrate on shedding labour in this segment. With respect to labour-market integration of workers with reduced work capacity in general, job creation relies on government subsidies to create so-called *skånejobs*. At present, there are about 2 200 recognised *skånejobs* with a wage subsidy of 50 per cent from local authorities.

### ***Reducing distortions in unemployment insurance and related benefits***

The early withdrawal scheme, allowing the 50 to 59 year-old long-term unemployed to retire permanently from the labour market, was discontinued at 1 February 1996. By closing an easily accessible exit from the labour market, this should improve labour market structures for older workers. The short-term effect was nevertheless to provoke a large outflow from the labour force, as 47 000 workers (1.7 per cent of the labour force) chose to retire in spite of the significant improvement of the Danish labour market during 1995. Relative to earlier assessments, the experience gained in 1995-96 indicates that the propensity of older workers to access retirement schemes is less sensitive to an upturn in employment growth. Over the period 1990-95, the share of persons on such schemes increased from 14½ per cent to 18¼ per cent for 50 to 59 year olds and from 61 to 65¼ per cent for 60 to 66 year olds (Table 16). The trend towards a lower effective retirement age seems deeply embedded in present institutional structures, which *inter alia* encompass an early retirement scheme accessible to

Table 16. **Withdrawal from the labour market**<sup>1</sup>

	Per cent		
	1990	1993	1995
50 to 59 year olds	14.4	15.5	18.2
60 to 66 year olds	60.9	64.3	65.2

1. The share of the population on early retirement (full or partial), early withdrawal and disability pensions.

Source: Ministry of Finance (1996), *Finansredegørelse 1996*.

workers above 60 years of age, and the average retirement age has fallen to 61 years.

Paid-leave schemes, covering education, child-minding and sabbatical leave, were introduced in their present format in 1994, when a previous condition for obtaining leave – requiring the applicant to be replaced by an unemployed person – was dropped. In view of the tightening of the labour market and the large initial take-up, 3 per cent of the labour force in early 1995, both sabbatical and child-minding leave were rapidly made less generous. The former is subject to a strict replacement requirement and set to disappear by March 1999, and both are subject to a reduction in the replacement rate from 70 to 60 per cent of the maximum UI benefit by April 1997. For training a replacement rate of 100 per cent of the maximum UI benefit still applies. An evaluation of this scheme is given in Chapter IV.

Compulsory activation of the unemployed after two years of unemployment, by private or public job offers, education or training, is being gradually implemented; having started on 1 July 1996 it is to be fully phased in by the end of 1998. The reduction of the unemployment benefit period from seven to five years will be phased in over the same period, while the prolongation of the qualification period from 26 to 52 weeks of non-subsidised work over three years takes effect from 1 January 1997. The intensified activation of unemployed, unskilled youths below 25 years of age involves eighteen months of education to obtain formal qualifications, together with a 50 per cent reduction in their UI benefit and is effected after six months of unemployment. It entered into force on 1 April 1996 and will be fully phased in by 1 April 1997. Combined with the rise in the eligible age for UI fund membership from 16 to 18 years, the immediate effect was a substantial decline in registered unemployment for this age group, as

youths chose to enter formal education or to seek non-subsidised jobs on their own. The Danish strategy relies also on restricting the use of UI benefit for non-core or supplementary purposes; however, no proposals have been made for modification of this part of the benefit system.

### ***Greater reliance on market signals in labour market policies***

As documented in Chapter IV, the government remains the chief provider of training both to employed and unemployed and the financing of UI benefits remains a government responsibility despite the fact that the social partners administer it. This structure could be modified either by placing greater reliance on financing by the social partners as a way of internalising the negative effects of unemployment into wage bargaining or by making even the administration of the UI funds a public responsibility. While the introduction of earmarked contributions to designated funds as part of the 1994-98 tax reform could be interpreted as transferring some financial responsibility for labour-market expenditures to the social partners, such contributions still appear as a general tax from the perspective of the individual employer and employee. They cannot therefore be expected to have significant impact on either labour market outcomes or the allocation of education and training resources. However, public supervision of the administration of UI funds has been consolidated in recent years, *inter alia* in connection with the fiscal budget for 1996. Moreover, steps have been taken to align the allocation of training resources closer to the demands of enterprises, insofar as the so-called “taximeter” financing system<sup>31</sup> is being introduced, basically allowing public subsidies to be used for whatever training purposes enterprises prefer. In addition, the price mechanism will be used to signal workers’ demand for adult education, as user fees are being phased in for participants in adult education.

### ***Increasing product market competition***

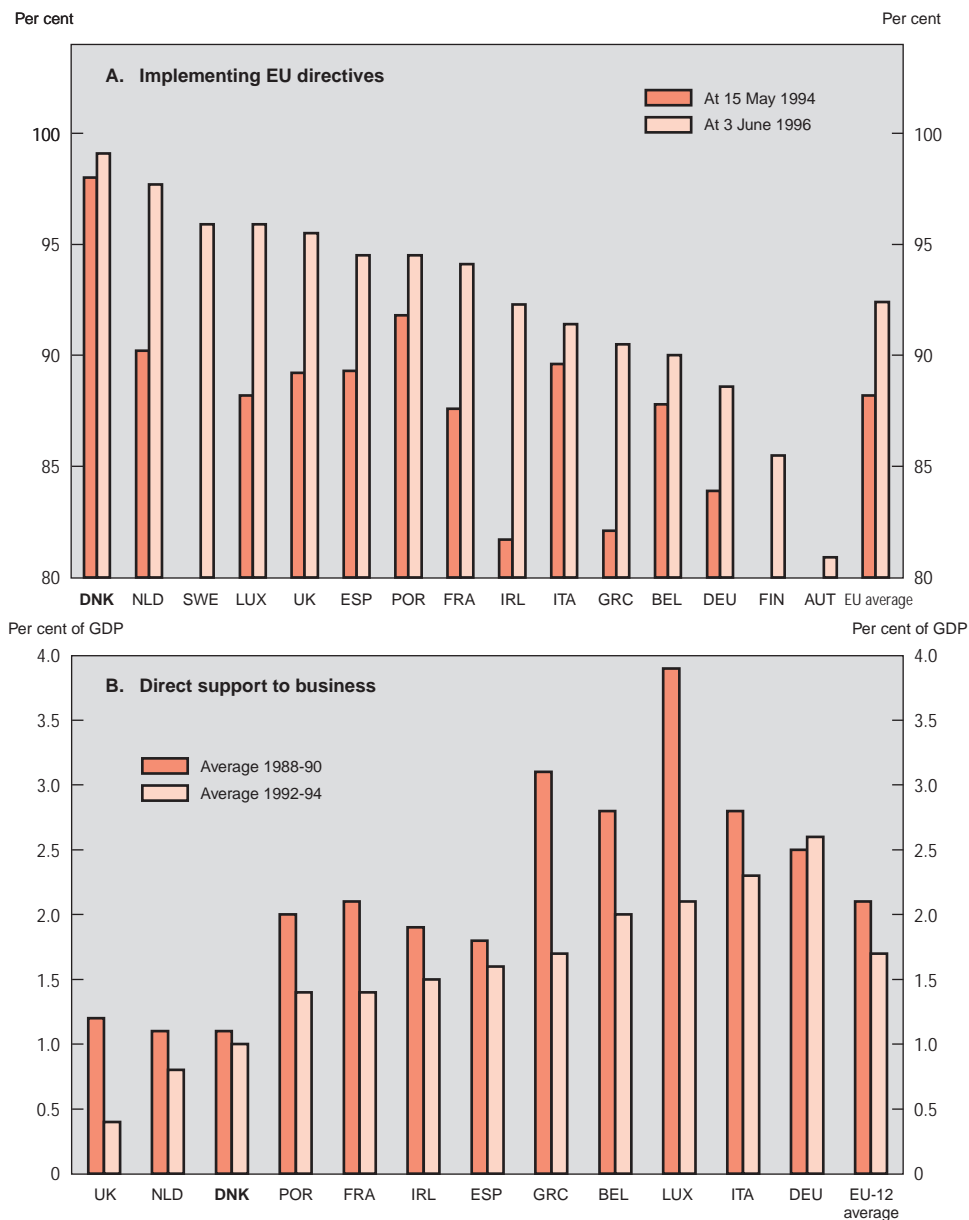
After 25 years of EU membership, the openness of the economy to external trade is fully determined by the EU regime. Moreover, reflecting a long-standing dependency not only on manufacturing exports but also on agricultural exports, the Danish government has adopted a positive attitude to initiatives to increase competition and specialisation. Denmark proceeded swiftly to implement the directives following from the EU internal market programme, and is still ahead of

other countries in this respect (Figure 15, Panel A). It remains one of the less intervention-prone members of the Union, restricting direct support to the business sector to 1 per cent of GDP (Panel B).

International comparisons cover only a selection of support schemes, and on a more comprehensive measure, direct support to Danish business, including price subsidies and direct transfers both from central and local government,<sup>32</sup> has increased from about  $3\frac{3}{4}$  per cent of total value added (at factor prices) in the 1980s to about  $4\frac{1}{4}$  per cent in 1995. Price subsidies have fallen below 1 percentage point, but other transfers are now approaching  $3\frac{1}{2}$  percentage points (Figure 16). The increase in business support during the 1990s reflects to some extent the weak cyclical development in the early 1990s, but is mostly attributable to increased transparency in the support regime, *inter alia* in shipbuilding and agriculture where implicit support through government regulations etc. has been substituted by explicit price support. At the same time there has been a move from direct price support to business towards support for broadly-defined purposes such as innovation (research and development, the entrepreneurial process, industrial clusters) and environmental concerns. To the above figures should be added tax expenditures to business amounting to  $2\frac{1}{4}$  per cent of value added, implying an overall level of support of  $6\frac{1}{2}$  per cent of value added. The profile of direct support and tax expenditures differs markedly insofar as direct support is dominant for primary industries, for transport and communications, while practically all support to the energy sector is given as tax expenditures.

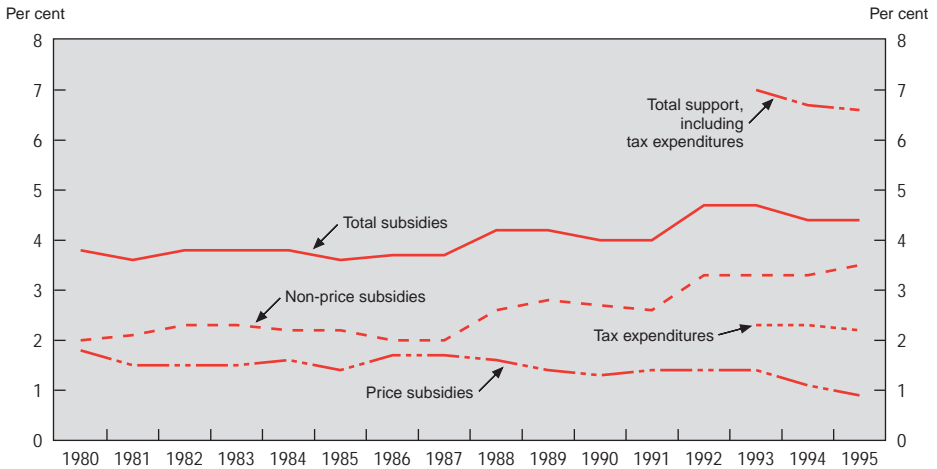
It would also appear that the Danish authorities have not taken full advantage of the scope allowed by EU directives to enhance competition. While Denmark's Nordic neighbours are moving swiftly ahead to allow enterprises and households to shop around for their energy supplies, and arranging production and distribution structures to make this possible, only a handful of Danish enterprises are scheduled to have this opportunity and local monopolies in the distribution of power will remain prevalent.<sup>33</sup> The scope for reform is also illustrated by the high government support to the energy sector, close to 40 per cent of value added. Such policies are clearly conferring costs upon society insofar as incumbents have ample time to position themselves towards future deregulation, a case in point being contracts for future deliveries of energy from foreign suppliers which are paid out of current high profits. Starting in 1990, deregulation has moved rapidly in the telecommunications sector, even if the

Figure 15. DENMARK AND THE INTERNAL MARKET IN THE EU



Source: Ministry of Economic Affairs (1996); *Denmark i det økonomiske samarbejde i EU'96*, European Commission.

Figure 16. **BUSINESS SUPPORT**  
Per cent of GDP at factor prices



Source: Ministry of Finance (1996); *Finansredegørelse 1996*.

price-setting of the incumbent may still act as a deterrent to new entrants, and a separation of railway transport from track maintenance is about to be implemented. While several public utilities sectors have seen a substantial deregulation since 1990, sector-specific legislation still has priority over the general competition statutes for some of these. In a recent proposal for amending the competition law, this feature is retained even if the Competition Council is to be given powers to order third party access to some infrastructure networks. However, the general philosophy underlying the act is changed from the “abuse principle” to the “prohibition principle” generally in force in the EU and by giving the competition authority wider authorities to intervene to combat anti-competitive behaviour, this should sharpen overall competitive pressures.

Since overall employment growth principally results from the expansion of small and medium-sized enterprises, while employment in larger enterprises has stagnated (Table 17), issues related to the entrepreneurial climate and framework for SMEs have received increased attention. Comparison across countries indi-



Table 17. **Employment growth and job creation by enterprise size<sup>1</sup>**

	Per cent						Total
	Employment size (employees)						
	0-9	10-49	50-99	100-499	500-999	1 000+	
Employment growth	0.4	1.2	1.4	-0.1	-0.8	-2.8	0.5
Job creation	24.0	11.0	8.5	6.3	4.5	2.2	12.4
New firms	9.0	2.4	1.9	1.8	1.9	1.1	3.9
Expansion	15.1	8.7	6.6	4.5	2.6	1.1	8.5
Job losses	19.8	11.6	9.4	7.1	6.7	2.7	11.8
Closures	9.8	2.9	2.1	1.8	2.4	0.9	4.2
Contraction	10.0	8.7	7.3	5.3	4.2	1.8	7.5
Job turnover	43.8	22.7	17.9	13.4	11.2	4.9	24.2

1. Private sector 1981-93. Average annual increase as a per cent of stock of employees at the start of the period.

Source: Ministry of Business (1996), *Ertvervsredegerelse 1996*.

cates an underperformance of the Danish economy in this respect. The start-up rate for new enterprises, at 5 to 5½ per cent of the total number, is on a par with Sweden and the Netherlands but lower than in western Germany, France and the United Kingdom. The survival rate of under 60 per cent after three years of production is also on the low side, while the share of (non-agricultural) self-employment in overall employment is below that of other EU countries despite the small average size of Danish enterprises.<sup>34</sup> A 1996 report<sup>35</sup> attributes the lack of entrepreneurial dynamism to: *i*) a dependency culture, discouraging both youths and more experienced workers from setting up on their own; *ii*) market failures in the supply of risk capital to SMEs; *iii*) administrative overburdening resulting from a multitude of government regulations and acts, partly uncoordinated; *iv*) inadequate capacity in the counselling and advice-giving apparatus; and *v*) insufficient attention and support given to particularly innovative entrepreneurs (see also *OECD Economic Survey of Denmark 1994*). In keeping with the above assessment, an entrepreneurial support scheme has been made permanent, and has been followed by government intervention (to be time-limited) to establish a market for subordinate loan capital to enterprises. In addition, initiatives have been taken to incorporate entrepreneurial topics into school curricula.

## Overview and scope for further action

The labour market reforms introduced in 1994-96 comprised several important elements to improve labour market performance, adding to the flexibility already present. Implementation of the reforms is progressing on schedule, but will be complete only by end-1998. Results are so far encouraging. Labour market imbalances have been reduced in scope, with wage growth remaining stable, in spite of rapid employment growth and falling unemployment. Youths have responded to changes in economic incentives by seeking out ordinary jobs and completing their education, and this has clearly contributed to the more positive trend in this segment of the labour market. Leave schemes are being reduced in scope as take-up rates reflect the reduced generosity of paid-leave for child-minding and sabbaticals. On the other hand, a development not foreseen is the high level of early withdrawals, with long-term negative consequences for public finances.

In view of the positive results achieved so far, the structural reform efforts should go beyond those already adopted to take effect in 1997-98. While the Danish authorities have signalled follow-ups to come in the areas of taxation of labour income, strengthening product market competition and restricting scope of and access to benefit schemes, these are emerging only hesitantly. The final proposal for the new Competition Act has taken more than 1½ years to prepare after the original Committee proposal, and even if the final proposal has been given a more pro-competitive edge, the powers of the Competition Authority to intervene against the utilities and other government-owned enterprises may still be inadequate. Proposals for further tax reform and for restricting the range of uses of UI benefits have yet to be formulated. Reform plans have been announced covering central parts of social policy, aimed at applying the principle of activation from the labour market reforms, and the early retirement (disability) pension is to be modified somewhat, with an extension of jobs aimed at persons with reduced ability to work in order to reduce permanent withdrawal from the labour market. However, on a more general level, the continued trend towards a lower retirement age still has to be stemmed. An overview of proposals, action taken or under implementation and OECD assessments of what remains to be done is given in Box 5.

The emphasis given in the 1996 *OECD Economic Survey* to the strong linkages between wage adaptability and labour market performance still has an

important bearing on Danish labour market policy. In a long-term perspective, wage adaptability needs to underpin the strategy of upgrading human capital, as incentives to undertake higher education would improve and the long transition period from school to work would be shortened (see Chapter IV). What seems to require closer attention at the present stage, is the labour market outcome for older workers. While adult education and training play an important part in maintaining and upgrading the qualifications of such workers, they cannot substitute for mechanisms that align productivity and wages for those with a long service in the labour market. The continued existence of generous government-financed retirement schemes weakens incentives for the social partners to deal effectively with this issue. The strength of the present upturn would seem to provide a rare opportunity to start to come to grips with remaining weaknesses in institutional and market structures.

Improved dynamism in the private sector is essential for long-term growth prospects and the focus on the entrepreneurial climate is well warranted, although it would appear too narrow in scope. While cultural and administrative issues certainly are at stake and some initiatives to correct for perceived market failures may be justified, it should be noted that the capacity of government authorities to correct these in a cost-effective manner will in general be limited, and their efforts will often result in a proliferation of official and semi-official bodies working at cross-purposes. Efforts in this sphere will on the whole prove more beneficial if directed at the overall framework for enterprise creation. In the Danish case, these would prominently feature *i*) improving the legislative framework for competition; *ii*) dismantling government support schemes for business; *iii*) a further opening up of the market for publicly-provided services to public tenders (see Chapter II); and *iv*) a tax reform that would act to lower the overall taxation of capital and labour income.

In sum, the labour market reform embarked upon a few years ago has proved beneficial to the functioning of the economy, and a broadening to encompass all dimensions of the *OECD Jobs Strategy* would sharpen its overall impact. This would serve to clarify the social partners' responsibility for integrating both youths and older workers in the labour market while strengthening the job-creating capacity of the business sector.

### Box 5. Implementing the OECD Jobs Strategy – an overview of progress

*Reforms adopted in 1994-1996, either already implemented or being phased in up to 1998, comprise several important elements to improve labour market performance, adding to the flexibility already present. Results are so far encouraging and the pace of structural reform should be maintained.*

Jobs-Strategy proposal	Action taken	OECD assessment/recommendations
<b>I. Increase wage and labour cost flexibility</b>		
<ul style="list-style-type: none"> <li>• Lower marginal tax rates</li> <li>• Reduce benefit generosity</li> </ul>	<p>Tax reform 1994-98</p> <p>Standard replacement rates unchanged, but UI benefits halved for youths with an incomplete education</p>	<p>Should continue beyond 1998</p> <p>Lower replacement rate and shorten duration further</p>
<ul style="list-style-type: none"> <li>• Social partners to adjust minimum wages downwards</li> </ul>	<p>No change in wage structure. Possibility for wages below standard rates introduced in wage agreements (“social chapters”)</p>	<p>Efforts should proceed with due emphasis on counteracting the trend towards lower retirement age</p>
<ul style="list-style-type: none"> <li>• Greater use of corporate user fees in training</li> <li>• Extend the waiting period for benefits</li> </ul>	<p>“Taximeter” grants broadened in scope, user fees under introduction in adult education.</p> <p>No action</p>	<p>Demand orientation still incomplete, user fees should play a broader role in adult education</p> <p>Proposals should be followed up</p>
<b>II. Reform of the unemployment insurance and related benefit systems</b>		
<ul style="list-style-type: none"> <li>• Reduce UI benefit duration</li> </ul>	<p>UI benefits restricted to five years</p> <p>Longer qualification period for UI benefits</p> <p>Early withdrawal (50-59 years) abolished</p>	<p>Abolish UI benefits for non-core purposes</p>
<ul style="list-style-type: none"> <li>• Reduce scope for early withdrawal</li> </ul>	<p>Early withdrawal (50-59 years) abolished</p>	<p>Improving incentives to stay in the workforce, i.a. by reducing the scope for early retirement</p> <p>Should proceed in line with proposal</p>
<ul style="list-style-type: none"> <li>• Paid-leave schemes integrated into wage settlements</li> </ul>	<p>No follow-up but child minding and sabbatical leave restricted in scope</p>	<p>Should proceed in line with proposal</p>
<b>III. Improve efficiency of labour-market policies</b>		
<ul style="list-style-type: none"> <li>• Further advancement of activation</li> </ul>	<p>Full-time activation of unemployed compulsory after two years. For youths without qualifying education: 18 months training start after six months</p> <p>Restoring UI benefits eligibility through subsidised work has been abolished and eligibility requirements tightened</p> <p>Targeted job schemes for long-term unemployed and disabled</p>	<p>Reinforce efforts to follow up proposal, drawing on the positive experience with youths responding to change in incentives by seeking out ordinary jobs and completing their education</p>

**Box 5. Implementing the OECD Jobs Strategy – an overview of progress (cont.)**

Jobs-Strategy proposal	Action taken	OECD assessment/recommendations
<b>IV. Improve labour-force skills and competencies</b>		
<ul style="list-style-type: none"> <li>• Lower drop-out from formal education</li> </ul>	Upper secondary education strengthened in overall volume and programmes; measures to improve educational choice and lower drop-out rate	Stricter requirements to and monitoring of resource use and pedagogical results in compulsory education
<b>V. Increasing product market competition</b>		
<ul style="list-style-type: none"> <li>• Enact a new competition act</li> </ul>	Proposal for new competition act in 1997, with “prohibition” principle replacing “abuse” principle	Utilities to be subjected in full to new Act
<ul style="list-style-type: none"> <li>• Complete deregulation of public utilities</li> </ul>	Separation of railway transport from track maintenance; deregulation of telecommunications continued	Start deregulating the energy sector on a par with other Danish utility sectors
<ul style="list-style-type: none"> <li>• Allow private sector to compete with the public sector in the supply of public services</li> </ul>	No discretionary action	Sharpen requirements for public tenders and use of outsourcing by local authorities

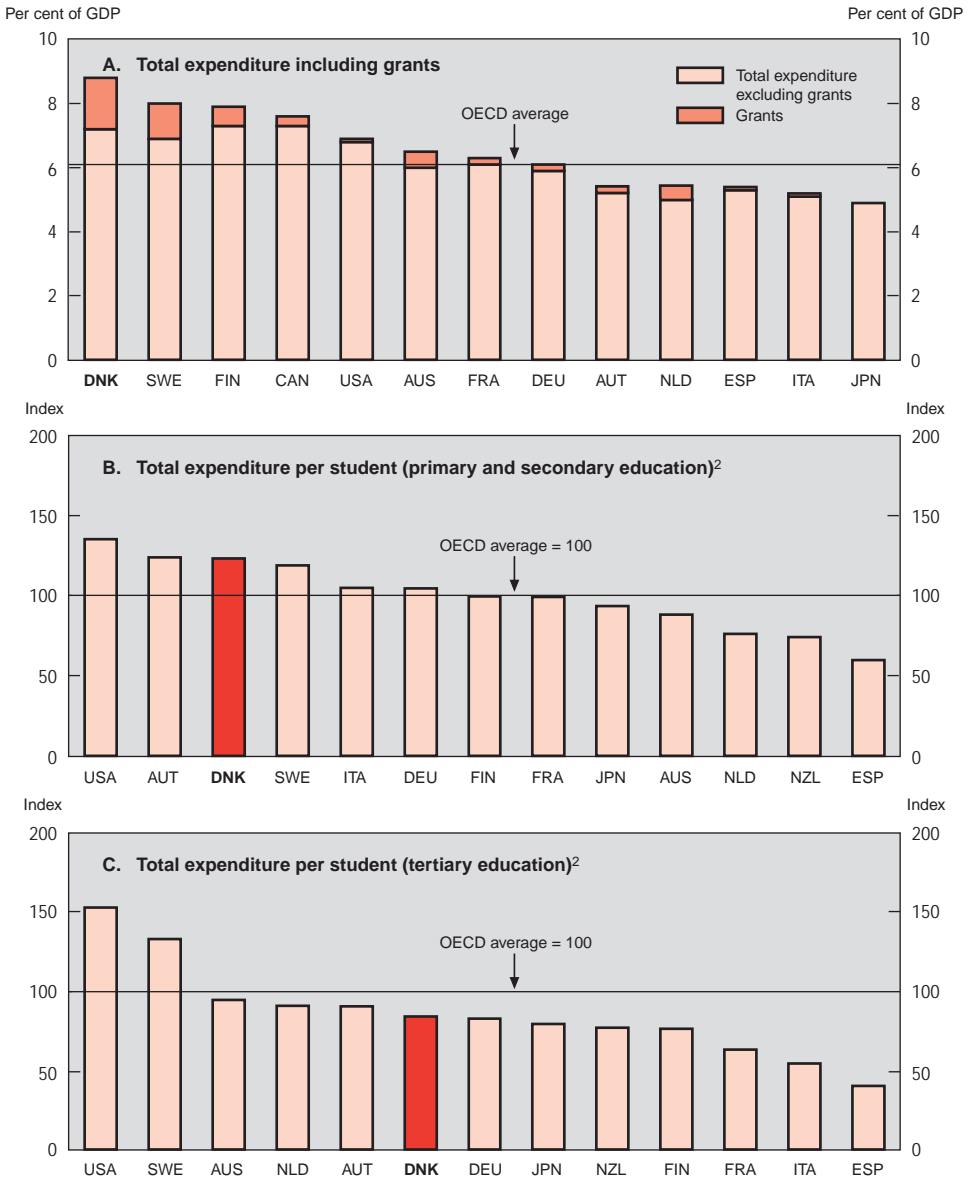
## IV. Education and training

### Introduction

Reflecting a long-standing Danish tradition, the education system is seen not just as an instrument for preparing young people to participate in working life but also as a means of preparing them to fulfil the wider role of participating in a democratic society. In the first capacity, education and training of the workforce have an active and pivotal role in Danish economic policy. Human capital investment has been given priority in order to raise long-term economic growth and productivity in the aggregate, as a well-educated labour force facilitates the implementation and diffusion of new technologies and innovations;<sup>36</sup> a more versatile workforce also increases the capacity of the economy to adjust to economic shocks and structural changes. A second, and equally important rationale, highlighted in the chapter on the implementation of the *OECD Jobs Strategy* in the 1996 *OECD Economic Survey of Denmark*, is to upgrade the competencies of less-skilled workers to secure productivity differentials that can match the present strong compression of wages at the lower end of the pay scale.<sup>37</sup> The effectiveness of policies with respect to these objectives raises issues with respect both to the content and quality of formal education system and to the scope and formulation of adult (post-graduate) education and training.

The present chapter starts out by outlining the institutional set-up of the Danish education system, its claims on resources and its output in terms of educational attainment. The second part summarises the evidence on the overall return to society of resources invested, followed by an assessment of the incentives to undertake higher education facing an individual and the interaction with labour-market structures. The third section analyses policy initiatives in the area of adult education and training, recently given close attention by policy-makers

Figure 17. **EDUCATIONAL SPENDING**<sup>1</sup>



1. 1994.

2. Calculated on the basis of US\$ converted using PPPs.

Source: OECD (1996), *Education at a Glance*.

and the social partners. The concluding part seeks to assess the adequacy of the policy response and the present capacity of the educational system to respond to the challenges confronting it.

## **Formal education: a long-standing priority**

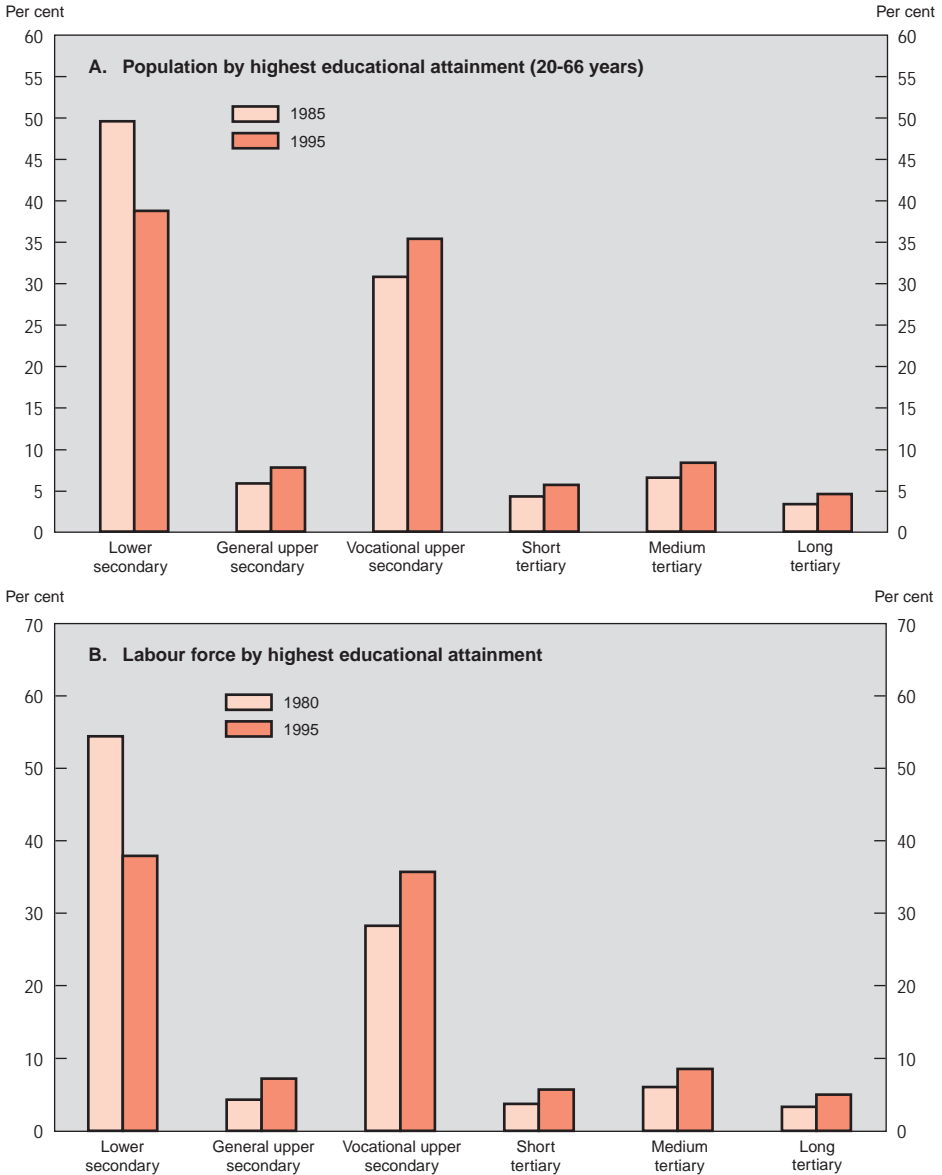
### ***Institutions, costs and efficiency***

At 7.2 per cent of GDP, the total public and private resources devoted to education in Denmark are among the highest in the OECD area (Figure 17, Panel A). If grants to students are included, the share increases to 8.8 per cent, one third above the OECD average, reflecting both higher spending per student than in other countries and a high enrolment rate.<sup>38</sup> In an international context Denmark stands out in having a relatively high resource use per pupil in primary and secondary education, while devoting less resources to higher education than other countries<sup>39</sup> (Panels B and C). Over the decade up to 1995 public resources to formal education increased in real terms by 11 per cent, clearly below overall GDP growth, reflecting a fall in the numbers of pupils in primary and secondary education, whereas higher student numbers drove up spending for higher education. With the prices of public consumption increasing faster than the overall GDP deflator, educational expenditure has increased somewhat as a share of GDP, at a rate close to the OECD average.

Over the last decade the share of the population with only compulsory (primary and lower secondary) education has fallen from 50 to 39 per cent, while the proportion with upper secondary and higher education have increased by 6 and 4 percentage points respectively, to 43 and 18 per cent. These trends are mirrored in the growing share of the labour force with an upper secondary and tertiary education (Figure 18). This reflects, in particular, a strong increase in the share of those with a vocational education at upper secondary level. However, a high rate of spending has not taken the educational level of the Danish labour force above the average of other OECD countries, as the share of the labour force having received only compulsory (*i.e.* below-upper secondary) education remains higher than the OECD average (Figure 19) and offsets a somewhat higher share of university-educated in Denmark.

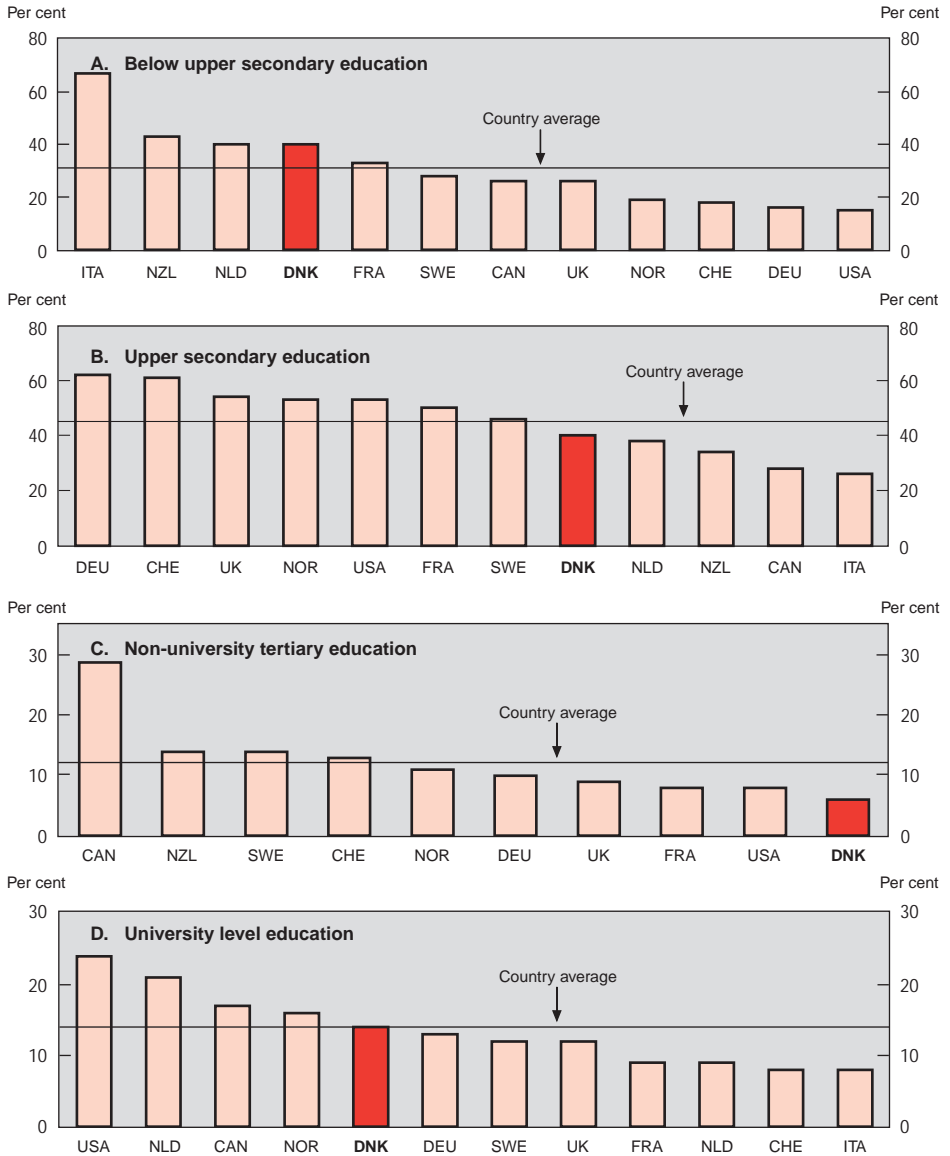


Figure 18. **POPULATION AND LABOUR FORCE BY HIGHEST EDUCATIONAL ATTAINMENT**



Source : Ministry of Finance (1996), *Budgetoversigt*; Ministry of Education (1996), *Facts and Figures*.

Figure 19. **DISTRIBUTION OF THE POPULATION BY THE HIGHEST COMPLETED LEVEL OF EDUCATION<sup>1</sup>**  
In per cent of population

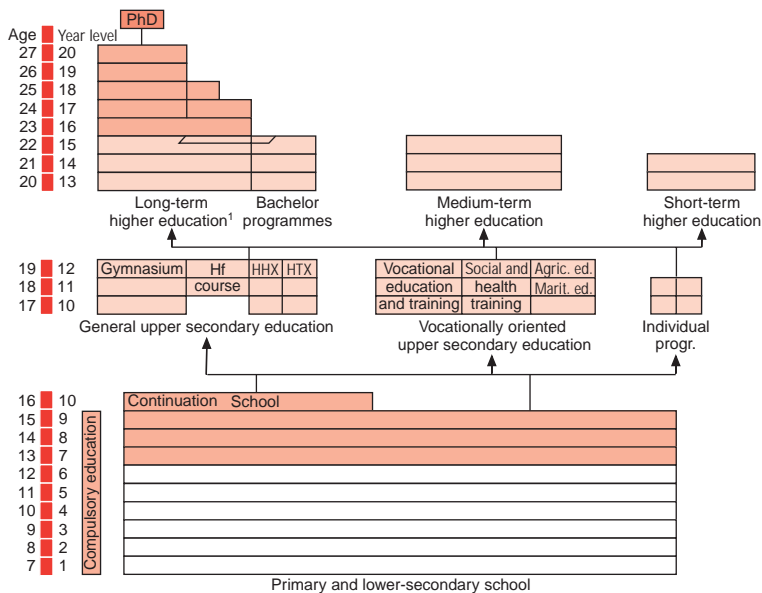


1. 1994.

Source: OECD (1996), *Education at a Glance*.

The Danish system of *formal education* has four layers, which become more diversified as students move upwards in the system (Figure 20). Nine years of primary and lower secondary education are compulsory, followed by an optional tenth year, pursued by around 60 per cent of pupils. After the ninth or tenth year, pupils can continue their education for two to three years at the general upper secondary level to prepare and qualify for studies at tertiary level, or enter vocational education with a similar duration.<sup>40</sup> Reflecting an educational reform introduced in the 1970s, the apprenticeship system now constitutes the in-firm part of vocational education and is thus fully integrated into the formal system. Tertiary education, undertaken at universities, business schools and teacher train-

Figure 20. THE DANISH EDUCATION SYSTEM 1996



1. Master programmes.

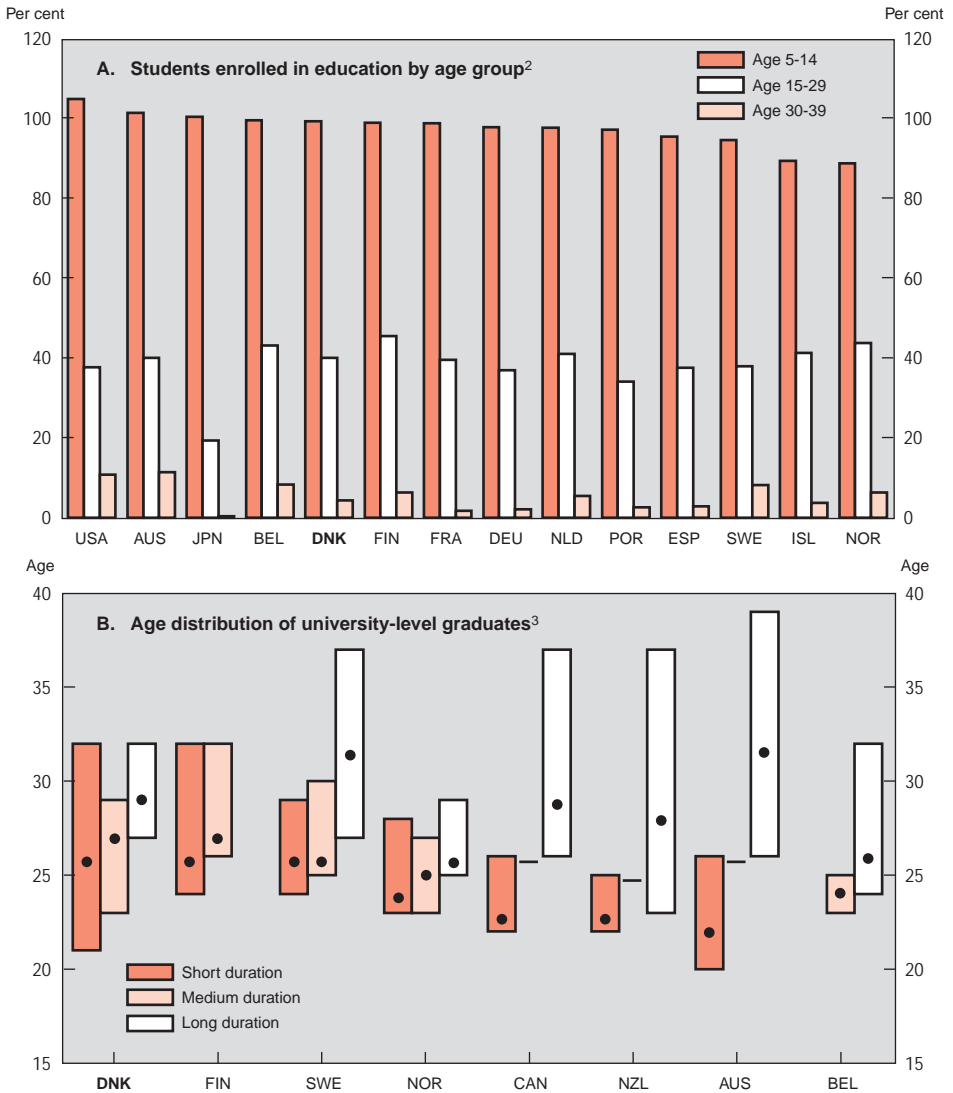
Note: "Age" is the theoretical minimum age for the formal education programmes, i.e. excluding adult education. After lower-secondary school, students are often older due to sabbatical years, waiting time, change of study programme, etc. The arrows illustrate the general connection between primary and lower-secondary school, upper-secondary and higher education, but not all possible actual transitions.

Source: OECD, 1996, *Education at a Glance*.

ing and other colleges, is divided into short, medium and long programmes. The first is of two to three years length, the second of two to four years length, both taking place outside and at university institutions, in the latter case leading to a bachelor's degree. The long programmes consist of a prolongation of the bachelor programme by a two year master's course, and possibly a further three year's PhD programme. Integrated into the first layer of this system are extensive education programmes for pupils with special needs, and formal competence can also be achieved under the wide-ranging adult education programme. Educational objectives are set out in national legislation, but the system allows for a decentralised implementation, most explicitly for compulsory education. Curricula in upper secondary education are subject to control by authorities at national level, whereas institutions at tertiary level maintain a high degree of independence within overall regulations. An overview of objectives, institutional structure, enrolment and resource use at each level is given in Box 6.

Among the characteristics of the Danish school system, shared with some other Scandinavian countries, is the late start of formal primary schooling, presently at the age of seven. Compulsory education ends with a graduation at the age of sixteen (the tenth year being only optional). Reflecting a fairly high enrolment both in secondary education for youths in their late teens and the early twenties and in tertiary education, the age group 15 to 29 years as a whole has an above-average enrolment rate (Figure 21, Panel A). Indeed, the expected number of school years for a Danish child is one of the higher in the OECD area.<sup>41</sup> Nevertheless, the relatively large number of years spent in the educational system by Danish pupils and the overall large resource claim of the sector do not ensure that Danish students receive more education than in other countries, with the advantages of a low pupil-teacher ratio in an international context being offset by fewer teaching hours in Danish educational institutions than in other countries (Table 18). Moreover, late entrance into higher education – presently as high as 23 years on average – and long spells in education would appear to be a structural feature of the Danish education system (Figure 21, Panel B). This reflects *inter alia* requirements for prior work experience in medium-duration programmes such as health and pedagogy, and, more generally, relatively easy access to tertiary education combined with a wide scope for requalification to pass entrance criteria for the most preferred programmes and generous support to students.

Figure 21. PARTICIPATION IN FORMAL EDUCATION<sup>1</sup>



1. 1994.

2. Based on head counts not accounting for part-time/full-time status.

3. "●" represents graduate's median age. A missing bar means that no data is available for this university level. For Denmark, the bars represent: Short duration: 2-3 years at non-university institutions; medium duration: Bachelor's degree (3 years); long duration: Master's degree (5 years or more).

Source: OECD (1996), *Education at a Glance*.

## Box 6. The educational framework

### *Compulsory education ("Folkeskolen")*

Primary and lower secondary education take place in "Folkeskolen", with municipalities in charge of the management and funding, or in private schools. The municipalities are legally obliged to provide all children with a free compulsory education. The aims of the *Folkeskole*, laid down in an act which entered into force in August 1995, are that children shall be enabled to acquire the skills for continued learning, to form independent judgement and to participate actively in the Danish democracy.<sup>1</sup> The overall aim and objectives are decided by *Folketinget* (the Danish Parliament), with the Ministry of Education setting out guidelines how to achieve these. Pedagogical methods and teaching arrangements and curricula/literature are decided upon at local level, by municipal bodies, in co-operation with teachers, parents and pupils. In the school year 1994/95 there were 519 000 pupils in 1 695 municipal primary schools, taught by around 58 000 teachers (person-years). In addition, there were about 86 000 pupils in 419 private schools.<sup>2</sup> The total public expenditure on primary and lower secondary education is DKr 28.6 billion (3.1 per cent of GDP), which is about 42 per cent of overall spending on education (including students' grants).

### *Education at upper secondary level*

The *general upper-secondary programmes* comprise general upper secondary certificates ("studentereksamen"), higher preparatory exam (HF) for mature students, higher commercial exam (HHX) and higher technical exam (HTX). The first two programmes are taught at the "Gymnasium" and the last two at commercial and technical schools, respectively, with all programmes having a duration of three years except for the two years HF. The aim of the first two programmes is primarily to prepare students for further studies at tertiary level. The HHX and HTX prepare pupils for higher education but qualify also as final vocational education. The curriculum is decided by the Ministry of Education, with the actual planning and formulation a county responsibility, made in co-operation with teachers and students. There are 153 general upper secondary schools, of which 21 are private, with a total of 72 000 students and 8 000 teachers (person-years), giving rise to annual public expenditures of DKr 3.5 billion, 0.4 per cent of GDP and 5 per cent of the total. In addition, there are 169 commercial and technical schools, all private, with 27 000 students and total expenditures of DKr 0.7 billion (1 per cent of the total).

*Vocational upper secondary programmes* comprise vocational education and training, training for social affairs and health officers, agricultural education and maritime education etc., encompassing approximately 100 different specialisations. Vocational training in Denmark is rooted in the apprenticeship tradition, but a wide-ranging modernisation has been carried out over the past 30 years, taking into account the lack of

*(continued on next page)*

*(continued)*

capacity among small and medium-sized enterprises to organise and carry out such training and reflecting the need for a continuous updating of such programmes. The curriculum is decided by the Ministry of Education, but is developed in close co-operation with the social partners which have been given a strong influence on the goals and contents of vocational programmes, and take an active part in detailing programmes at the local level. The length of the programmes varies from 2½ to 5 years, with a norm of 4 years. The programmes are based upon alternate (in plant) training and school periods, with 50 to 70 per cent of the time in training and 30 to 50 per cent in school. Completing the programme requires the apprentice to have a contract with an employer in the trade specialisation chosen for the full apprentice period or to obtain permission to substitute this fully or partly by a school-based workplace. There are 135 technical and commercial colleges, all private non-profit institutions, providing vocational upper secondary programmes, with about 120 000 students enrolled. The total cost of these programmes, funded by the central government, is DKr 4.5 billion – 0.5 per cent of GDP or 9 per cent of educational spending. In addition, student grants to all students at the upper secondary level amounts to DKr 1.4 billion or 2 per cent of total expenditure. The financing of the programmes is provided through the so-called “taximeter” system: grants to cover current cost are awarded on the basis of the number of pupils that graduate from programmes, with an additional grant to cover fixed costs. Apprentices are paid by their employees according to a wage scale rising through the apprentice period, but with wages received during school periods and support to apprentices without a contract with an employer being covered by a fund set up by the social partners with obligatory contributions from all enterprises.

### ***Higher education***

The tertiary education programmes comprise a wide range of further education, varying in duration from two to seven years. The Ministry of Education issues broad regulations for the educational programmes. The detailed content of each programme, however, is decided by the individual institution, which as a rule has an independent board. In principle there is free admission to most institutions, but the individual institution has discretionary powers to establish requirements based on examination results or supplementary credits obtained through vocational experience or other non-study experience. The programmes are taught at 169 institutions with around 170 000 students at a total cost of DKr 15.5 billion. In addition, student grants amount to another DKr 3.7 billion, taking the total to 2.1 per cent of GDP and 28 per cent of the total. Financing is based on the taximeter system (see above).

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1. See Ministry of Education (1996), *Act on the Folkeskole*.
  2. Private schools receive a subsidy corresponding to 90 per cent of fees, though subject to a ceiling and therefore averaging about 80 per cent of overall expenses.

Table 18. Student-to-teacher ratios and teaching hours per year by level of education

1994

	Primary education		Lower secondary education		Upper secondary education		
	ST	TH	ST	TH	ST	TH (general)	TH (vocational)
Austria	11.8	709	8.2	651	7.8	616	629
Belgium	13.2	832	..	720	7.4	660	862
Czech Republic	19.6	687	13.4	657	12.4	627	627
<b>Denmark</b>	11.2	750	9.2	750	9.2	480	750
France	19.3	923	..	660	13.2 <sup>1</sup>	660	660
Germany	20.4	760	15.7	712	12.4	650	665
Greece	16.5	696	13.3	569	11.4	569	569
Ireland	24.4	915	..	735	16.4 <sup>1</sup>	735	735
Italy	9.9	748	8.0	612	9.2	612	612
New Zealand	20.5	788	16.9	869	13.1	950	950
Portugal	12.1	828	..	681	13.0 <sup>1</sup>	607	607
Spain	17.6	900	17.1	900	13.7	630	630
Sweden	12.4	624	10.8	576	14.7	528	612
Switzerland	15.3	1 085	12.8	1 056	..	..	..
OECD mean	17.5	818	15.8	760	12.9	688	722

Key: ST = Student to teacher ratio.

TH = Teaching hours per year.

1. All secondary education.

Source: OECD, *Education at a Glance*, (1996).

The Danish education system is among the most expensive of OECD countries, stemming in particular from high costs in primary and secondary education. Moreover, the system has become more expensive over the past decade. The real expenditure increase of 11 per cent over the period 1986-95 was accompanied by a decline in the total number of students by 4 per cent. This increase in resource use is partly due to a lower pass-through, giving rise to an increase in the time spent in the system by about 1½ years. It is also partly attributable to a considerable increase in the generosity and coverage of grants to students in upper secondary and tertiary education. The increase in current cost per student has primarily taken place in compulsory education (primary and lower secondary schools)<sup>42</sup> and, to a lesser extent, in the vocational part of upper secondary education (Table 19), while other upper secondary schools and institutions at tertiary level have seen considerable decreases in resource use per student.



Table 19. **Education expenditure, students and teachers**

Shares of total in parentheses

	1985		1995		Growth, per cent
	Levels	Share of total	Levels	Share of total	
<b>Compulsory education</b>					
Expenditure <sup>1</sup>	25 400	(55)	26 317	(51)	4
Students	709 681	(71)	589 549	(60)	-17
Teachers	62 000		58 000		-6
<b>General upper secondary education</b>					
Expenditure <sup>1</sup>	4 424	(10)	4 870	(9)	10
Students	76 278	(8)	99 253	(10)	30
Teachers	6 000		8 000		33
<b>Vocational upper secondary education</b>					
Expenditure <sup>1</sup>	4 803	(10)	5 077	(10)	6
Students	53 010	(5)	49 731	(5)	-6
Teachers	9 000		9 000		0
<b>Tertiary education</b>					
Expenditure <sup>1</sup>	8 359	(18)	10 029	(20)	20
Students	75 846	(8)	135 673	(14)	79
Teachers	9 000		8 000		-11
<b>Adult education</b>					
Expenditure <sup>1</sup>	3 189	(7)	5 101	(10)	60
Students	80 732	(8)	113 663	(12)	41

1. Dkr million, 1995 prices.

Source: Ministry of Finance.

Labour costs account for 80 per cent of current costs in *primary and lower secondary education*, and with the number of pupils falling by 17 per cent and teachers by 6 per cent, the pupil-teacher ratio has decreased strongly over the past decade. This results *inter alia* from a reduction in average weekly working hours for teachers by two hours, accounting for one quarter of the increase in current costs. Moreover, as primary and lower secondary schools did not add to their staff, the average age of teachers increased, and with a significant seniority component of salaries, teachers' average pay increased, accounting for about one third of the increase in current costs.<sup>43</sup> In the *vocational upper secondary system*, the student population dropped 6 per cent despite an increase in the length of programmes, while the number of teachers remained unchanged. Costs have also increased as teachers have become more qualified and higher paid and as students

have chosen more technically demanding programmes and health programmes, all relatively teacher- and capital-intensive. However, in the *general upper secondary system* an increase in students was matched by a similar increase in teachers, while the number of teachers employed in *tertiary education* has fallen concomitantly with a doubling of the student population. At primary and lower secondary levels, the adjustment of labour thus tends to be asymmetrical, with increases in the numbers of pupils being fully matched by a proportionate increase in teachers, but with a reduction in the numbers of pupils leading to a less-than-proportionate reduction in teaching staff, resulting in an upward bias in costs over time.<sup>44</sup>

Over the past ten years, public expenditure on student grants and loans has increased by around 60 per cent in real terms. The increase in loans is modest, but grants have more than doubled, taking the GDP share of student grants in Denmark above most other countries. The student population increased by 50 per cent, but a higher coverage ratio has resulted in the number of students actually receiving grants increasing by 70 per cent.<sup>45</sup> A further boost resulted from a reform of the state education grant and loan scheme, which increased the size of individual grants. By increasing the transfer element and lowering the implicit own contribution element in the student support scheme the incentives for students to prolong their studies have increased, an effect offset to some extent by an upper time limit to grants at the normalised duration of a programme plus one additional year and a requirement to pass mandatory examinations. Moreover, there is a ceiling on the income that may be earned without a corresponding reduction in grants. The average length of long tertiary education, although varying strongly between programmes, has thus declined by half a year from 1984 to 1994.

### *Educational performance*

Educational performance may be gauged by several criteria, areas of under-performance in the Danish case being:

- i)* a high proportion of *low-achievers*, as some pupils fail to maintain normal educational progress, a dispersion of educational achievement generally persisting throughout compulsory education;
- ii)* a fairly high rate of *drop-outs* from upper secondary education.

In addition, the concept of *functional illiteracy* – indicating that even for those who complete compulsory education, the capacity to independently acquire and upgrade the skills required for their jobs is still unsatisfactory – has become subject to closer scrutiny over the past few years. It would appear that the Nordic educational model has been more successful than others in securing a high level of functional literacy of the workforce, thereby providing adults with a higher capacity to adapt to new technology and new work methods, a capacity retained throughout working life.<sup>46</sup> For the time being, this hypothesis remains to be tested in the Danish case.

With respect to the wider concept of *low-achievement*, the proportion of Danish 14-year old pupils with low reading scores is in line with the OECD average, if somewhat higher than in other Nordic countries (Table 20), despite the heavy expenditure involved. The range of achievement between the upper and lower quartiles is in line with the OECD average, and corresponds to a difference in schooling of more than three years. Available survey evidence points to a middle-to-low ranking of Danish pupils in internationally standardised tests in spelling, writing, mathematics and other sciences. Even if Danish pupils improve their relative position somewhat as they approach the end of compulsory education, this rather unexceptional performance should be seen against the background of a low pupil per teacher ratio in Denmark and very small differences in performance between schools. Together with the other Nordic countries, Denmark is characterised by a “mainstreaming” educational model which maintains an undifferentiated curriculum in a unitary school throughout compulsory education and emphasises the age homogeneity of its students, thereby avoiding the use of grade repetition. These factors, explicitly aimed at strengthening social cohesion, are also thought to contribute favourably to the teaching process and to keep pressure on weaker pupils to keep up with the rest, leading to better overall school results than a model based on differentiated streams according to skills. Whatever the merits of this argument, Denmark seems to have been less successful than Finland and Sweden in applying the Nordic model insofar as the average score is lower and the range of achievement wider than in these two countries. Recognising the substantial efforts undertaken over the past decade and recent initiatives, it would nevertheless appear that quality of educational output could be improved further.

Table 20. **The achievement of Danish pupils in an international comparison**

	Reading			Mathematics <sup>1</sup>	Science <sup>1</sup>
	Mean scores <sup>1</sup>	Low-scoring students <sup>2</sup>	Inter-quartile range <sup>3</sup>		
<b>Denmark</b>	<b>100</b>	<b>14.5</b>	<b>100</b>	<b>100</b>	<b>100</b>
Belgium (French Community)	89	28.4	89	105	99
Canada	99 <sup>4</sup>	17.9	108	105	111
Finland	109	4.7	87	..	..
France	106	(5.3)	90	107	104
Germany	100 <sup>5</sup>	16.6	109	101	111
Greece	96	16.1	86	96	104
Iceland	103	13.1	106	97	103
Ireland	97	20.6	101	105	113
Italy	98	16.4	98	..	..
Netherlands	97	17.6	93	108	117
New Zealand	106	15.1	135	101	110
Norway	98	13.6	89	100	110
Portugal	100	(7.1)	73	..	..
Spain	91	(25.1)	87	97	108
Sweden	106	10.6	106	103	112
Switzerland	103	10.7	97	109	109
United States	103	15.5	125	100	112

1. Denmark = 100.

2. Per cent of students more than one standard deviation below the mean score of the OECD countries participating in the Survey. The OECD average is 15 per cent. In some countries, sampling imperfections may have affected the estimation of the percentage of under-achievers. The corresponding figures are presented in brackets.

3. Gap between average scores between upper and lower quartile of students. Denmark = 100.

4. British Columbia.

5. Former Federal Republic of Germany.

Source: OECD (1996), *Education at a Glance*.

In the Danish context, most attention has been paid to the large share of youths not obtaining a vocationally-qualifying secondary education – *the drop-outs*. This share fell somewhat over the 1980s, reverted in the early 1990s to the 38 per cent-level of ten years earlier, but has recently fallen markedly to 30 per cent (Table 21). The share completing only compulsory education has fallen sharply, from 11 to 5 per cent, whereas the share entering, but not completing, upper-secondary education has remained stable at around 15 per cent of the cohort. Subject to the caveat about the comparability of sources used, the 20 per cent not obtaining upper-secondary education would appear to put Denmark somewhat above middle position in an international ranking (Table 22). Danish and international evidence bear out that graduating with upper secondary educa-

Table 21. **Educational profile<sup>1</sup>**

Percentage distribution

	1982/83	1986/87	1990/1991	1993/1994
<b>Total</b>	100	100	100	100
<b>Vocationally qualifying education</b>	62	68	62	70
Vocational education	36	42	30	34
Higher education	26	26	32	36
<b>Non-vocationally qualifying education</b>	38	32	38	30
Basic school	11	8	6	5
General upper secondary education	8	7	6	6
<i>of which:</i>				
Uncompleted	2	1	1	1
Uncompleted vocational education	12	11	18	14
Uncompleted higher education	6	7	6	7

1. Expected total educational profile of a given cohort about to enter the education system if it conforms to the latest information available on educational choice, drop-out etc. up to the selected years.

Source: Ministry of Education (1996), *Facts and Figures*.

tion is in general a necessary condition for a good employment record. Insofar as there still is a large share of youths not achieving this, present efforts (reviewed below) may need to be strengthened to improve the labour market prospects of this group.

Table 22. **Percentage of students leaving secondary education without a certificate**

		Leavers without certificate
<b>Denmark</b>	<b>1994</b>	<b>20</b>
Canada	1989	34
Finland <sup>1</sup>	1992	12
France	1986	19
Germany	1988	12
Greece	1987	36
Ireland	1989	9
Italy	1988	11
Netherlands	1986	26
Spain	1988	23
United Kingdom	1989	8

1. Drop-outs per 100 students in upper secondary schools and vocational and professional upper secondary institutions.

Source: OECD (1996), *Lifelong learning for all*.

## **Economic impact of the education system**

### ***Social rates of return***

For practical policy purposes the most relevant economic indicator of the benefits of education spending to society is the marginal rate of return on the incremental resources allocated to this purpose. This may be measured by differences in remuneration between occupations with different educational inputs. The relationship between levels of educational attainment and income may be imprecise, and productivity also reflects initial talents,<sup>47</sup> but the education system plays a crucial role in allowing the comparative advantages of different workers to be realised. There would thus normally be a close alignment between relative wages and relative productivity subject to the proviso, in the Danish case, that wage compression tends to reduce the differentials between unskilled and educated labour. In a study carried out by The Economic Council, the rates of return on investment in human capital are found to be positive for all but one of the educational categories investigated, with the real rates of return varying between -2.5 and 15.3 per cent (Table 23), but in most cases surpassing the real rate of return on alternative investment, commonly set at 4 to 5 per cent. These estimates, however, apply to students who are assumed to proceed through education without interruption, and are therefore biased upward, since students on average embark upon tertiary education only at the age of 23.<sup>48</sup> A more detailed documentation of the methodology is provided in Annex I.

The effectiveness of the education system in providing the labour force with a set of skills which acts to raise living standards is more difficult to corroborate from labour productivity comparisons. In terms of labour productivity levels, Denmark is behind most other European countries, and over the past two decades the differential has become wider in many cases (Table 24). The relative importance of the public sector in the Danish economy compared with other countries may act to depress measured productivity levels somewhat,<sup>49</sup> but as noted above, the proportion of the labour force with only compulsory education is still relatively high in comparison with other OECD countries. Productivity growth in the private sector may be held back to some extent by the large claims made by the public sector on educational output although it would appear that persons with education above compulsory levels are spread across business sectors and enter-

Table 23. **Social rates of return on human capital investment**<sup>1</sup>

Per cent

Education	Social rates of return
<b>Vocational education</b>	8.9
Shop assistant	11.4
Clerical worker	8.6
Metal worker (blacksmith)	6.5
Mechanic	14.5
Engineer	6.5
Electrician	7.5
Construction worker	5.5
<b>Other basic vocational</b>	
Nursery teacher	-2.5
Technician	2.2
<b>Non-university tertiary</b>	
School teacher	4.6
Business economist	14.0
Engineer	9.3
<b>University tertiary</b>	
High school teacher (Masters degree)	3.9
Economist	15.3
Lawyer	11.4
Civil engineer	9.5
Medical doctor	10.5

1. Calculated as the internal rate of return, *i.e.* the discount rate that makes the real present value of the gains from an education equal to the net present value of the costs of undertaking it. The gains are measured relative to a compulsory education by using the earnings differentials towards an unskilled worker, with current and capital expenditures in the education system and income foregone during the education taken into account. For methodology, see Annex I.

Source: Høj, A.K. and K. Ransby (1996) "The Value of Education: Danish Investment Perspectives". Danish Economic Council, *Working Paper 1996:4*.

prises more or less in proportion to their size, indicating that small and medium-sized enterprises also benefit from the output of the education sector. In the process, Denmark makes intense use of its labour resources, with a high employment ratio more than offsetting a somewhat lower working time than other countries. But investment in education has been a source of productivity increases insofar as high labour force participation has made for a high GDP per capita – one of the highest in the OECD area (Figure 22).

Table 24. **Productivity levels in OECD countries**GDP per man-hour relative to the United States<sup>1</sup>

	1913	1929	1938	1950	1960	1973	1987	1995 <sup>2</sup>
United States	100	100	100	100	100	100	100	100
Netherlands	69	74	64	46	54	77	92	99
France	48	48	54	40	49	70	94	99
Belgium	61	55	53	42	45	64	86	93
Italy	37	35	40	31	38	64	79	87
Canada	75	66	58	75	79	83	92	83
United Kingdom	78	67	64	57	56	67	80	81
Austria	48	37	33	27	38	59	74	81
Australia	93	77	75	67	69	70	78	78
Germany <sup>3</sup>	50	42	46	30	46	64	80	78
Sweden	44	38	43	49	54	76	82	77
<b>Denmark</b>	<b>58</b>	<b>59</b>	<b>54</b>	<b>43</b>	<b>46</b>	<b>63</b>	<b>68</b>	<b>71</b>
Japan	18	22	23	15	20	46	61	70
Switzerland	51	57	55	56	59	67	68	66
Finland	33	32	33	31	36	57	67	63

1. Ranked according to 1995 level.

2. OECD estimates.

3. In 1995 including eastern Lander.

Source: Englander, A.S. and A. Gurney, "Medium-term determinants of OECD productivity", *OECD Economic Studies*, No. 22, OECD.

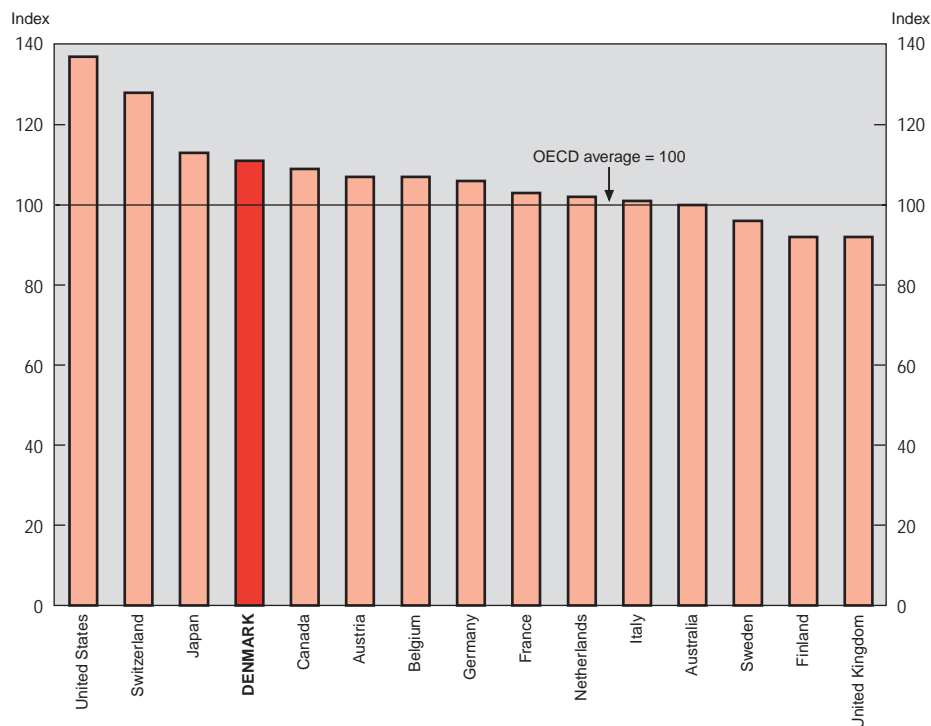
### ***Individual incentives and unemployment risk***

The extensive involvement of the government in education above the compulsory level is rooted in the deeply entrenched objective of extending education at higher levels to all, supported in economic terms by the need to alleviate financing constraints stemming from a perceived imperfect capital market. The effective allocation of resources thus committed depends on individual choices, which in turn are to some extent conditioned by expected life-time income, adjusted for the effects of taxes and transfers. While earnings differentials in Denmark may be smaller than on other countries, in general they provide economic incentives to go beyond compulsory education. This is confirmed by studies on wage formation in the Nordic countries, which indicate that the effect on hourly wages of an additional year of schooling beyond compulsory education is about 4½ per cent in Denmark, compared with 5 per cent in Sweden and Norway and 7 per cent in Finland<sup>50</sup> (Table 25, Panel A). The difference reflects a lower rate of return than for the three other countries for both men and women in private sector employment and for employed women in the public sector. Availa-



Figure 22. **GDP PER CAPITA IN OECD COUNTRIES<sup>1</sup>**

OECD = 100<sup>2</sup>



1. 1995 data.
  2. Data calculated using constant 1990 purchasing power parities.
- Source: OECD, *National Accounts*.

ble estimates for Denmark at a disaggregated level (Panel B) show wage effects varying between  $\frac{1}{2}$  and 10 per cent for one year of formal schooling and 0 to 5 per cent for one year of experience (on-the-job training), with the strongest effect being for white-collar workers in both cases.

It should, moreover, be noted that the spread of unemployment risk between educational categories is considerable in Denmark (Figure 23). The difference in unemployment rates between those with no more than compulsory education and the other categories is surpassed by only a few other OECD countries, unemploy-

Table 25. The effect on hourly wages of an additional year in post-compulsory schooling

Per cent

A. Nordic comparison				
	Denmark	Sweden	Norway	Finland
Total	4½	5	5	7
Men	5¼	5	5	7¾
Private sector	6	6¼	6½	7¾
Public sector	5¼	5	4½	8¼
Women	3½	4½	5	6½
Private sector	4	5½	5½	5
Public sector	3½	4	5	7½

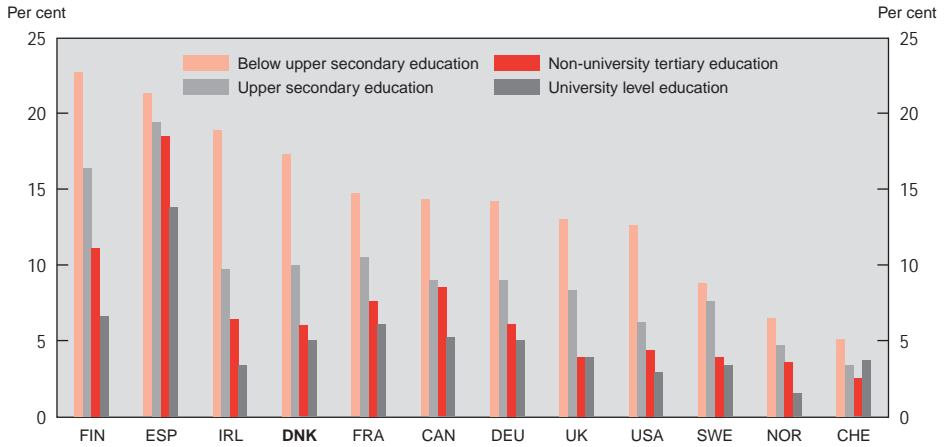
B. Other available estimates for Denmark		
Source	Percentage increase in hourly wages of one year of:	
	Formal education	Experience
Westergård-Nielsen <i>et al.</i> (1991)	4.1	2.0
Smith (1990)		
Blue collars, unskilled	0.4	0.6
Blue collars, skilled	1.0	0.6
White collars	3.3	0.8
Buus Kristensen (1992)		
White collars	10.0	..
Hansen (1991), private sector <sup>1</sup>		
Blue collars, unskilled	0-1	0-1
Blue collars, skilled	1-2	2
White collars	1-4	2-5

1. Ranges cover differences between men and women; and for white collars, also between different levels (lower, higher and superior).

Source: Panel A: Asplund, R. *et al.* (1994) "Human Capital and Earnings in the Nordic Countries", in Asplund, R. (ed.) (1994), *Human Capital Creation in an Economic Perspective*;  
 Panel B: Westergård-Nielsen, N. *et al.* (1991) "Wage differentials in the Nordic Countries", *Working Paper* from Århus Business School; Smith, N. (1990) "Wage Discrimination in the Danish Labour Market: Studies in Labour Market Dynamics", *Working Paper 90/2* from University of Århus. Buus Kristensen, N. (1992), "Lønstrukturens udvikling på funktionærområdet i Danmark", *Dissertation No. 42*, University of Copenhagen; and Hansen, A.C. (1991), "Regionale aflønningsforskelle i byerhverv", *Memorandum from AKF*.

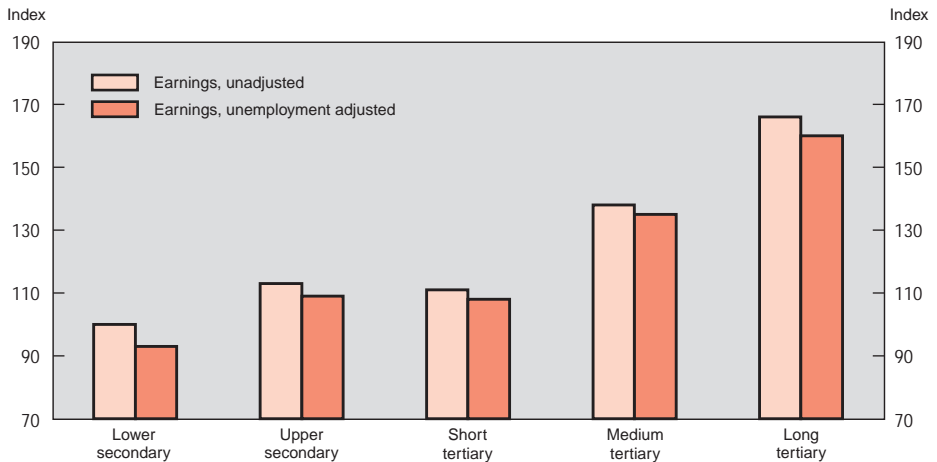
ment rates for those with higher education being one third of those with only compulsory education, even though the unemployment risk does not decline by extending a short-cycle tertiary education to a long-cycle university education. An adjustment for differences in unemployment risk thus serves to reinforce the overall positive relationship between the level of education in Denmark and life-time earnings (Figure 24).

Figure 23. **UNEMPLOYMENT BY LEVEL OF EDUCATIONAL ATTAINMENT<sup>1</sup>**



1. 1993.  
Source: OECD (1996), *Education at a Glance*.

Figure 24. **LIFE-TIME EARNINGS BY EDUCATION<sup>1</sup>**  
Average life-time earnings for lower secondary education = 100



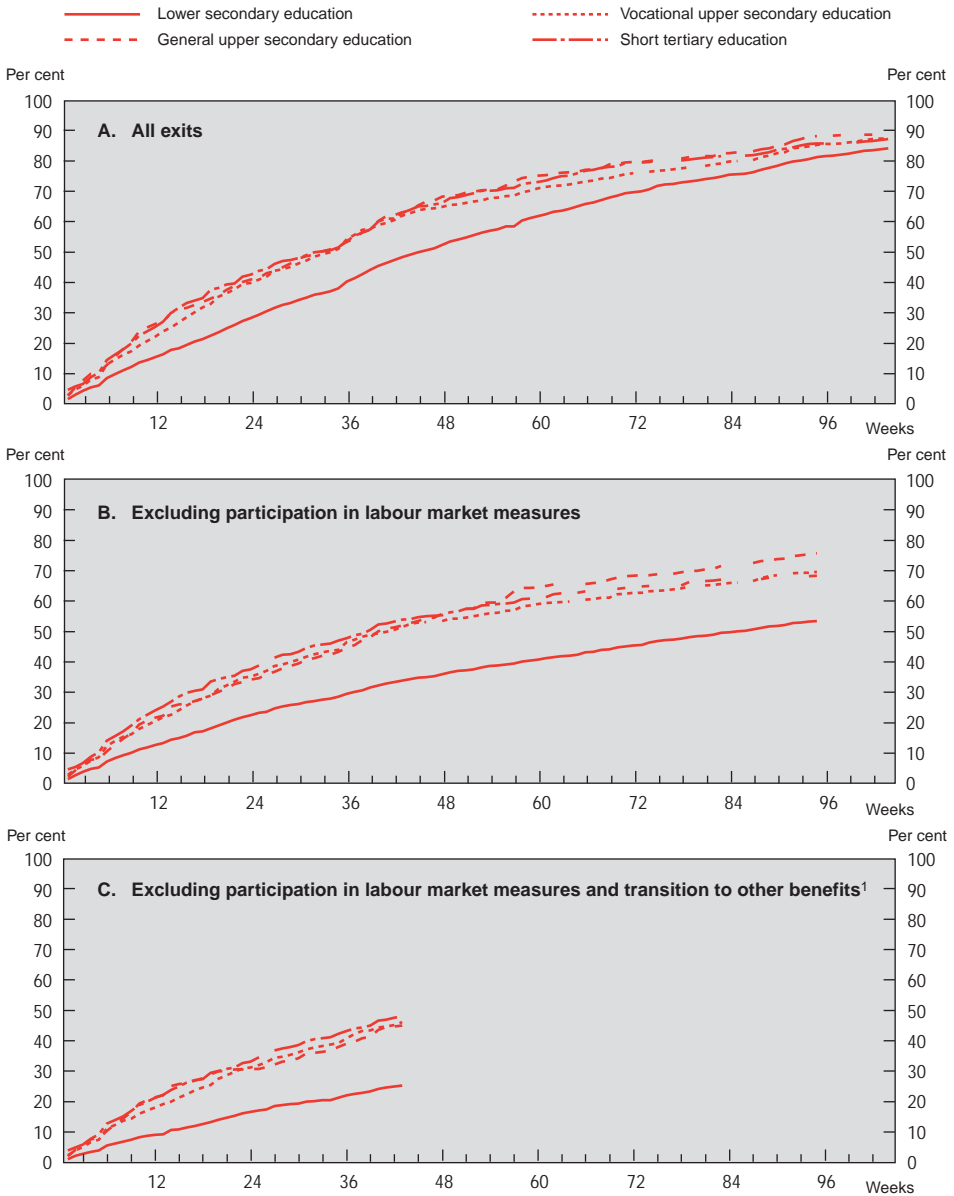
1. 1995.  
Source: Danish Economic Council.

Workers without a vocationally qualifying education are subject to both more frequent and longer unemployment spells than other groups. Over a longer time horizon they will also experience more relapses into unemployment. The exit rate from unemployment is closely related to educational attainment, with persons with tertiary education exiting more rapidly than other groups and the unskilled exiting slowly and to a large extent into active labour market programmes (Figure 25). According to a 1994 classification of marginal and core members of the workforce,<sup>51</sup> the incidence of marginalisation was 10 to 12 per cent among those without a vocationally qualifying education, 5 to 7 per cent among those with an upper secondary vocational education and 2 to 4 per cent among those with a tertiary education. Of those belonging to the marginal workforce in 1990, about 50 per cent of those with only compulsory education remained in that group four years later, compared with 35 per cent for those with tertiary education. Conversely, the better-educated are more able to maintain their position in the core workforce, with over 90 per cent retaining employment compared with 75 per cent for the low-educated. Of particular interest is the transition from the marginal workforce to public support schemes or other means of support at 12 per cent, four times the rate for the core workforce, and with a high incidence of those with either only compulsory education or general upper secondary education. A low skill level is thus associated with a far weaker labour market attachment and higher benefit-dependence than for other groups, implying potentially high returns from educating such groups.

Against this, the short-term educational choice of individuals is likely to be negatively affected by marginal tax rates which are among the highest in the OECD area at all income levels (Figure 26). While the increase in marginal tax rates over the income interval of 66 to 167 per cent of the earnings of the average production worker (APW), although strong, is exceeded by some other countries, it would appear that the degree of progression – and thereby also the distortions of educational choice – is particularly strong at the lower end of the income scale. Combined with income-dependent transfers, the tax system works to create extremely high effective tax rates over this range.

As noted in the 1996 *OECD Economic Survey of Denmark* a relatively high wage for new entrants to the labour force (above the age of 18) may act to undermine individual incentives to undertake education and raise the drop-out rate in general, as youths respond to such wage offers when available.

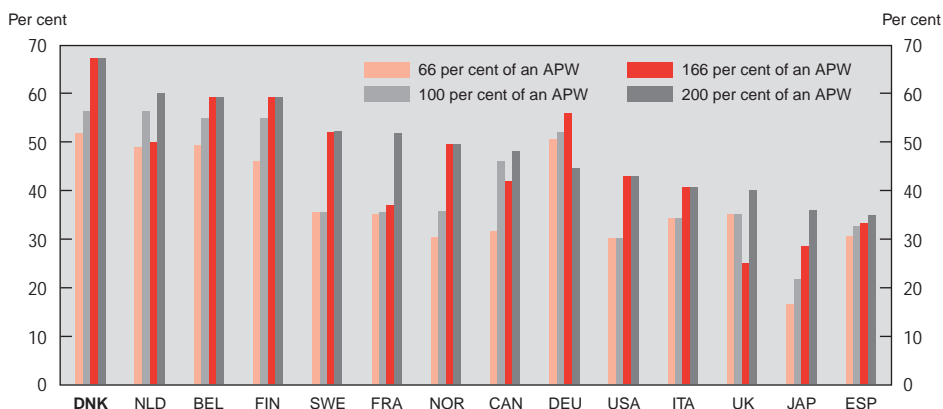
Figure 25. **EXITING FROM UNEMPLOYMENT**



1. Social assistance, sickness benefits and maternity benefits.

Source: Submission from Socialforskningsinstituttet.

Figure 26. MARGINAL TAX RATES<sup>1</sup>



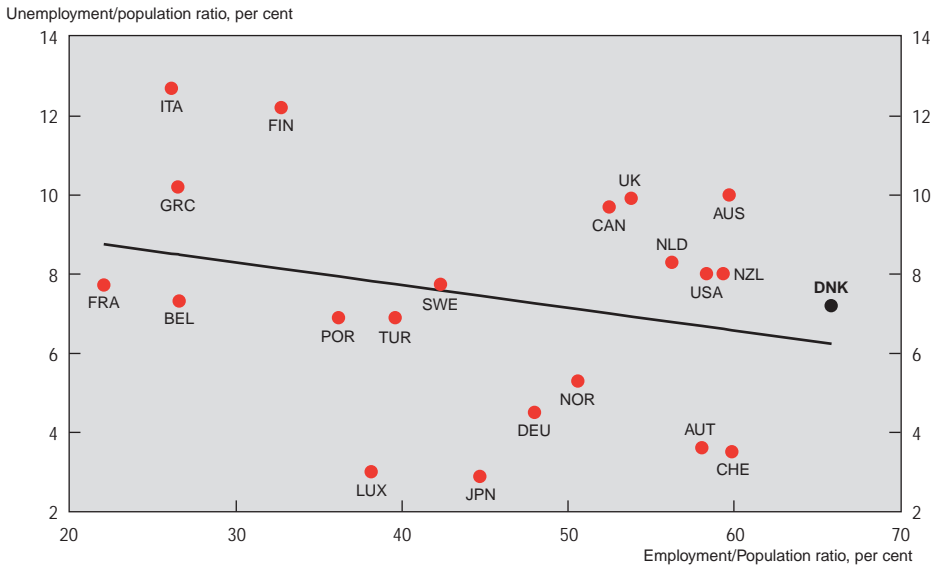
1. 1994. Income levels are given relative to the earnings of an Average Production Worker (APW). When the 1994-1998 tax reform is fully phased in, the highest marginal tax rates in Denmark will fall by about 5½ percentage points.

Source: OECD.

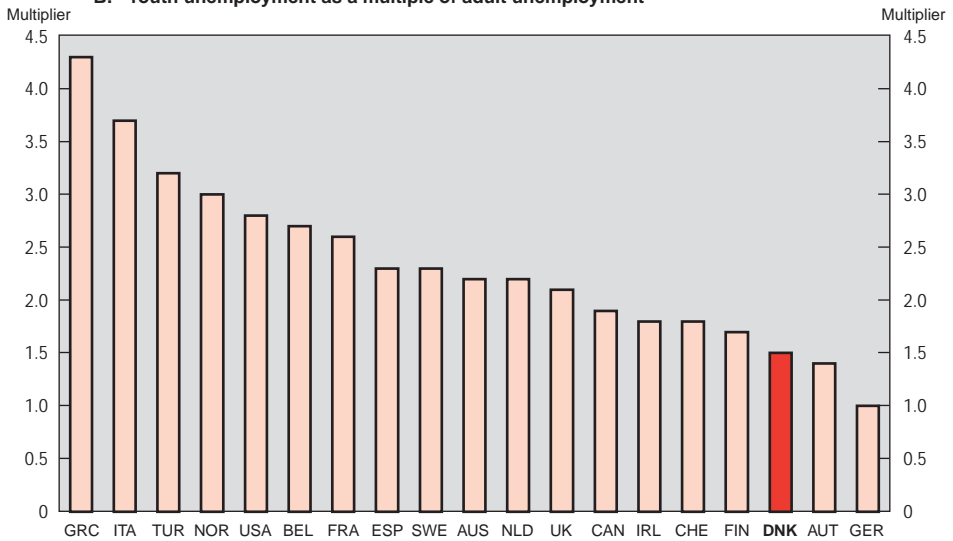
Nevertheless, there is a clear cyclical tendency in the drop-out rate, which falls when overall economic conditions improve and *vice versa*, higher labour demand spilling over into higher demand for youths and a more favourable cyclical development stimulating the supply of places for apprentices which, as noted above, is integrated fully into the formal education system. The latter seems to dominate in the Danish case. Overall, the transition from school to work results in what is by international standards a positive labour market outcome for youths in terms of employment<sup>52</sup> and unemployment (Figure 27). However, this transition seems to be time- and resource-consuming, perhaps indicating incentives to stay in education too long. Reflecting the enrolment rates depicted above, a summary measure of the age-range over which the population makes the transition from school to work (defined as the number of years it takes a cohort to shift from 75 per cent being in education to 50 per cent being in work) can now be estimated at eight years for Denmark (Figure 28). This surpasses the average of countries surveyed by two years and is two years higher than a decade earlier. Fifty per cent of 16-to-19 year-olds combine work with education and training, far above the level in other countries, and only one-fifth of this is related to

Figure 27. THE YOUTH LABOUR MARKET

**A. Youth employment and unemployment<sup>1</sup>**



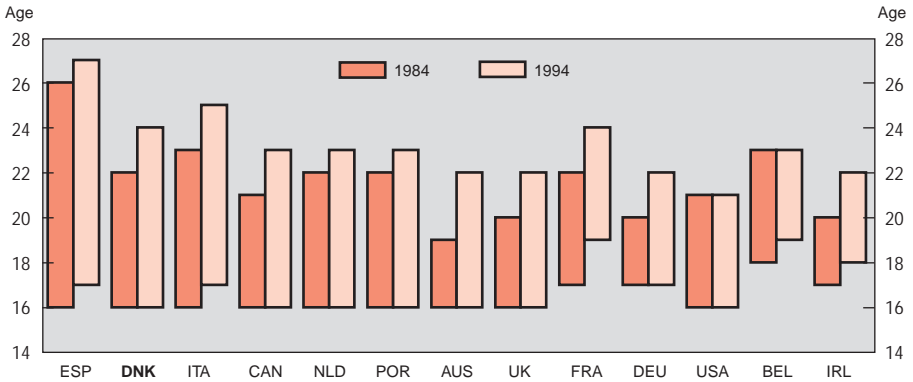
**B. Youth unemployment as a multiple of adult unemployment<sup>1</sup>**



1. 1995.

Source: OECD (1996), *Education at a Glance*; OECD (1996), *Employment Outlook*.

Figure 28. **THE SCHOOL TO WORK TRANSITION**<sup>1</sup>  
Age range of transition from school to work<sup>2</sup>



1. Countries are ranked by the length of transition in 1994.
  2. The age range starting in the first year of age in which fewer than 75% of the population are in education without working; ending the first year of age in which 50% of the population are in work, but not in education.
- Source: OECD (1996), *Education at a Glance*.

apprenticeship periods during vocational education. The slow transition would primarily seem to reflect individual choices rather than capacity constraints in the educational system; and in economic terms, it undoubtedly serves to reduce the return on public educational spending.

The strong increase in the capacity of educational institutions at all levels means that supply constraints on the whole have a negligible impact both on students' choice of educational programme and on their progress through the system. Moreover, fairly permissive educational requirements in secondary education, combined with low teaching hours, would seem to allow most students to combine schooling and part-time work. While the choice of educational programme at tertiary level may give rise to wide differences in costs to society, these costs are only very partially brought home to students. Student grants cover living costs for a period of up to six years, set explicitly to allow for a change of programme, and at a level that at least matches that available in income support schemes, to discourage youths from trying to enter these. The upshot is that the gain from moving on to a paid job is fairly low at this level of education.



Moreover, grants to institutions automatically adjust to students' choice of programme. On the whole, individual incentives to shorten the school-to-work transition, although sharpened somewhat of late, are still weak.

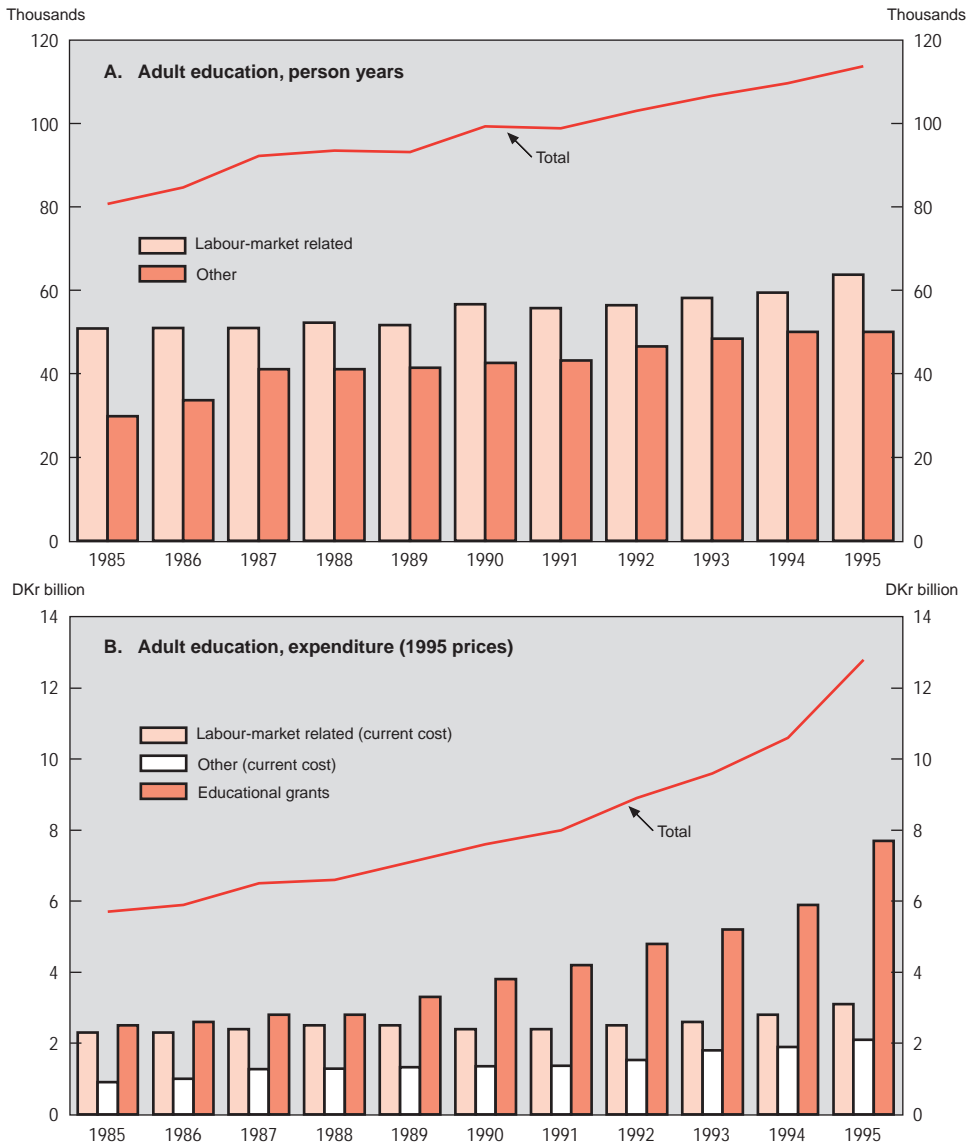
## **Policy responses to economic issues: life-long learning**

### *The evolution of adult education and training*

The Danish system of adult education and training has expanded rapidly since the early 1980s.<sup>53</sup> In terms of person-year equivalents the annual increase in the output of this sector has been estimated at close to 3 per cent, compared with 1/2 per cent for the working-age population and the labour force. With an annual real increase in expenditure per man-year of 3/4 per cent, overall public resources for this purpose have increased by 70 per cent in volume terms over this period, making this one of the highest budget priorities (Figure 29). Danish adult education is multi-faceted, not only catering directly to the need for a continuous updating of the qualifications of the workforce via labour market centres (*AMU*) and allowing for incomplete education to be finalised via Adult Education Centres (*VUC*), but also being seen as an integral part of cultural and social activities (folk high schools). In all, about 40 per cent of resources devoted to adult education and training are only indirectly aimed at improving labour market prospects of their participants. An overview of the directly labour-market related part is provided in Box 7.

This scale of expenditure would appear to place Denmark very high in an international ranking of resources devoted to upgrading of the qualifications of the labour force. It has been estimated that if competence-giving education and training programmes outside the formal education sector is taken into account, the share of the labour force possessing skills not going beyond compulsory education is only 20 per cent, and only Sweden among European countries has a higher share of the workforce undertaking training. Moreover, the duration of training is fully comparable with other countries, the emphasis in Denmark being on courses lasting between one month and one year. Training activities are very

Figure 29. **PARTICIPATION IN AND RESOURCES DEVOTED TO ADULT EDUCATION**  
1985-1995



Source: Ministry of Finance (1996), *Budgetredegørelse*.

## Box 7. The structure of adult education and training

Adult education and training are directed mainly at the following groups:

- persons with education at primary or lower secondary levels, allowing them to attain a higher formal educational level, and conducted at Adult Educational Centres (*VUC*); for adults above 25 years of age, an adult vocational education (*VEUD*) has recently become available;
- employed or unemployed who need to upgrade their qualifications in response to perceived needs at enterprise level or to improve their overall employability, conducted by the labour market authorities at labour market centres and with contents defined by tripartite bodies (*AMU*), through short practically-oriented courses, often shorter than one month;
- parallel activities under the auspices of the educational authorities, for qualifications that they certify (open education);
- post-graduate studies for persons with a short-cycle tertiary education.

Government involvement in these activities is far-reaching insofar as public entities undertaking them rely on government support for their current and capital expenses, while public grants are available to the participants. Public activities are supplemented by education and training initiated and paid for by enterprises and employees themselves, either on a decentralised basis or following from wage bargaining agreements.<sup>1</sup> These are most often purchased from private suppliers, resulting in a split between public and private production of activities in the ratio of 75/25.

The different goals set for adult education are thus taken care of by separate activities directed at different target groups. The participants of courses at Adult Education Centres are drawn from the employed, unemployed and non-active population in the proportion 4/3/3. In labour market training (*AMU*), about two-thirds of participants are employed and one-third unemployed. There is a partial overlap with Open Education which is also directed at vocationally qualifying training, but it offers in particular some well-defined part-time education within the mercantile and technical field, and activities often taking place outside working hours. In this case about 85 per cent of participants are employed, the remainder divided evenly between unemployed and non-active.

Paid leave for training has become the most common support to participants in adult education. It contains provisions with respect to educational choice and duration and support level. Participants may enter all publicly-certified activities; however, the focus is on vocationally qualifying courses and a user fee is required to enter medium- and long-cycle tertiary education. Contingent upon consent from the employer, leave may be obtained for up to a year.

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1. It is estimated that two-thirds of wage and salary earners are covered by collective agreements specifying provisions with respect to education and training.

much seen as a public responsibility in Denmark, and training for the employed, in particular, receives a relatively high share of public funds. This extensive public effort is matched by a smaller contribution by enterprises, who together with participants themselves (user fees) finance 30 per cent of the total against a public share of 70 per cent, equally split between financing through general taxation and earmarked contributions to publicly administered funds (Table 26). In sum, education of the employed is both financed and provided directly by the government to a larger extent than in most other European countries.<sup>54</sup> At the same time, with the private effort concentrated upon the employed, adult education in Denmark has been slanted towards the better-educated part of the workforce.

### ***Considerations guiding the development of the system***

While the build-up of the adult education system should partly be seen as a response to the increase in overall unemployment up to the early 1980s and to the widespread occurrence of bottlenecks during the overheating in the mid-1980s, a wider *policy* rationale for adult education emerged in the late 1980s, when it was recognised that the limited wage flexibility of the Danish labour market necessitated a compensating geographical and occupational mobility.<sup>55</sup> Adult education was seen to be instrumental in this, insofar as resources allocated to that sector would affect labour supply more rapidly than if they were directed to the formal education sector. Even though private expenditures on training of the workforce had been on the increase through the 1980s, it was felt that substantial externalities warranted a high level of public involvement in this field, particularly in view of the structure of Danish business with its high representation of small and medium-sized enterprises. The result was not only a steady increase in capacity but also an extended availability of government support to participants, now covering more than 50 per cent of them – a doubling over the past ten years.

A recognition of the economic benefits of life-long learning has also underlain recent evaluations and policy initiatives in this area.<sup>56</sup> The motives for public finance of adult education are in some respects indistinguishable from those applying to education in general and include the need to develop skills which match the compressed wage structure, thus lowering structural unemployment and reducing differences in unemployment risk. A particular consideration, however, has been the need for adult education to compensate for the shrinkage

Table 26. **Adult education, its financing and its participants<sup>1</sup>**

<b>A. Financing of adult education and training</b>					
	DKr billion				
	Collectively provided		Participants	Enterprises	Total
	General taxation	Earmarked contributions			
Publicly provided, current cost	3.0	2.1	0.2	0.6	6.0
Privately provided, current cost	1.3	..	..	2.7	4.0
Public income support	1.7	4.9	..	..	6.6
Private income support	1.3	..	..	2.7	4.0
<b>Total</b>	7.3	7.0	0.2	6.0	20.6
<i>Per cent</i>	35.0	35.0	1.0	29.0	100.0
<b>B. Educational attainment, percentages</b>					
	Participants in adult education		Population 16-66 years		
Primary school	31				36
Upper secondary, vocational	29				35
Upper secondary, general	13				5
Tertiary, short-cycle	7				5
Tertiary, medium-cycle	12				7
Tertiary, long-cycle	5				4
Unknown	3				7
<b>Total</b>	100				100
<b>C. Labour-market status of participants, percentages</b>					
	Employed	Unemployed	Non-active	Participants, share of total	
Adult education centres (VUC)	38	29	32		18
Labour-market training (AMU)	65	34			11
Open education	84	9	7		15
Folk high schools	30	29	41		5
Non-resident high schools		92	8		5
Adults in other education	48	2	50		15
Other	90	1	9		7
Publicly provided, total	55	22	23		75
Privately provided, total	100				25
Adult education, total	66 <sup>2</sup>	17	17		100
<i>Memorandum item:</i>					
Population 16-66 years	72	8	20		

1. 1994.

2. Of which 57 per cent within and 43 per cent outside working hours.

Source: Ministry of Finance (1994), *Rapport fra udvalget om voksen- og efteruddannelse*.

in the relative size of the cohorts emerging from the formal education sector in the years ahead, as the average age of the workforce starts to increase. This is seen as necessitating an effort in adult education to upgrade the qualifications of those already in the workforce, which in turn might stem the trend towards a falling retirement age. Long-term projections indicate a high education content of labour demand, while given the present capacity in the education system and patterns of educational choice, there would be a continuing excess supply of those with lower educational attainment. These considerations have been added to the traditional focus of labour market policy, which relies on adult education to prevent bottlenecks emerging and, more recently, on the activation of the unemployed to prevent passive benefit dependence from developing.

### *The present structure and the issues emerging...*

The recent reform of adult education should be seen as an integral part of the 1996 labour-market reform, the general aims of which were to increase labour mobility, shorten unemployment spells and reduce education-related differences in unemployment risk. Participants may access the paid-leave scheme, with support at the maximum unemployment benefit level, for a duration of one year,<sup>57</sup> or obtain other educational grants at or approaching the same level for up to 80 weeks. The same demand-driven approach has been adopted as for higher education, with free admission to all activities. Grants to cover the current costs of institutions are awarded according to the number of course participants (the “taximeter” system). There are standardised user fees for participants, differentiated according to the target group, with the highest support given to activities directed at persons with less education. The same priority is reflected in the graduated wage cost refund of up to 125 per cent of maximum unemployment benefit given to enterprises which allow their employees to participate in vocationally-qualifying education and training. This system entered into force from 1 January 1997, with a planned increase in user fees up to the year 2000, subject to a ceiling set at DKr 200 to 500 per week.<sup>58</sup>

This highly ambitious strategy raises two issues. The first relates to the capacity of educational institutions both to “give value for money” and to adjust effectively to changes in labour demand; the second to the nature of the incentives given to enterprises and participants by the relatively open-handed public involvement. The work leading up to the 1996 reform focused on the capacity of

the system to adapt to changing needs as perceived by enterprises and workers. The introduction of the taximeter system reflects the importance attached to this, and is based on a tradition whereby the organisations of employers and employees have had a major say in the choice of topics and contents of courses in labour-market training. However, vocationally-qualifying training has in general been part of a centralised “command and control” system, as a means of securing minimum standards of certified vocations, and the introduction of the user fee mechanism as a means for enterprises and workers to clarify their priorities is a new departure. While the array of educational and training courses available (see Box 7) may offer enterprises and participants courses which match their requirements quite closely, there is a risk that lack of co-ordination may spread resources too thinly. The use of vouchers implied by the taximeter system should in this respect give reliable signals as to where resources are in most demand, provided that information is fairly complete and that private suppliers of training services are allowed to compete on the same basis as the public-run centres.

From the point of view of incentives, training expenses are treated on a par with current wage costs and are thus fully deductible, so that employers should be motivated to undertake the necessary human capital investment, particularly where higher productivity resulting from training of key personnel raises the productivity of other personnel as well. However, for marginal workers, who most often have only basic or short formal education, the Danish system of high minimum wages and permissive employment protection legislation, combined with wide access to temporary lay-offs on unemployment benefit in periods of slack, gives enterprises and their employees few incentives to formulate wage contracts which stimulate such investment. Such workers are a targeted group under the 1996 reform, and the provisions in this area can be seen as an effort to induce firms to keep them on the payroll or to fill out periods of slack with training. On balance, however, it would appear that the Danish system was highly generous even before the recent modifications, to a degree which might lead to excess demand.

A problem is that it may be difficult for enterprises to assess the qualifications of job seekers who have based themselves on skill acquisition in adult education and training. According to one recent assessment, more than 50 per cent of participants do not acquire overall competencies that can easily be fitted

into the existing structure of formal and vocational diplomas/certificates. Adults are undertaking a number of different courses which individually provide merits within this structure, but which do not constitute a coherent programme. It has therefore been proposed to establish an overriding four-level structure of diplomas/degrees for adult education into which all activities should be subsumed.<sup>59</sup> This would seem to go beyond the Swedish system where a substantial part of adult education (Komvux, folk high schools) award diplomas that are comparable to those conferred in the formal education system, but which do not comprise labour market training. Obviously, Denmark is now facing choices that sooner or later will present themselves to all countries who plan to rely on life-long learning outside the formal education system: the trade-off between providing for the needs of locally-based enterprises on one hand and wider long-term mobility of employees on the other.

### *... from evaluations of the component parts of the system*

While evaluations of the paid leave system, the support scheme for most participants, are gradually emerging, assessments of the adequacy of the new adult education system are as yet few and mainly concentrated on labour market training (*AMU*) on the supply side. The labour market effects of training undertaken intensively over a short period of time are easier to identify and assess than those of programmes which have a longer time horizon. On evidence gathered over the past decade,<sup>60</sup> labour market training has been directed to a relatively large extent at marginal workers and workers with unstable work attachment, insofar as these have been three to five times more likely than workers without unemployment experience to participate in *AMU*. This applies to all age cohorts and to all occupations, although male and young workers are in general more likely to have participated in *AMU*. Labour market training can thus be seen as serving mainly the traditional goods-producing parts of the economy, together with related activities such as construction and transport. But about 70 per cent of all enterprises are in fairly frequent contact with the *AMU* system and their assessment of its services is in general fairly positive with respect to easing introduction of new technology and their overall training requirements. This should, naturally, be seen in the light of the influence of enterprises on activities offered and their free access to those services.



The effects on the labour market prospects of participants, and especially on differences in unemployment risk, are rather varied and evaluations carried out show quite disparate and inconclusive results. The most carefully designed studies show either *i*) that persons with a strong employment record improve their situation, and those with a weak employment record experience higher unemployment after training; or *ii*) unequivocally positive effects on unemployment; or *iii*) no effect at all.<sup>61</sup> While caution is warranted in interpreting evaluations of labour market programmes in general, it would appear that the main effect of government-sponsored training is to lower enterprises' costs, while its contribution to the alleviation of short-run skill shortages is far more uncertain.<sup>62</sup> A study of adult education under the auspices of educational authorities<sup>63</sup> indicates more favourable short-run effects from completing or updating a formal education on employment and wages among the long-term unemployed than those obtained by a comparable study of the specialised training in *AMU*. It should nevertheless be emphasised that *VUC* participation is voluntary and participants can be expected to be highly motivated. Arguably, an improvement in the labour-market prospects of participants should be one of the main effects to be expected from training, whereas the effect on enterprises' training costs should be of secondary importance. After all, evidence so far seems to suggest that enterprises not benefiting from training provided by the government-run system have taken the steps necessary to evaluate their training requirements and purchase services offered by private suppliers of training.

As for the paid-leave scheme, with support set at the maximum unemployment benefit level, this has proved very popular, as 5 per cent of the labour force have taken part over the first 2½ years (with a similar share taking part in parental paid leave). In its initial formulation the scheme was particularly beneficial for the unemployed, insofar as it served to prolong the effective benefit period, and over the first 1½ years 60 per cent of participants were previously unemployed, and this feature of the scheme was subsequently tightened. Among the employed, the majority have been public sector employees, most often with a vocationally qualifying or tertiary education.<sup>64</sup> Initiated to support skill acquisition, the scheme seems to have benefited a particular core group of employees, as employers in general have preferred to conclude training leave agreements with its core employees, and 50 per cent of these agreements have allowed ordinary wages to be retained in the training period by topping-up of the leave grant. The

paid-leave scheme was also intended to have an indirect training effect insofar as positions becoming vacant were to be filled by unemployed persons during the leave period. Overall, rehiring occurs in 70 per cent of vacancies resulting from paid leave, although only half of this concerns the unemployed. In sum, these schemes do not so far seem to have affected the way training is organised.

### *... and from studies of labour-market adaptability*

On the whole, the committee report underlying the recent intensification of efforts in adult education and training had scant historical evidence as to the overall return on resources allocated to this sector to underpin its recommendations. The increase in labour productivity following from an additional year of training was assumed to be 5 to 10 per cent for those employed, with an additional indirect effect on other workers at 50 per cent of this, and such outcomes would clearly be above available Danish studies<sup>65</sup> (see Table 25 above). Moreover, there are grounds for thinking that Danish enterprises and workers could independently adjust to changes in demand or wage relativities, without having to resort to the publicly-provided education and training, particularly to prevent bottlenecks. An evaluation of substitution between categories of skilled and non-skilled blue-collar workers in manufacturing and construction, covering the forty years up to 1990, could be interpreted as indicating a high degree of flexibility and responsiveness with respect to both production structures and relative wages.<sup>66</sup> Moreover, the adjustment to such changes would seem to take place very rapidly, with most of the change effected within a year. In the industries concerned, there seems to be a high degree of interchangeability between the two groups of workers with a high capacity to undertake tasks assigned to the other, a capacity that seems independent of the expansion in the public training system over the past decade. A broader study covering the 1980s,<sup>67</sup> which investigated whether situations of excess supply in particular educational categories in their traditional sectors resulted in the development of new occupations, pointed to a high degree of flexibility in labour use and a high occupational mobility. The effect of human capital on mobility remained unchanged over the 1980s despite a substantial increase in the educational attainment of the workforce over this decade and, taken in conjunction with the evidence cited above, it would appear that the ability of industry to respond to changing circumstances is not necessarily contingent upon the degree of govern-

ment support. Indeed, there might be decreasing returns to scale of educational investment.

Further support for this argument comes from an in-depth and highly disaggregated study of the recruitment behaviour of employers in manufacturing and construction undertaken at the end of the boom in the mid 1980s,<sup>68</sup> which indicated that the substitution possibilities in this part of the labour market are significant; about 70 per cent of all jobs could in principle be filled with workers of different educational background and half of those were thought to be within reach of unskilled workers provided with suitable internal training. When it comes to the actual hiring, however, employers choose mainly among vocationally-trained workers at the same level of competence for highly specialised functions, while the less specialised administrative, clerical and auxiliary functions are characterised by a higher degree of substitution and recruitment among the higher educated (Table 27). The insistence on employing close substitutes while avoiding substantial in-house training costs means that employers basically leave education and training to the public system, making industry dependent on this system to avoid shortages of skilled labour and increase overall manpower mobility. However, this reliance would not seem to follow from underlying production structures. Moreover, the cited studies indicate that a satisfactory

Table 27. **Substitution in industry**<sup>1</sup>  
Per cent

<b>A. Pattern of actual substitution</b>							
	No substitution	Substitution upward	Substitution downward	Total			
<i>Between</i> levels of competence	85	6	9	100			
<b>B. Latent and actual substitution on the same level of competence</b>							
	Administration	Clerical work	Technical preparation	Main functions in manufacturing	Main functions in building and construction	Control and correction	Auxiliary functions
Latent substitution	46	48	59	95	93	81	100
Actual substitution	63	65	74	90	95	93	98

1. Based on employers *ex ante* assessment (latent) of substitution possibilities and actual employment decisions.  
Source: Pedersen, L. (1989), Job og uddannelse, Report 89:4 from Socialforskningsinstituttet.

formal competence level, rather than training of the adult workforce, is the basic prerequisite for a high degree of adaptability within enterprises.

## **Assessment and scope for further action**

In keeping with the overall emphasis on education for personal development, to combat labour market imbalances and increase the productive capacity of the economy, the past decade has been a period of extensive educational reform (see Box 8 for a resumé). At higher levels of education, the basic approach has been to broaden access to existing institutions and stimulate individuals to continue their formal education. At the level of compulsory schooling the mainstream model based on a unitary school was fully implemented by the 1994 reform of *Folkeskolen*. The underlying expenditure momentum evident through the 1980s has continued into the 1990s, as capacity has been increased, as overall resource use has grown and as the generosity and coverage of educational grants have increased. In view of further ambitions to increase completion rates and lower drop-out rates at all levels,<sup>69</sup> these rising claims on resources raise issues with respect to cost and expenditure control, the effectiveness and efficiency in relation to goals set, the quality of the educational output and the capacity of the economy to fully utilise the resource. Recommendations to improve educational performance are set out below followed by a summary provided in Box 9.

### ***Formal education***

As noted, trends in unit costs have been quite divergent across the educational system. The tertiary education sector has seen a lowering of unit cost levels, partly reflecting students' choice of less expensive programmes, but also due to the more intensive use of existing capacity. At secondary school levels, resources are rapidly adapted to increases in the number of pupils, but do not adjust downwards correspondingly. In terms of incentive structures, the main innovation has been the demand-driven approach adopted for tertiary education and vocational education at upper secondary level, which contrasts with the centralised approach taken with respect to compulsory and general education at upper secondary level. The "taximeter" system, by which the allocation of grants depend on course take-up, introduces a degree of competition, while

## Box 8. Initiatives in education policy over the past decade

- In *general upper-secondary education (Gymnasiet)* the two-branch based system was replaced by a unified one from 1988 onwards, and the number of options that can be pursued in addition to the core curriculum were expanded. A closer integration of the parallel *HF* programme with the advanced programmes of the *Gymnasiet* was established in 1991.
- The administration of *primary schools (Folkeskolen)* was changed in 1990, increasing parents' influence on the school boards and enhancing the powers of the principal.
- *Vocational training* was reorganised in 1991 with fewer programmes, but wider specialisation possibilities and with freedom for schools to decide which programmes to offer. "Taximeter" financing was fully implemented by 1994.
- Access to *adult education and training* was improved in 1989 with educational grants to compensate for earnings lost during participation in daytime courses. From 1990, open education at *VUCs* allows participants to complete interrupted formal education programmes.
- A *reform of primary education (Folkeskolen)* was implemented by 1994, with the unitary school principle applied in full. The reform implied a decentralisation of powers to the schools themselves, with emphasis on differentiation of teaching methods according to skill levels, on evaluation of methods used and on the science curriculum.
- The "*Education for all*"-strategy, initiated in 1993, aiming at lowering drop-out rates and equipping all youths with a vocationally-qualifying education. Capacity was increased, curricula adapted to prevailing tendencies in labour demand, and flexibility to combine different subjects increased. The strategy incorporates *i*) introduction of basic vocational education (EGU) (1993); *ii*) introduction of "unbound" vocational education (FUU) (1995); *iii*) bridging courses, lasting from 8 to 40 weeks, aimed at clarifying educational options (1996); and *iv*) reform of the mercantile education at upper secondary level (1996).
- *Commercial and technical education* at upper secondary level (HHX and HTX), previously consisting of blocks from other programmes, was re-established in 1994 as a separate three-year programme. In 1994 a programme for "adult apprentices" was introduced.
- The "*University expansion*"-programme, initiated in 1994, aiming at eliminating supply constraints in tertiary education, increasing adaptability to changes in programme choices of students and raising completion rates. In response to the increase in take-up during the 1990s and lack of maintenance of older buildings, capital expenses have been increased by more than 100 per cent from 1992 to 1997.
- The strengthening of *adult education and training*, integrated in the 1996 budget, based on unrestricted access, more generous support to participants (up to 80

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consecutive weeks) and “taximeter” financing to allocate resources between programmes available.

- *Compulsory qualifying training* for unemployed youths not having completed a vocationally-qualifying education to start after six months of unemployment introduced in 1996.
- Recently, these efforts have been followed up by a host of initiatives to improve the quality of education output: *i*) establishing recurrent quality evaluations in all parts of primary and lower secondary education to underpin the work of schools themselves and local authorities involved; *ii*) a benchmarking project developing performance indicators in selected areas; *iii*) a strengthening of teachers’ education in the basic skills (reading, writing and mathematics).

demands for greater flexibility in the use of teaching resources are eased by the increasing labour market options available for teachers at this level.

At lower levels the supply of teachers is determined by administrative mechanisms, the yearly intake to teachers’ colleges being based on an assessment of future needs by the Ministry. According to present arrangements, municipalities and counties finance directly those activities for which they have administrative responsibility, rather than relying on earmarked contributions from the central government as in most other countries. This should strengthen their incentives to monitor costs. However, wage bargaining for teachers is carried out between the central organisations of local authorities and the unions, leaving wage rates out of the control of the local authority. Even when an opportunity exists for adjusting the number of teaching posts downward in response to an increase in teachers’ pay, most municipalities refrain from doing so. As a result, while the average salary for Danish teachers at lower secondary level is in line with the salaries paid in other countries, the difference between lowest and highest salary is among the lowest in the OECD area. Salary increases are dependent on years of service, which ensures similar salary increases for good and poor performers and have so far left no scope for performance-based remuneration. In addition, the low student/teacher ratio and the relatively few hours of teaching received by Danish pupils imply that teachers in Denmark work fewer hours than in other countries and hence earn a higher hourly wage. The recent wage settlement encompassed steps which may lead to a more decentralised and

individualised setting of wages, and efforts should be made to ensure that this scope continues to open up.

The cost effectiveness of the system cannot be evaluated without a review of performance indicators. In this respect, Denmark has a well-developed system of external examiners to ensure an objective examination with similar standards across schools and over time, applicable from the final examination from lower secondary school and upwards.<sup>70</sup> As a result, there is a rather low inter-school variability of students' qualifications and no upwards bias in marks over time is discernible, although the share with the top result has been increasing somewhat. The system, however, cannot in its present form be used as a quality indicator of schools and teachers, as the publication of the average examination results from schools providing general upper-secondary education is prohibited by law. Moreover, the relatively low proficiency of Danish pupils in international comparisons stands out as a major deficiency of compulsory education with negative consequences showing up as pupils progress further. This underperformance needs to be tackled by a closer monitoring of attainment criteria in the Danish education sector. While the Danish system, particularly at lower levels, is based on underpinning the stature and authority of teachers, this should not be incompatible with a more systematic review of performance aligned with a larger share of the wage sum to be allocated to reward educational progress made and the relative scarcity of particular competences. In sum, the issue at stake is how to get a higher-value output out of the ample resources already available for compulsory education.

As noted several steps have been taken to improve educational performance. Recent educational initiatives have concentrated on improving the informational basis for educational choice by introducing guidance programmes to bridge the transition from primary schools through secondary education and by establishing a safety-net of school-based apprentice places to supplement enterprise places. The scope of vocational education has been widened to encompass those who either need a very practically-oriented education or wish to specialise in more unconventional fields. This should serve to reduce the drop-out rate and increase the through-put of the system. The formulation of vocational programmes is the responsibility of the social partners and the schools at local level, and the system was decentralised in 1991 so as to ensure the continuous development of programmes in response to labour-market requirements. Difficulties remain, however, in meeting the needs of emerging industries as traditional industries domi-

**Box 9. Policy recommendations to improve effectiveness and efficiency in the educational sector**

***Formal education***

Denmark has not benefited in full from the substantial resources allocated to formal education. To achieve a more resource-efficient outcome, the wage structure needs to adjust to secure incentives for youths to complete an education at upper secondary level and seek out and move efficiently through an education at tertiary level. With respect to education policy *per se*, further efforts should concentrate upon:

- *Securing basic skills, in particular at compulsory level.* Denmark does not benefit from its low pupil/teacher ratio, achieving only middle to low results in international comparisons in reading, writing, mathematics and science. Low teaching hours allowing a high degree of part-time work among youths suggest that students' time could be utilised more fully.
- *Close monitoring of costs in compulsory education with performance-based pay playing a larger role.* Unit costs have spiralled as a falling number of pupils has not been followed by a lowering of educational inputs and teachers' wages are basically based on seniority.
- *Continuing to reduce the share of students not graduating with vocationally qualifying education (drop-outs) and to reduce the long school-to-work transition.* Recent initiatives (bridging programmes, safety net for places for apprentices etc.) should contribute to this aim, but further measures are needed to overcome the disincentives embedded in wage structures.
- *Reducing the average age of entry to tertiary education and reducing the time to complete it.* Stricter upper time limits are needed for qualification and the support scheme should be reformulated to provide loans rather than grants, thus underlining the investment dimension of higher education.

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nate local bodies. A case in point is the information technology sector, which in its early stages had to rely on graduates with other skills.

With respect to the slow school-to-work transition, the Bachelor programme, introduced in the late 1980s should act to lower average time spent in studies at tertiary level as it provides an opportunity to complete university studies in a span of three years while potentially counting towards a Masters and PhD degree. However, the programme has been thus far less successful than expected, reflecting a wage structure that allows employers to hire the more productive Masters candidates at a low additional cost and the low cost to



*(continued)*

### ***Adult education and training***

Whilst providing a safety net both for workers having under-invested in formal education and for enterprises with low capacity to assess and implement training needs, the extensive public involvement in adult education and training runs the risk of over-investment and misallocation of resources. Structures to improve efficiency are being introduced, but incentives would improve further by:

- *Allowing user fees for enterprises to play a major role in financing labour market training (AMU) for the employed.* This is a logical extension of the demand-oriented approach following from applying “taximeter” grants, and would lessen the reliance on financing through taxation.
- *In consequence of this, permitting the market for training services to be opened up to new private suppliers.*
- *Encouraging the social partners to take on the main responsibility of training of the employed through provisions in the wage bargaining agreements, including the paid-leave scheme for education and training.* This would accentuate their role in preventing less-skilled labour from being marginalised from the labour force, and would also allow a modification of wage structures to internalise the indirect effects embedded in training.
- *Restricting public responsibility in training to upgrading the qualifications of the long-term unemployed.* Moreover, this focus may result in some programmes being tailored more closely to their needs, thereby improving upon their present undistinguished results.
- *Reassessing educational grants also in this sphere with respect to their generosity, and allowing user fees from participants a role beyond that so far envisaged.*

students of securing the more advanced degree. With such structures, the degree system will tend to act as a general screening device, signalling to employers the overall capacity of job applicants rather than their specific qualifications. While the recent emphasis on PhD programmes may be well warranted, the screening mechanism may cause students to undertake too long tertiary education, resulting in an over-investment from society’s point of view.

While administrative efforts are being made to speed up the pass-through of the system, individual incentives to complete an education programme on time and to avoid time out between education levels remain weak. The main effect in a long-term perspective is to lower the return on the investment undertaken, both for the individual and for society at large. The cost to the individual is limited by

the present system of student grants which is generally recognised as the most favourable in Europe, the gradual shift towards use of grants rather than loans for supporting students making it easier for individuals to bring life-time consumption forward in time. Greater reliance on loans as an instrument of education support within the present publicly-run system could make the investment dimension of higher education more evident.<sup>71</sup> Options to extend the demand-driven approach adopted by the Danish authorities in this field should be examined further, *inter alia* to see if tuition fees would serve to clarify the cost of different education programmes to students without compromising overall education objectives.

### ***Adult education and training***

An assessment of adult education should not only cover malfunctions within the present institutional set-up, but also an evaluation of the division of responsibilities both in the production and provision of this service. Basically, Denmark has moved further than any other OECD country towards making adult education a public responsibility. This has been based on presumptions of a number of failures in this market. While such arguments could readily apply to the provision of formal education, they are far more debatable with respect to adult education. Externalities may arise when labour demand is picking up strongly, insofar as enterprises cannot be expected to take into account the cost of higher wage and price inflation as the labour market runs into bottlenecks. In this sense, labour market training to increase the employability of marginal labour may serve to keep the economy on a balanced growth path. But on the evidence so far available, the publicly-run system seems to cater more to the needs of medium-sized and, in particular, larger enterprises, with a higher capacity to retrain and adjust to changes in their economic environment, than to small enterprises. A rebalancing of objectives may thus be warranted. This could be achieved through the private sector taking a larger role in the financing of training, either through user fees or as an integral part of wage bargaining,<sup>72</sup> with the attention of public authorities directed primarily at the unemployed. The needs for retraining and upgrading the qualifications of its workforce are best assessed by enterprises themselves, and their willingness to set aside resources for this should be tested in a well-functioning market with sufficient numbers of suppliers of such services. Moreover, allowing more providers of such services should prove benefi-

cial for the quality of labour-market training, where the effect on future labour-market outcomes of unemployed participants is at present highly unsatisfactory.

While the ageing of the working population may point to the need for a shift of resources from formal to adult education, other arguments in favour of this trend are more difficult to evaluate. The public effort in Denmark is motivated by the perception of an increasing pace of structural change which leads to a faster depreciation of human capital, with low-skilled workers being affected more than others and with small firms having a lower capacity to adjust to this. But the pace of structural change, as indicated by the “turbulence” indicators developed in the *OECD Jobs Study* and showing employment changes between sectors,<sup>73</sup> demonstrates no tendency to accelerate from the 1960s up to the past decade, while the possible bias against low-skilled labour resulting from technical progress on the labour market is still an unsettled issue.<sup>74</sup> Labour-market training centres, a central feature of the adult education system in Denmark, can be seen as allowing small and medium-sized enterprises to define their demands for upgrading of the skills of the workforce. However, this is an activity that could be performed just as well by private training enterprises and need not involve any subsidies. Indeed, subsidising enterprises with a low capacity to adjust may lead to a less than optimal allocation of the workforce between enterprises.

On the part of employees it is evident that the compressed wage structure reduces incentives to undertake adult education and training, with the exception of white-collar-workers. It might nevertheless be argued that the full information requirements for individuals to make fully rational choices are not satisfied. The Danish experience is that most less-skilled workers regret having taken too short an education (Table 28). This would seem attributable to the fact that wage differentials for the 20 to 25 year-old group offer a relatively high immediate opportunity cost to undertaking further education, blurring the strong links between education and life-time earnings. Adult education needs to be organised to cater to the demands of such workers, but in this area, as well as for formal education, a strategy of raising educational grants to compensate for the lack of signals through the wage structure seems an inefficient approach. Moreover, on the evidence presented above, public efforts should be concentrated on the incentives to complete education at an early stage, and to reduce the drop-out from secondary education, rather than intervening to support adult education and training. Indeed, the evidence available points to the formal level of educational

Table 28. **Regret of educational choice**

Level of education	Share <i>ex post</i> wanting to prolong their education, per cent	
	Males	Females
Long tertiary education	1	3
Medium tertiary education	16	16
Short tertiary education	25	27
Vocational education	26	37
Unskilled with adult training	49	93
	Share <i>ex post</i> wanting to undertake vocational education, per cent	
	Males	Females
Unskilled, no adult training	60	68

*Source:* Hansen, E.J. (1995), *Report 95:8 from Socialforskningsinstituttet.*

attainment and a continuous labour market attachment as the two main determinants of functional literacy and thereby the capacity of the workforce to adjust, with a much weaker effect attributable to adult education.<sup>75</sup>

## Summing up

Denmark devotes considerable resources to education with rather mixed results as to educational achievement and macroeconomic performance. Indeed, though any cost-benefit analysis in a sector characterised by strong externalities is necessarily imprecise, Denmark has so far not obtained a fully satisfactory return on its human capital investment. Recent initiatives have concentrated on increasing the proportion of youth cohorts with upper-secondary and tertiary qualifications, following a demand-oriented strategy which has been extended also to adult education and training. According to the available evidence, this should result in a continued upgrading of the skills of the Danish workforce. There are, however, clear limitations to the strategy. While the problem of matching resources to demand for skill acquisition is eased by relying on individual and enterprise choice, the incentive structures put in place are costly and do not necessarily result in an outcome which is economically efficient. Drop-out rates may fall, but the long-lasting school-to-work transition will be difficult to shorten while the system remains open-ended and its generosity tries to be sufficient to

offset the negative incentives built into the compressed wage structure as well as the progressive tax system. Despite modifications of the students' grant scheme to improve incentives to complete higher education on time, particular attention still needs to be paid to the slow progress of students through the educational system, with respect to both the high share of students continuing higher education programmes at a late age and the long duration of studies at that level. More fundamentally from the perspective of overall economic performance, the extensive government involvement in adult education and training, while consistent with the principle of life-long learning and skill adaptation, has yet to yield returns which would suggest that this is a superior approach to relying on the business sector to shoulder more of its own costs – either through user fees or as part of the wage bargaining process.

## Notes

1. The market price of an average existing single-family dwelling is approaching the construction costs of new dwellings and should surpass it during the next years.
2. Regional differences prevail, with the metropolitan area seeing increases 30 per cent above the rest of the country.
3. With the full implementation of the tax reform in 1998, the top marginal tax rate consists of a top marginal central government tax rate on capital income of 14 percentage points, an average local tax of 31 percentage points and about 1 percentage point church tax. In 1997 the marginal tax rate is 48 per cent, reflecting a central government rate of 16 per cent.
4. The imputed rent – the taxable income for owners – is relatively low, about 2 per cent of the value of the house. In addition, the taxation of houses was lowered slightly in 1996 when the standard tax deduction for the imputed rent was increased from DKr 2 000 to DKr 3 000.
5. According to the macroeconomic model used by Danish ministries, ADAM, a 1 percentage point fall in the long-term interest rate will increase the value of real estate by 6 per cent, boosting real consumption by almost 1 per cent.
6. Econometric investigations indicate that a term reflecting the relative strength of domestic demand and market growth is better at explaining export growth than market growth alone.
7. The North Sea is estimated to contain sufficient oil and natural gas for 20 years at current production levels.
8. See Det Økonomiske Råd (1996), *Dansk økonomi, Efterår 1996*, for further details. From a longer-term perspective, the current account may have shifted towards surplus, reflecting a structural shift in private savings during the late 1980s following from a change in the taxation of capital income, a significant drop in inflation, and the marked expansion of occupational pension schemes.
9. In geographical terms the employment growth was concentrated in Jutland in the early phases of the recovery, but has since become nationwide.
10. The two concepts differ not only in method, but also in content as the survey based measure includes unemployed who are not registered, but does not include persons with part-time jobs who receive supplementary benefits.
11. See also Pedersen, E.H. (1996), “Reale effektive valutakurser”, *Monetary Review May 1996 from Danmarks Nationalbank*.
12. A closer investigation is provided in Christensen, A.M. (1996), “Husholdningernes inflationsforventninger” *Monetary Review November 1996 from Danmarks Nationalbank*, indicating

that answers given in the Consumer Confidence Survey point to inflation expectations of around 3 per cent, but also yielded a consistent overprediction during the 1990s.

13. A caveat applies insofar as long-term yields can be expected to be more affected by risk premia than shorter yields. While the Danish bond market is highly liquid at all maturities, investors will demand a higher premium for committing funds for a longer time. Such effects will give a permanent upward bias to future yields. For further details on the methodology applied, see Topp, J. (1996), "Indikatorer for markedsdeltagernes forventninger til rente- og inflationsudviklingen i Danmark", *Monetary Review May 1996 from Danmarks Nationalbank*.
14. In interpreting the margin charged by Danish banks, it should be borne in mind that lending for housing is conducted by the mortgage institutes which, partly due to the nature of their business and partly due to the efficiency of the large Danish bond market, charge a far lower margin than banks.
15. The stance of fiscal policy in this context is the estimated impact of the budget as measured by the Danish Ministry of Finance, which summarises the first-year impact on GDP of changes in revenues and expenditures relative to a baseline with unchanged taxes, unchanged public employment and constant real expenditures on goods and services. The base-line also assumes parallel wage developments in the private and public sector and transfers adjusted in line with wages. The underlying method was revised in late 1996, employing re-estimated elasticities of the effects on GDP of changes in public expenditure and revenues and using new data to introduce a more consistent treatment of different transfer schemes. The effect of the new estimates is to change the 1996 effect by 0.2 per cent of GDP in an expansionary direction.
16. Even for this segment of tax payers, municipalities benefit from increasing their tax rate insofar as the base of the municipal tax is broader than the base of the central government tax on high incomes (*topskatten*).
17. The two municipalities in the metropolitan area of Copenhagen combine both municipal and county functions. Their tax increases are 0.9 and 1.7 percentage points.
18. The only exception is the supply of transport services in the Copenhagen area which by law shall be subject to public tenders.
19. Moreover, the laws applying in this area have been interpreted as making dismissals in connection with outsourcing illegal.
20. Estimated as the net budget effect. The "outlay-equivalent" method, which is a measure of the taxable transfers necessary to compensate for a withdrawal of a tax expenditure, gives overall tax expenditures amounting to 7½ per cent of GDP. See Ministries of Business, Finance, Taxation and Economic Affairs, *Skatteudgifter i Danmark*.
21. The differences between countries reflect to a large degree differences in interpretations of a neutral tax system. A case in point is the value added tax system where the analysis of the United Kingdom take any departure from the standard 15 per cent rate as a tax expenditure, whereas Portugal accepts all exemptions from VAT and departures from the standard rate as part of the neutral system.

22. See Chapter 5 in Ministries of Business, Finance, Taxation and Economic Affairs (1996), *op. cit.* and Andersen, L. (1996), “Skattetilskud for milliarder”, *Nyhedsbrev fra Arbejderbevægelsens Erhvervsråd*, nr. 9.
23. An assessment of one of these tax-favoured pension schemes indicates a negative effect on overall savings as tax deductions of DKr 1.8 billion are necessary to secure an increase in private savings of DKr 1 billion. See Florentsen, B.B. (1995), “Bør kapitalpensionsordningen afskaffes?”, *Nationaløkonomisk Tidsskrift*, 1995 No. 3.
24. See Hougaard Jensen, S.E. and B. Raffelhüschen (1996), “Public Debt, Welfare Reform and Intergenerational Distribution of Tax Burdens in Denmark”. Forthcoming in Auerbach, A., L. Kotlikoff and W. Leibfritz (eds.) (1997), *Generational accounting around the world*. See also Hougaard Jensen, S.E., B. Raffelhüschen, P. Jacobsen and M. Junge (1996), “Et generationsregnskab” for Denmark, *Nationaløkonomisk Tidsskrift*, 1996 No. 1; and Hougaard Jensen, S.E. and B. Raffelhüschen (1995), “Intertemporal Aspects of Fiscal Policy in Denmark”, *Working Paper 1995:22* from the Economic Policy Research Unit, Copenhagen Business School. Denmark is particular in an international context for its high imbalance between genders. While new-born males may expect to be net contributors to the public purse, a new-born female will stand to be a net beneficiary on present policies and economic structures, the main reasons being lower life-time earnings due to a higher incidence of part-time work, longer periods on unemployment insurance and other benefits and, with a longer life time, a higher pension reflecting the non-contributory structure of the public old-age pension.
25. All public expenditure that can be given a generational dimension, *i.a.* education, is counted as a public transfer in such calculations. Transfers thus comprise 70 per cent of all expenditure.
26. See OECD (1996), *Economic Survey of Denmark*, pp 80-114.
27. See Ministry of Finance (1995), *Finansredegørelse 1995*.
28. Official Danish unemployment numbers express the full-time equivalent UI benefit recipients. Shifting educational financing from UI benefits to other benefits will technically lower registered unemployment. It should be noted that paid leave for education has become the major source of finance for adult education, both for employed and unemployed.
29. The earmarked contribution, at 7 per cent in 1996 and 8 per cent from 1997, is deductible from the income tax base.
30. See Ministry of Finance (1995), “Unemployment traps and poverty traps – what matters for the trade off?”, *Working papers from the Ministry of Finance* No. 5, and Ministries of Business, Finance, Taxation, Economic Affairs and the Prime Minister’s Office (1996), *Virkninger af beskæftigelsesfradrag*.
31. Applicants for education at higher levels and adult education and training are provided with educational vouchers that serves to finance current cost arising from their choice of education programme. See Chapter IV for further details.
32. Conforming with national accounts conventions, the concept used is a very broad measure including support for cultural purposes and support to households (day care for children, medical care) directly to producers.



33. Power generation facilities, while formally separated from distribution, are most often owned by the distribution companies.
34. The basis for measurement of both start-up and survival rates varies considerably between countries, making inter-country comparisons extremely hazardous.
35. See The Ministry of Business (1996), "Oplæg til en ny iværksætterpolitik", *Betænkning fra Iværksætterudvalget*. See also Ministry of Business (1996), *Erhvervsrededørelse 1996*.
36. Relying on cross-country comparisons, the positive correlation between human capital investment and overall productivity has been demonstrated *inter alia* by Mankiw, N.G., D. Romer and D.N. Weil (1992) "A Contribution to the Empirics of Economic Growth", *Quarterly Journal of Economics*, May 1992, pp. 407-427. See also OECD (1993), *Economic Survey of New Zealand*. Time-series evidence for the same correlation is harder to come by, see Hansen, C. (1994), "Formelle uddannelsers betydning for Danmarks internationale konkurrencedygtighed" in *Nationaløkonomisk tidsskrift*, 1994, No. 3, for a detailed analysis of education as a production factor in Denmark.
37. These dimensions are discussed further in OECD (1994), *The OECD Jobs Study*, Evidence and explanations, Chapter 7, Skills and competencies.
38. Costs related to parts of adult education and pre-primary school are included in the Danish figures, the latter improving comparability with other countries which generally have a lower starting age for compulsory schooling.
39. In terms of OECD country means, instead of GDP-weighted averages, Denmark would also rank above the OECD average for tertiary education.
40. In principle, all upper secondary programmes qualify for entrance to tertiary education, depending mainly on the graduation results. In addition, there are two recently established smaller programmes at upper secondary level (the so-called open youth education (FUU) and the vocational basic training (EGU)) for individual education aimed at pupils who do not fit easily into the mainstream system and thus tend to drop out of that system.
41. The slow progress of Danish students is demonstrated also by the low graduation rates from lower secondary education measured at the theoretical age of graduation (16 years in the Danish case), which at 61 per cent in 1992/93 was surpassed by all but three countries in a sample of 27 industrial countries (including Russia).
42. If resource use had developed in line with the number of pupils, current public expenditures on primary and lower secondary education in 1995 could have been reduced by DKr 5 billion.
43. See Ministry of Finance (1995), *Folkeskolens Økonomi – November 1995*. The emphasis on providing extensive education programmes for pupils with special needs, together with counselling and responsibilities related to parents' boards, have also added to cost levels in compulsory education.
44. This feature has been incorporated in projections for the public sector, see Ministry of Finance (1996), *Budgetrededørelse*.
45. In Denmark grants are given independently of parents' income, unlike most other European countries. An international comparison of students' grants schemes is provided in Annex Table A1.
46. See OECD/Statistics Canada (1995), *Literacy, economy and society*.

47. Studies cited in OECD (1995), *Education and Employment*, indicate that natural ability counts for less than 20 per cent of additional earnings of educated workers.
48. For a business economist embarking upon his/her education at the age of 33 rather than 18, the internal rate of return will fall from 14 to 4 per cent; for an electrician delaying his/her education by two years, implies a fall in the rate of return from 7.5 to 4 per cent. However, the cost estimates include resources used for those dropping out of upper secondary and tertiary education. If these costs are ignored, the rate of return would increase from 3.9 to 4.8 per cent for high school teachers and from 5.5 to 5.9 per cent for construction workers. It is also assumed that students remain in full-time work until the theoretical retirement age of 67, and differences in actual retirement age and unemployment risk are not taken into account.
49. On national accounts conventions, output in the government sector is measured by its inputs, thus implicitly assuming zero productivity growth in this sector.
50. See Asplund, R. *et al.* (1994), "Human capital and earnings in the Nordic countries" in Asplund, R. (ed.) (1994), *Human capital creation in an economic perspective*.
51. The marginal workforce consists of those with 36 weeks of unemployment per annum over the previous three years, the core members are those with on average less than eight weeks of unemployment per annum.
52. Apprentices are counted as employed, thus boosting the employment rate of countries relying on such systems.
53. No systematic assessment of developments up to 1980 is available.
54. Data from the latter part of the 1980s indicated that employers (private and public) financed 55 per cent of adult education in the United Kingdom, whereas government support covered 20 per cent of the total. For Germany the split was close to 75/25.
55. The first explicit recognition of this can be found in the 1989 White Paper on structural problems in the labour market from the major ministries involved in overall policy formulation and labour market policies. See Ministries of Labour, Finance, Taxation, Social Affairs, Education and Economic Affairs (1989), *Hvidbog om arbejdsmarkedets strukturproblemer*.
56. See Ministry of Finance (1994), *Rapport fra udvalget om voksen- og efteruddannelse*.
57. Paid leave and AMU participation count as part of the total UI benefit period for unemployed.
58. Persons with only compulsory education or an outdated vocational education are exempted from paying user fees.
59. Ministry of Education (1996), *Debatoplæg om et nyt parallelt kompetencesystem for voksenuddannelser*. There would thus be a parallel adult education system to the degrees acquired in formal education.
60. See Gregersen, O. and L. Holek (1996), "Arbejdsmarkedetsuddannelserne – en videnopsamling", *Report 1996:6 from Socialforskningsinstituttet*.
61. See Langager, K.(1996), "Ledige på kursus – Effekter af specialarbejderkurser vurderet ved et experiment", *Report 96:9 from Socialforskningsinstituttet*.
62. AMU participation is, however, associated with higher mobility, particularly across sectors. This effect starts to diminish after one to two years, see Ministry of Finance (1994) *op. cit.*

63. See Holm, A., J.A. Rasmussen and P. Thagesen (1995), "Effekter på indkomst og beskæftigelse af de amtskommunale enkeltfagkurser", *Nationaløkonomisk Tidsskrift* 1995, No. 2. No other study exists to confirm these results.
64. See Andersen, D., A. Appeldorn and H. Weise (1996), "Orlov – en evaluering af orlovsordningerne", *Report 96:11 from Socialforskningsinstituttet* and Pedersen, L. (1996), "Orlov, ledighed og beskæftigelse", *Report 96:10 from Socialforskningsinstituttet*.
65. The argument was that the compression of wages in Denmark implies that productivity increases exceed wage increases which is the effect captured in Table 25. It should be noted that in a competitive labour market, wages should reflect indirect productivity effects. The Danish white-collar labour market adapts in many respects to such a model. The estimate adopted is more in line with studies of the labour market of the United States.
66. See Risager, O. (1992), "Substitutionselasticiteten mellem faglærte og ufaglærte i Danmark", in Ministry of Finance (1992), *Forskning om arbejdsmarkedet – Bilag til Finansredegørelse 92*. Changes in relative wages will result in a change in the factor proportion by a factor as high as 1½-2. Other studies indicate that conclusions in this field should be drawn with some care. Using a different methodology, the above-mentioned author obtains results which confirms the high degree of substitution between skilled and non-skilled workers in construction, but modifies it for manufacturing. The latter fact may be explained by an inflexible technology, but also by rigid working practices. See Risager, O. (1993), "Labour substitution in construction and the metal industry in Denmark" *Seminar Paper No. 535 from the Institute for International Economic Studies*, University of Stockholm. See also S. Machin, A. Ryan and J. van Reenan (1996), "Technology and changes in skill structure: Evidence from an international panel of industries", *CEPR Discussion Paper*, No. 297.
67. See Holm Larsen, A., N. Groes and M. Poulsen (1993), "Uddannelsespolitik, beskæftigelsesprognoser og omstillingsevne på arbejdsmarkedet", *Nationaløkonomisk Tidsskrift* 1993, No. 3. The analysis covered 25 sectors and 83 types of educational attainment. See also Holm Larsen, A., N. Groes and T. Tranæs (1994), "A Forecast Model for Unemployment by Education", *Labour*, Vol. 8, No. 2.
68. See Pedersen, L. (1989), "Job og uddannelse", *Report 89:4 from Socialforskningsinstituttet*. See also Pedersen, L. (1990), "Substitution in the Labour Market" in *Nordic Labour Market Policies and Labour Market Research*, Report NORD 1990:117 from The Nordic Council of Ministers. The report covers only vacancies stipulating educational requirements.
69. The official target for primary and lower secondary education is to eliminate the current drop-out rate of around 7 per cent of a cohort. The completion rate in upper secondary education is to be increased from the current 78 per cent to 90 to 95 per cent of a cohort by year 2000, entailing both an increase in the number of pupils continuing after lower secondary education and a reduction of the current 15 per cent drop-out rate of upper secondary education. Qualitative targets for tertiary education comprise an increase in intake and completion rate of students while maintaining the quality of the education and research carried out at an international level.
70. Each student's oral and written examination receives independently a mark from his own teacher and the external examiner. In case of diverging opinions, a discussion between the

examiners leads to a common mark. If the opinions continue to diverge the average of the two marks is given. Moreover, a number of options for complaint is available if the student is dissatisfied with the mark.

71. During the 1970s and early 1980s students could obtain loans from private banks with a guarantee from the central government. The negative experience from that scheme indicates that loans schemes involving private banks need to be carefully tailored to maintain progress in education and avoid defaults on loans. However, the low-interest rate environment of the 1990s should be more conducive to private arrangements than the high-interest rate environment of the early 1980s.
72. Wider use of the price mechanism would be in keeping with the recommendations given in the 1994 committee report, see Ministry of Finance (1994), *op. cit.*
73. See *OECD Jobs Study*, Part I, Chapter I, Table I.7.
74. See Cotis, J.-P., J.-M. Germain and A. Quinet (1996), ‘‘Technical Progress, International Trade and Low-skilled Labour’’, *OECD STI Review* No. 18.
75. See OECD (1996), *Education at a glance – Analysis*.

*Annex I*

**Supporting material to Chapter IV**

Table A1. **Higher education: student grant and loan schemes, 1994**

	Entitlement	Per cent of students covered	Grants	Loans	Maximum annual grants and loans, per cent of APW earnings	Principal design features
<b>Denmark</b>	<b>G</b>	<b>70</b>	<b>X</b>	<b>X</b>	<b>27</b>	The grant amounts to 69 per cent of maximum total support. The interest rate on loans is substantially lower than market rates during the period of study, but is equal to market rates thereafter. Repayment starts one year after termination of studies, and the repayment period is 7 to 15 years (depending on the size of the loan).
Belgium	T	20	X	X	22	Subsidised loans are available in Wallonia for families with three or more children; no loans in Flanders.
Finland	G	–	X	X	24	The grant amounts to 57 per cent of maximum total support. The loans are supplied by banks, with state guarantees up to a certain limit. Interest rates and repayment periods are agreed between individual students and banks.
France	T	18	X	X	30	Market interest rates apply to loans.
Germany	T	32 <sup>1</sup>	X	X	21	The grant amounts to 50 per cent of total support. Loans are interest free, and repayable over 20 years at most.
Greece	T	7	X	X	9	As from 1992/93, the grant amounts to 50 per cent of total support. Loans are interest free.
Iceland	G	43		X	85 <sup>2</sup>	The loans are fully indexed, and the real rate per annum can be up to 3 per cent after termination of studies (no interest during the period of study). Repayment starts two years after the end of studies and repayment periods vary.
Ireland	T	34	X	X	12	Interest-bearing bank loans are available when studies are well advanced.
Italy	T	3	X		4	Loans are interest free.
Netherlands	G,T	75	X	X	19	The basic grant amounts to 65 per cent of total support. The loans carry interest rates which have a premium of ½ percentage point over market rates.

Table A1. **Higher education: student grant and loan schemes, 1994** (cont.)

	Entitlement	Per cent of students covered	Grants	Loans	Maximum annual grants and loans, per cent of APW earnings	Principal design features
Norway	G	70	X	X	28	The grant amounts to 18 per cent of total support. The interest rate is lower than the market rate after the termination of studies (on interest during the period of study). Repayment start after one and a half year from the end of study, and the repayment period is up to 20 years, with low payments in the first three years.
Portugal	T	10-15	X	X	40	Loans are interest free.
Spain	T	20	X		28	As from 1992/93, students can take bank loans. The loans are for three years and the state guarantees 50 per cent of the loan.
Sweden	G	–		X	34	Interest rate is applied during the period of study. The interest rate is below the market rate. Repayment commences half a year after the termination of studies and is set equal to 4 per cent of taxable income in the previous year. Repayment stops at the age of 65.
United Kingdom	G	76 <sup>3</sup>	X	X	23	As from 1990/91, undergraduates can obtain interest free loans. The repayment period is five to seven years. The long-term aim is that the grant will amount to 50 per cent of total support.

*Keys:* For entitlement: G = general; T = targeted; X = grants and loans are available.

1. The figure refers to the western Länder. In the eastern Länder 90 per cent of students receive support.
2. The figure refers to students receiving grants. Twenty-two per cent of students took loans.
3. The figure refers to students with dependent spouse and two children. For single students in rented accommodation the loan amounts to 39 per cent.

*Source:* Ministry of Finance (1994), *Administrationen af Statens Uddannelsesstøtte*; Ministry of Education (Iceland) (1994), *Upplýsingar um námsaðstodð í ýmsum Evrópulöndum*.

## **Methodology and assumptions involved in calculating social rates of return of human capital investment**

The decision of societies to undertake an investment in education necessitates assessing the benefits arising from the investment against the costs incurred. In economic terms, the output of the education system is higher productivity of the labour force, with higher education for individuals not only increasing their own productivity but also allowing indirectly for a rise in the productivity of their fellow workers. In a fully competitive labour market, wage differentials will reflect both these effects, and the standard approach to assessing the impact of human capital investment on productivity levels is to measure the wage differential of wage and salary earners with upper secondary and tertiary education against the wages of those with only compulsory education. Even if most labour markets are far from adapting to the competitive model, existing wage differentials remain probably the best source of information about the productivity effect of human capital investment. Such wage differentials reflect the marginal effect of increasing educational inputs – extending education at upper secondary and tertiary level to a larger share of the population – which for policy purposes is the most relevant parameter.

On the input side, the main cost component is the production (earnings) foregone during the period of education. In addition, society incurs costs by providing teachers and educational facilities, with estimates in general reflecting average rather than marginal cost. Table A2 below depicts for a wide set of educational programmes *i*) the increase in life-time earnings resulting from undertaking the programme with income foregone taken into account; *ii*) the cost to society covering current and capital expenses which include expenses for those entering but not completing the programmes; and *iii*) the ensuing rate of return on public means invested.

The estimates are based on students progressing through education programmes at the actual observed rate but without loss of time between education levels and without trying out different programmes before making a final educational choice. They are then assumed to stay on at full time in the workforce until a *de facto* retirement age of 60 years. Differences in retirement age between categories of workers are thus not taken into account, neither are differences in unemployment risk during working life. The effect of these assumptions on the rate of return is not unequivocal: on the one hand, Danish students on average start their tertiary studies at the age of 23 and the educational grant scheme explicitly allows financing for trying out more than one programme; on the other, workers with only compulsory education may be assumed to be more likely to retire early than those with a higher education. The adjustment of life-time incomes for differences in unemployment risk works most often to increase income differentials between educational categories, but unemployment would also entail lower earnings foregone during education. An overall assessment of these calculations and the assumptions applied is given in Chapter IV.



Table A2. **Social rates of return on human capital investment**

Education	Increase in life-time earnings	Cost per student	Social rate of return <sup>1</sup>
	Million DKr	1 000 DKr	Per cent
<b>Vocational education</b>	0.9	52.3	8.9
Shop assistant	1.3	52.3	11.4
Clerical worker	1.3	146.4	8.6
Metal worker (blacksmith)	1.0	158.5	6.5
Mechanic	2.0	129.2	14.5
Engineer	0.9	125.2	6.5
Electrician	1.0	121.5	7.5
Construction worker	0.7	90.4	5.5
<b>Other basic vocational</b>			
Nursery teacher	-0.4	276.4	-2.5
Technician	0.9	295.1	2.2
<b>Non-university tertiary</b>			
School teacher	2.0	427.3	4.6
Business economist	7.8	378.7	14.0
Engineer	5.2	495.5	9.3
<b>University tertiary</b>			
High school teacher <sup>2</sup>	3.3	1 026.9	3.9
Economist	11.6	417.2	15.3
Lawyer	7.6	417.2	11.4
Civil engineer	7.7	678.1	9.5
Medical doctor	9.7	900.7	10.5

1. Calculated as the internal rate of return, *i.e.* the discount rate that makes the real present value of the gains from an education equal to the net present value of the costs of undertaking it. The gains are measured relative to a compulsory education by using the earnings differentials towards an unskilled worker, with current and capital expenditures in the education system and income foregone during the education taken into account.

2. Master's degree in natural sciences.

Source: Høj, A.K. and K. Ransby (1996) "The Value of Education: Danish Investment Perspectives", Danish Economic Council, *Working Paper* 1996:4.

## *Annex II*

### **Chronology of main economic events**

#### **1995**

##### **November**

The central bank's deposit rate for banks, the official discount rate, is lowered from 5.00 to 4.75 per cent, the repo rate from 5.30 to 5.00 per cent.

The government reaches agreement with a major opposition party on the 1996 budget. The main elements are: a tightening of the unemployment benefit system; the mandatory activation of long-term unemployed and unemployed youths to take effect at an earlier stage of their unemployment spells, and a strengthening of vocational training. The wealth tax is reduced and to be fully abolished from 1997. The general government deficit is estimated to fall just below 1 per cent of GDP, embodying a tightening of the overall fiscal policy stance of  $\frac{1}{2}$  percentage point of GDP.

##### **December**

The central bank's deposit rate for banks is lowered to 4.25 per cent, the repo rate to 4.60 per cent.

#### **1996**

##### **January**

The central bank's deposit rate for banks is lowered to 4.00 per cent, the repo rate to 4.35 per cent.

##### **February**

The repo rate is lowered to 4.25 per cent.

## **March**

The central bank's deposit rate for banks is lowered to 3.75 per cent, the repo rate to 4.00 per cent.

## **April**

The government presents a blue-print for reducing CO<sub>2</sub> emissions by 20 per cent by the year 2005. The tax system will be changed to induce consumers to save energy, *inter alia* by taxing energy-efficient cars at a rate below the standard rate.

The central bank's deposit rate for banks is lowered to 3.25 per cent, the repo rate to 3.80 per cent.

Parliament adopts amendments to occupational and individual pension savings, *inter alia* to allow pensions rights to be transferred between jobs.

## **May**

The subsidy scheme for home services becomes permanent but instead of a fixed subsidy of DKr 85 per hour, households will pay 50 per cent with an upper subsidy limit of DKr 10 000 per household per quarter.

## **June**

The repo rate is lowered to 3.70 per cent.

## **August**

The repo rate is lowered to 3.50 per cent.

## **October**

Parliament adopts a framework for improving competition in the rail transport sector. Maintenance of tracks is split out from the operating service, with easier access for new operators.

## **November**

The government reaches agreement with an opposition party on the 1997 budget. The main elements are: increased capacity at tertiary education institutions; enhanced training for job-seekers at risk of marginalisation; subsidies for improving the working environment; setting up a risk capital market for entrepreneurs; a fee on overtime payments in the public sector to reduce the amount of overtime; higher "green" taxes; higher electricity taxes but lower subsidies to generation of electricity with less negative effects on the environment. In total, it is estimated that the general government balance

will move into a slight surplus, with an improvement of the structural balance of 1 percentage point of GDP.

## **December**

The Centre Democrats leave the minority three-party government, the remaining two parties (The Social Democrats and the Social Liberals) continue as a minority government.

## **1997**

### **February**

Wage bargaining in the public sector results in an agreement with salaries and non-wage costs increasing by close to 6½ per cent over two years including both the effects of the partial adjustment of public wages relative to private wages and higher pension contributions of 0.3 percentage points. The scope for decentralised pay opens up with a reform to be implemented gradually from 1998, implying a lower guaranteed wage, a moderation of the traditional seniority wage system, and a larger share of total wages being paid in the form of individual wage supplements.

### **March**

Wage bargaining in the private sector (outside manufacturing) results in *i*) wage increases of 6 per cent over two years outside the LO/DA area (mainly the agro-industrial sector); *ii*) wage increases of 3½ per cent over one year in the “normal wage” segment within the DA/LO area; *iii*) wage increases of 11 per cent over three years in the “minimum wage” segment within the LO/DA area; *iv*) an extension of the period of sickness with full pay and a topping up of public benefits to ordinary wages during parental (maternity) leave in all agreements; *v*) an increase of contributions to occupational pension schemes in all agreements.

*STATISTICAL ANNEX AND STRUCTURAL INDICATORS*

Table A. Selected background statistics

	Average 1986-1995	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
<b>A. Percentage changes from previous year at constant 1980 prices</b>											
Private consumption	1.7	5.7	-1.5	-1.0	-0.4	0.0	1.2	1.9	2.3	6.6	2.1
Gross fixed capital formation	0.3	17.1	-3.8	-6.6	1.0	-1.7	-5.7	-4.2	-4.4	0.6	10.7
Residential	-1.5	21.3	-3.2	-9.4	-8.9	-13.7	-11.7	-3.7	-7.2	11.7	9.4
Non-residential	1.0	18.8	-5.4	-7.3	5.8	2.6	-4.5	-6.8	-4.7	-2.7	14.3
GDP	1.7	3.6	0.3	1.2	0.6	1.4	1.3	0.2	1.5	4.2	2.7
GDP price deflator	2.9	4.6	4.7	3.4	4.2	2.7	2.2	3.2	0.6	1.6	1.8
Industrial production	2.4	7.3	-3.0	2.2	2.0	0.2	-0.1	3.4	-2.7	10.2	4.5
Employment	0.0	2.6	0.9	-0.6	-0.6	-1.0	-1.5	-0.6	-1.0	-0.2	1.6
Compensation of employees (current prices)	4.5	7.6	9.2	4.7	3.7	4.1	3.5	3.1	0.6	3.1	5.8
Productivity (GDP/employment)	1.8	1.0	-0.6	1.8	1.1	2.5	2.9	0.9	2.5	4.4	1.0
Unit labour costs (compensation/GDP)	2.6	3.9	8.9	3.5	3.1	2.6	2.1	2.9	-0.9	-1.1	1.3
<b>B. Percentage ratios</b>											
Gross fixed capital formation as % of GDP at constant prices	17.4	20.9	20.0	18.5	18.6	18.0	16.7	16.0	15.1	14.5	15.7
Stockbuilding as % of GDP at constant prices	0.1	0.6	-0.6	-0.1	0.6	0.0	0.1	-0.4	-0.9	0.2	1.8
Foreign balance as % of GDP at constant prices	5.0	-1.1	1.4	3.6	3.7	5.9	7.6	7.9	8.6	7.4	5.4
Compensation of employees as % of GDP at current prices	54.4	53.5	55.6	55.6	55.0	55.0	54.9	54.8	54.0	52.6	53.2
Unemployment as % of total labour force	10.0	7.8	7.8	8.6	9.3	9.6	10.5	11.3	12.3	12.2	10.3
<b>C. Other indicator</b>											
Current balance (US\$ billion)	0.7	-4.4	-3.0	-1.2	-0.9	1.3	2.0	3.9	4.7	3.0	1.7

Source: Statistics Denmark; OECD, *National Accounts*.

Table B. **Supply and use of resources**

Kr million, current prices

	1987	1988	1989	1990	1991	1992	1993	1994	1995
Consumers' expenditure on goods and services	377 878	388 806	403 894	415 032	430 202	447 075	459 172	498 324	519 739
General government expenditure on goods and services	176 214	188 487	196 546	202 504	211 201	219 099	230 298	238 547	243 905
Gross fixed capital formation	138 033	132 226	138 953	139 357	136 693	133 824	131 746	134 715	151 957
Change in stocks	-5 075	-1 488	1 884	- 920	- 666	-2 221	-8 021	-1 480	12 428
<b>Domestic expenditure</b>	<b>687 050</b>	<b>708 031</b>	<b>741 277</b>	<b>755 973</b>	<b>777 430</b>	<b>797 777</b>	<b>813 195</b>	<b>870 106</b>	<b>928 029</b>
Exports of goods and services (non-factor)	220 084	238 915	264 909	283 575	306 005	309 395	300 168	327 819	330 447
Imports of goods and services (non-factor)	207 226	214 892	238 936	240 442	255 567	251 141	238 970	272 290	290 752
<b>Gross domestic product in purchasers' values</b>	<b>699 908</b>	<b>732 054</b>	<b>767 250</b>	<b>799 106</b>	<b>827 868</b>	<b>856 031</b>	<b>874 393</b>	<b>925 635</b>	<b>967 724</b>
Indirect taxes	135 974	139 551	140 201	141 523	144 462	148 456	153 181	168 387	175 261
Subsidies	22 011	25 340	26 955	28 354	28 726	34 870	35 522	35 490	35 776
<b>Gross domestic product at factor cost</b>	<b>585 945</b>	<b>617 843</b>	<b>654 004</b>	<b>685 937</b>	<b>712 132</b>	<b>742 445</b>	<b>756 734</b>	<b>792 738</b>	<b>828 239</b>

Source: Statistics Denmark.

Table C. **Supply and use of resources**

Kr million, 1980 prices

	1987	1988	1989	1990	1991	1992	1993	1994	1995
Consumers' expenditure on goods and services	239 929	237 481	236 539	236 644	239 429	243 897	249 423	265 788	271 468
General government expenditure on goods and services	110 873	111 920	111 234	110 752	110 588	111 062	114 405	116 670	117 283
Gross fixed capital formation	88 703	82 808	83 639	82 179	77 511	74 248	70 967	71 393	79 058
Changes in stocks	-2 771	-603	2 559	140	292	-1 840	-4 055	964	9 057
<b>Domestic expenditure</b>	<b>436 734</b>	<b>431 606</b>	<b>433 971</b>	<b>429 715</b>	<b>427 820</b>	<b>427 367</b>	<b>430 740</b>	<b>454 815</b>	<b>476 865</b>
Exports of goods and services (non-factor)	162 295	174 922	182 193	194 833	209 792	212 634	209 680	228 530	230 202
Imports of goods and services (non-factor)	156 265	158 606	165 718	167 670	174 594	175 934	169 234	192 191	202 897
<b>Gross domestic product in purchasers' values</b>	<b>442 764</b>	<b>447 922</b>	<b>450 446</b>	<b>456 878</b>	<b>463 018</b>	<b>464 067</b>	<b>471 186</b>	<b>491 154</b>	<b>504 172</b>

*Source:* Statistics Denmark.



Table D. **General government expenditure and revenue**

Kr billion

	1987	1988	1989	1990	1991	1992	1993	1994	1995
<b>I. Expenditure</b>									
Wages and salaries	125.8	136.3	142.2	146.8	152.4	158.0	162.9	167.0	173.4
Purchases of goods and services	61.1	64.0	67.0	69.6	74.5	77.9	85.9	89.2	92.5
Sales of goods and services	16.6	18.3	19.7	21.4	23.6	25.3	27.5	28.6	32.6
Consumption of fixed capital	6.0	6.4	7.0	7.5	7.9	8.6	9.0	9.6	10.1
<b>Total consumption</b>	176.2	188.5	196.5	202.5	211.2	219.1	230.3	237.2	243.4
Interest, etc.	57.7	58.3	57.5	58.5	61.1	58.5	67.8	66.0	64.8
Subsidies	22.0	25.3	27.0	28.4	28.7	34.9	35.6	35.7	36.0
Other transfers	129.0	144.3	158.6	164.6	178.4	188.5	201.1	228.5	233.4
<b>Total transfers</b>	208.7	227.9	243.0	251.5	268.2	281.9	304.5	330.2	334.2
<b>Total current expenditure</b>	384.9	416.4	439.6	454.0	479.4	501.0	534.8	567.4	577.6
Fixed investment	15.6	16.8	16.6	15.6	13.0	19.6	19.1	19.7	19.5
Change in stocks	-0.8	-0.8	-0.5	0.4	0.2	0.1	0.0	-0.3	-0.4
Purchases of land and royalties, net	-2.2	-2.4	-2.9	-3.2	-2.8	-2.4	-1.9	-1.8	-1.1
<b>Capital expenditure</b>	12.6	13.6	13.2	12.8	10.3	17.3	17.2	17.6	18.0
Capital outlays for public enterprises	4.4	5.2	4.4	3.7	3.7	4.1	4.5	3.7	3.2
Other capital transfers	2.0	2.6	3.2	3.4	3.3	4.2	5.3	5.5	6.0
<b>Total capital transfers</b>	6.4	7.8	7.6	7.1	7.0	8.3	9.8	9.2	9.2
<b>Total capital expenditure</b>	19.0	21.4	20.8	19.9	17.3	25.7	27.1	26.9	27.2
<b>Total current and capital expenditure</b>	403.9	437.8	460.3	473.9	496.7	526.7	561.9	594.3	604.8
<b>II. Revenue</b>									
Surplus of public enterprises, etc.	4.5	6.0	9.1	6.1	5.4	10.9	8.8	7.5	2.5
Interest, etc.	26.4	27.6	28.3	31.7	31.8	34.1	37.9	34.7	34.9
Revenue from land and royalties	0.5	0.5	0.5	0.7	0.7	0.8	0.8	0.8	0.8
Indirect taxes	136.0	139.6	140.2	141.5	144.5	148.5	153.2	168.3	175.0
Direct taxes	208.9	226.2	235.4	233.3	245.2	256.7	270.2	292.8	307.8
Fees, fines, etc.	0.9	1.2	1.3	1.4	1.3	1.3	1.5	1.5	1.3
Social security contributions	13.8	10.2	10.8	12.3	12.6	13.6	14.5	15.6	16.0
Imputed social security contributions	7.1	7.7	8.2	8.4	9.0	9.6	10.0	11.0	10.5
Other income transfers	13.7	14.0	12.6	13.7	14.4	14.3	17.7	16.4	16.7
<b>Total current revenue</b>	411.7	433.0	446.5	449.0	464.9	489.7	514.5	548.4	565.3
Gift and inheritance duties	2.2	2.1	2.1	2.2	2.1	2.3	2.5	2.2	2.4
Other capital receipts	6.8	7.1	7.7	10.7	12.1	10.0	10.8	11.5	21.3
<b>Total capital revenue</b>	9.0	9.2	9.7	12.9	14.3	12.4	13.3	13.7	23.6
<b>Total current and capital revenue</b>	420.7	442.2	456.2	461.8	479.2	502.0	527.8	562.1	588.9
<b>Current surplus = gross saving</b>	32.8	23.0	14.0	2.5	-6.6	-2.8	-11.2	-9.3	-2.2
<b>Current and capital surplus = net financial saving</b>	16.9	4.3	-4.1	-12.1	-17.5	-24.6	-34.0	-32.1	-15.9

Source: Statistics Denmark.

Table E. **Balance of payments**

Kr billion

	1987	1988	1989	1990	1991	1992	1993	1994	1995
<b>Trade balance</b>	5.5	12.6	17.6	30.0	30.3	41.9	50.1	47.2	38.2
Shipping, net	-0.4	0.2	1.1	2.4	2.4	2.7	4.5	3.6	3.0
Foreign travel, net	-4.4	-4.8	-4.5	-2.2	0.6	0.4	-0.6	-1.9	-3.4
Investment income, net	-28.2	-28.2	-31.6	-35.2	-36.5	-34.0	-30.4	-30.7	-27.0
Other current transactions	7.1	11.2	9.3	13.2	16.2	13.6	7.8	2.3	-1.4
<b>Current balance</b>	-20.4	-9.0	-8.1	8.2	13.0	24.6	31.4	20.5	9.4
<b>Recorded capital flows</b>	-51.6	-23.3	13.6	-31.9	25.7	17.1	11.5	31.2	-3.2
<b>Unrecorded capital flows</b>	1.2	5.6	5.9	18.5	8.1	8.5	-4.9	2.2	-0.8
<b>Change in Denmark's international liquidity</b>	30.0	8.7	-27.7	21.6	-20.8	-1.1	24.8	-13.0	13.4

*Source:* Danmarks Nationalbank.

Table F. **Labour market and production**

	Labour market						Industry				
	Number of insured	Registered unemployment				Unfilled vacancies <sup>1</sup>	Number of employed (thousands) <sup>2</sup>			Monthly hours worked (wage earners) 1985 = 100	Volume of sales 1985 = 100
		Persons thousands	Persons thousands	Per cent of labour force			Industry	Private services	Total private		
	Total			Men	Women						
1986	1 920.9	220.4	7.9	6.1	10.0	1 836	416.1	610.5	1 334.6	104	107
1987	1 946.9	221.9	7.9	6.4	9.6	1 750	400.0	629.0	1 341.4	97	104
1988	1 981.3	243.9	8.7	7.2	10.3	1 180	395.4	627.1	1 330.6	93	106
1989	1 944.8	264.9	9.5	8.1	11.1	2 016	390.7	619.6	1 308.5	93	109
1990	1 957.6	271.7	9.7	8.4	11.3	3 366	394.7	619.1	1 299.9	92	109
1991	2 008.5	296.1	10.6	9.3	12.1	2 271	413.5	721.0	1 302.1	89	109
1992	2 138.1	318.3	11.3	10.0	12.9	1 583	414.0	714.5	1 294.4	87	112
1993	2 174.4	348.8	12.4	11.3	13.7	1 673	402.2	701.6	1 265.0	81	110
1994	2 198.0	343.4	12.2	11.0	13.6	2 178	404.1	704.1	1 271.8	..	121
1995	2 203.5	288.4	10.3	9.0	11.7	2 453	411.8	729.4	1 314.4	..	127

1. Average of monthly figures.

2. Data starting in 1991 differ in definition to data compiled in previous years.

Source: Statistics Denmark.

Table F. **Labour market and production** (cont.)

	Building and construction, thousand m <sup>2</sup>								Agriculture	Retail trade		
	Total		Dwellings		Industrial buildings		Other industrial		Output, production 1990 = 100	Volume of sales 1990 = 100	Value of sales 1990 = 100	Passenger car registration
	Starts	Under construction at end period	Starts	Under construction at end period	Starts	Under construction at end period	Starts	Under construction at end period				
1986	10 425	10 493	3 563	3 352	5 500	5 761	1 362	1 381	102	103	92	169 492
1987	9 688	10 919	2 751	3 078	5 705	6 365	1 230	1 476	100	101	93	124 324
1988	8 525	9 749	2 389	2 784	4 958	5 669	1 179	1 296	98	100	96	88 770
1989	7 512	8 600	2 279	2 508	4 166	4 906	1 065	1 187	98	99	98	78 453
1990	6 610	7 220	1 673	1 774	4 044	4 424	891	1 022	100	100	100	80 837
1991	5 765	6 358	1 404	1 390	3 483	4 034	880	934	103	100	101	83 828
1992	5 414	5 711	1 383	1 266	3 137	3 593	897	852	107	101	104	84 518
1993	4 038	4 970	1 135	1 147	2 132	2 971	773	852	112	102	105	82 007
1994	5 065	5 684	1 444	1 341	2 651	3 319	972	1 024	112	107	112	138 973
1995	5 544	5 820	1 517	1 446	3 039	3 324	991	1 053	111	108	115	135 285

Source: Statistics Denmark.

Table G. **Foreign trade, total and by area**  
\$ million, monthly rates

	Total Imports cif	Total Exports fob	Imports by area						Exports by area					
			OECD countries			Non-OECD countries			OECD countries			Non-OECD countries		
			Total	EU	Other	CEEC	OPEC	Other	Total	EU	Other	CEEC	OPEC	Other
1987	2 125.8	2 138.4	1 888.6	1 476.8	411.8	47.3	33.8	151.6	1 871.2	1 354.3	516.9	27.8	45.4	184.3
1988	2 161.7	2 261.5	1 908.4	1 476.9	431.5	45.7	37.7	169.9	1980.1	1 467.4	512.7	35.2	48.7	194.8
1989	2 226.6	2 344.6	1 943.4	1 487.3	456.1	49.8	46.8	186.7	2 071.9	1 568.8	503.1	49.5	54.4	166.5
1990	2 647.6	2 927.7	2 342.0	1 801.2	540.8	64.2	37.5	203.7	2 583.5	2 007.1	576.4	70.1	60.8	209.6
1991	2 700.1	3 000.1	2 415.0	1 825.2	589.8	72.5	17.0	195.4	2 686.8	2 066.6	620.2	96.2	64.7	147.7
1992	2 926.8	3 416.2	2 597.3	2 028.3	569.0	96.1	15.7	204.7	2 979.4	2 316.1	663.3	102.1	71.5	259.7
1993	2 545.0	3 097.3	2 138.6	1 653.6	485.0	61.2	18.5	322.0	2 624.0	1 941.2	682.8	66.5	70.4	331.0
1994	3 006.0	3 500.8	2 514.2	1 939.5	574.7	72.8	22.4	392.0	2 906.4	2 128.4	778.0	77.1	61.1	449.7
1995	3 521.3	3 961.0	3 122.8	2 470.5	652.3	27.9	23.2	344.2	3 398.9	2 565.6	833.3	38.1	72.4	451.0
1996	3 412.0	3 926.5	2 998.8	2 350.9	647.9	31.7	22.7	355.3	3 380.8	2 526.9	853.9	44.2	69.0	432.1

Source: OECD, *Foreign Trade Statistics*, Series A.

Table H. Prices and wages

	Consumer prices <sup>1</sup>			Net consumer prices <sup>2</sup> (exc. indirect taxes)		Wholesale prices <sup>3</sup>			Building cost 1990 = 100	Hourly and monthly earnings in manufacturing industries 1985 = 100	
	Total	Goods and services (exc. rent)	Rent	Total	Goods and services (exc. rent)	Total	Domestic goods	Imported goods		Hourly	Monthly
1986	151.7	151.4	154	229.3	228.4	90	89	92	80	105.0	106.2
1987	157.8	157.0	161	236.5	234.8	90	90	90	84	114.6	113.9
1988	165.0	163.6	171	248.4	246.5	93	93	93	90	122.1	120.9
1989	172.9	170.8	182	261.4	259.3	99	99	99	95	127.9	126.0
1990	177.4	174.2	192	269.6	266.6	100	100	100	100	133.9	132.2
1991	181.7	177.5	201	276.7	272.9	101	100	102	104	139.8	136.4
1992	185.5	180.6	208	282.5	278.6	100	97	99	107	144.4	140.5
1993	187.8	182.1	214	286.5	282.0	99	99	99	109	147.1	143.6
1994	191.6	185.2	220	291.2	286.6	100	100	100	111	151.6	147.9
1995	195.6	189.0	225	296.9	292.0	103	103	102	115	157.4	153.6

1. 1980 = 100.
2. January 1975 = 100.
3. 1990 = 100.

Source: Statistics Denmark.

Table I. **Money and credit**

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>Interest rates</b>										
<b>Money market</b>										
Banks' deposit rate	8.25	7.75	11.00	9.50	9.50	9.50	6.25	5.00	4.25	3.25
Overnight rate	9.87	8.32	9.49	10.75	9.54	10.97	12.10	5.80	5.96	3.89
3-month interbank rate	10.11	8.48	9.79	10.82	9.73	11.54	10.28	6.18	6.03	3.87
<b>Commercial rates</b>										
Lending rate <sup>1</sup>	13.40	13.20	13.30	14.10	11.40	11.60	10.50	10.00	10.30	8.80
Borrowing rate <sup>1</sup>	7.50	7.00	7.00	7.90	7.20	7.50	6.50	3.50	3.90	2.90
<b>Bond yields</b>										
Government rate (10 years)	11.15	9.03	10.26	10.50	8.76	8.91	6.09	9.14	7.23	6.52
Mortgage rate (30 years)	12.79	9.92	10.49	11.15	9.80	10.17	7.11	9.73	8.36	7.87
<b>Liquidity (Kr billion)<sup>2</sup></b>										
<b>Central bank</b>										
Foreign exchange reserves	59.5	71.6	40.6	59.6	41.1	41.5	70.4	50.3	60.1	81.2
Net position <i>vis-à-vis</i> commercial banks	17.7	-4.6	18.0	1.3	-14.4	14.7	46.8	27.4	8.5	-12.1
<b>Commercial banks</b>										
Domestic securities	..	167.0	181.8	152.0	164.8	160.0	147.4	193.0	178.1	183.8
<i>of which:</i> Government bonds	..	105.7	107.6	83.7	103.8	103.6	68.5	124.5	99.3	85.0
Foreign securities	..	12.5	27.1	36.7	33.7	34.5	36.1	24.6	33.8	41.7
<b>Non-bank liquidity</b>										
Money supply	..	21.9	23.1	23.6	24.2	25.0	25.8	28.9	30.6	30.9

1. Figures for 1996 refer to first three quarters.

2. End-year figures, representing annual statement values, differ from end-December figures for 1989 which represent monthly statement values.

Source: Danmarks Nationalbank.

Table I. **Money and credit** (*cont.*)

Bank deposits		Bank lending		Circulating bonds (nominal value)				Market for securities (market value)						Share Issues	
From residents	From non-residents	To residents	To non-residents	Total	Government bonds	Mortgage bonds	Other	Net supply of bonds (market value)	Net sales by Central Bank	Net supply on the market	Increase in security holdings of:				
											Private banks	Private non-bank sector	Post Office giro, etc. <sup>1</sup>		
Kr billion, end of period								Kr billion, during period							
1987	393.5	40.3	395.4	46.8	1 058.6	345.0	668.8	44.8	46.7	0.1	46.8	-33.7	67.8	12.7	3.0
1988	420.4	70.5	413.5	64.3	1 123.6	353.6	724.0	46.0	59.9	0.1	60.0	15.7	31.9	12.4	4.0
1989	423.9	91.9	445.1	80.7	1 163.6	375.8	739.3	48.5	31.1	0.3	31.4	10.5	9.3	11.5	10.7
1990	448.8	98.1	486.5	99.5	1 224.1	405.6	762.8	55.7	44.3	-2.0	42.3	-25.5	57.5	10.2	6.1
1991	460.4	55.5	491.8	99.1	1 315.4	462.0	790.3	63.1	77.1	-12.0	65.1	-0.3	56.1	9.2	9.3
1992	458.3	55.4	449.7	100.2	1 376.8	501.7	795.0	80.1	41.7	11.8	53.5	-11.0	62.5	1.9	4.7
1993	508.4	72.8	397.2	145.1	1 578.3	552.3	936.7	89.3	173.4	-6.9	166.5	-9.6	163.0	13.1	1.5
1994	477.1	75.4	357.7	116.1	1 562.5	609.1	861.5	91.9	-45.4	-1.6	-47.0	30.3	-73.4	-3.9	26.7
1995	492.8	86.1	366.0	124.3	1 645.5	649.6	904.3	91.6	70.1	7.2	77.3	-6.6	69.8	14.0	3.7
1996	529.7	108.5	379.7	169.5	1 711.3	670.5	945.4	95.4	50.7	0.1	50.8	-4.6	49.0	6.4	4.6

1. Including Social Pension Fund.

Source: Danmarks Nationalbank.



Table J. **Labour market indicators**

	Peak <sup>1</sup>	Trough <sup>1</sup>	1980	1990	1993	1994	1995	1996
<b>A. Evolution of unemployment</b>								
Unemployment rate (register based)								
Total	1993 = 12.4	1986 = 7.9	7.0	9.7	12.4	12.2	10.3	8.8
Men	1993 = 11.3	1986 = 6.1	6.6	8.4	11.3	11.0	9.0	7.8
Women	1993 = 13.7	1987 = 9.6	7.6	11.3	13.7	13.6	11.7	9.9
Youth (age group 15-24 years)	1993 = 12.0	1987 = 8.3	10.3	10.2	12.0	11.0	8.4	6.5
Unemployment rate (survey based)								
Number of persons experiencing unemployment, per cent of labour force <sup>2</sup>			23.4	25.3	29.1	27.9	27.9	27.9
Average degree of unemployment for persons affected by unemployment, per cent <sup>3</sup>			30.1	36.9	41.4	42.0	36.8	32.5
<b>B. Structural characteristics</b>								
Participation rates, per cent <sup>4</sup>								
Total			81.0	84.1	82.7	79.3	80.1	82.3
Men			89.0	89.6	86.9	84.5	86.5	..
Women			70.0	78.4	78.4	74.1	73.6	..
Employment, per cent of population between 16 and 64 years								
Self-employed, per cent of total employed			74.5	76.2	73.8	73.6	71.6	..
Part-time employed, per cent of total employed			15.1	11.7	10.8	10.4	10.2	..
			23.2	23.3	23.3	21.2	21.6	..

1. Most recent local annual maximum and minimum of unemployment rates, respectively.

2. Persons having received unemployment benefits.

3. Per cent of normal working time unemployed.

4. Survey based.

Source: Statistics Denmark.

Table K. **Public sector**

	1970	1980	1992	1993	1994	1995
<b>Budget indicators: General government account (per cent of GDP)</b>						
Current receipts	40.8	52.9	58.2	59.9	60.3	59.5
Non-interest expenditure	39.5	52.3	54.2	56.0	56.6	54.4
Primary budget balance	1.3	0.7	4.0	3.9	3.7	5.1
Net interest expenses	1.3	3.9	6.8	7.8	7.1	6.7
General government budget balance	0.0	-3.3	-2.9	-3.9	-3.5	-1.6
<b>Structure of expenditure and taxation (per cent of GDP)</b>						
Expenditure						
Economic category						
Income transfers (excluding interest payments)	10.8	18.4	22.0	23.0	24.7	24.1
Subsidies	2.7	3.2	4.1	4.1	3.9	3.7
Consumption	20.0	26.7	25.6	26.3	25.6	25.2
Gross investment	4.7	3.4	2.3	2.2	2.1	2.0
Functional category						
Education	7.1	8.2	7.7	7.7	7.4	7.3
Health	5.4	5.8	5.6	5.6	5.5	5.3
Social welfare	13.9	21.2	24.8	26.0	27.9	27.4
Housing	1.3	1.7	1.1	1.2	1.2	1.0
Economic services	6.0	6.1	6.4	6.6	5.9	5.9
Other (including interest payments)	9.1	13.9	16.0	17.1	16.3	15.6
Taxes						
Indirect taxes	17.1	18.6	17.3	17.5	18.2	18.1
Direct taxes	21.3	24.8	30.0	30.9	31.6	31.8
Capital taxes, compulsory fees, fines, etc.	0.3	0.4	0.4	0.5	0.4	0.4
Social security contributions	1.6	0.8	1.6	1.7	1.7	1.7
Total	40.3	45.6	49.3	50.5	51.9	51.9
			1992	1993	1994	1995
						1996
<b>Tax rates (per cent)</b>						
Personal income tax						
Average State income tax						
Top marginal rate		40.0	40.0	36.5	34.5	32.0
Lowest marginal rate		22.0	22.0	14.5	13.0	12.0
Average rate		18.4	18.1	14.5	13.0	12.0
Average local government tax rate		29.4	29.5	29.5	29.4	30.4
Average church tax rate		0.7	0.7	0.7	0.7	0.7
<b>Labour market contributions<sup>1</sup></b>						
Maximum marginal income tax rate <sup>2</sup>		68.0	68.0	65.0	63.5	62.0
Wealth tax rate			1.0	1.0	1.0	1.0
Maximum combined marginal rate <sup>3</sup>		78.0	78.0	75.0	73.5	71.0
Social security contributions of wage sum <sup>4</sup>						
Employers		0.6	0.6	0.6		
Employees		2.3	2.4	..		
VAT rate		22.0	25.0	25.0	25.0	25.0
Corporate tax rate		34.0	34.0	34.0	34.0	34.0

1. The labour market contributions, introduced at the 1994 -tax reform, are essentially payroll taxes.

2. Ceiling on the combined marginal State tax rate and local government tax rate.

3. Ceiling on marginal income and wealth tax rate (of taxable income).

4. As per cent of wage sum.

Source: Statistics Denmark; Ministry of Taxation, *Skattepolitisk redegørelse*, 1996.

Table L. **Production structure and performance indicators**A. Production structure  
Constant prices

	Share of private sector value added at factor cost						Share of private sector employment					
	1966	1973	1992	1993	1994	1995	1966	1973	1992	1993	1994	1995
<b>Tradeables</b>												
Agriculture	8.5	6.2	7.1	7.6	7.7	7.9	17.4	12.7	7.9	7.6	7.2	7.0
Mining and quarrying	0.1	0.1	5.2	5.5	5.8	5.8	0.2	0.1	0.1	0.1	0.1	0.1
Manufacturing	22.7	24.3	22.4	22.2	21.8	21.8	31.0	30.8	29.1	28.3	28.5	28.6
<i>of which:</i>												
Food, beverages and tobacco	4.9	4.9	6.4	6.1	5.8	5.0	6.1	5.7	5.1	5.1	5.0	4.8
Textile, wearing apparel and leather industries	1.6	1.6	0.9	0.9	0.8	0.8	4.6	3.5	1.8	1.7	1.7	1.6
Wood and wood products, including furniture	1.3	1.5	1.1	1.3	1.4	1.3	2.4	2.3	2.2	2.2	2.5	2.5
Paper and paper products, printing and publishing	3.0	3.0	1.9	1.8	1.9	2.0	3.0	3.0	2.9	2.8	2.7	2.6
Chemicals and chemicals petroleum, coal rubber and plastic products	1.7	2.3	3.0	3.0	3.1	3.1	2.0	2.3	2.9	3.0	2.9	3.0
Non-metallic mineral products except products of petroleum and coal	1.6	1.9	0.8	0.8	0.8	0.7	1.7	1.9	1.1	1.1	1.1	1.1
Basic metal industries	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.3
Fabricated metal products, machinery and equipment	7.4	8.3	7.4	7.3	7.1	7.8	10.1	11.0	12.0	11.5	11.7	12.0
Other manufacturing industries	0.5	0.6	0.5	0.6	0.6	0.5	0.7	0.6	0.7	0.7	0.7	0.7
<b>Non-tradeables</b>												
Electricity, gas and water	1.3	1.3	2.4	2.4	2.4	2.5	0.7	0.8	1.0	1.0	0.9	0.9
Construction	14.7	12.7	6.4	5.9	5.7	5.9	10.5	11.5	9.3	9.4	9.7	9.8
Wholesale and retail trade, restaurants and hotels	18.5	18.4	18.4	18.2	17.9	17.5	19.6	20.4	19.2	19.5	19.5	19.7
Transport, storage and communication	11.9	11.0	12.7	12.9	13.3	13.7	8.4	8.7	10.4	10.4	10.3	10.2
Finance, insurance, real estate and business services	15.1	19.7	19.8	19.9	19.9	19.3	5.4	8.0	14.7	15.0	15.0	14.9
Community, social and personal services	7.2	6.2	5.6	5.4	5.6	5.6	6.9	7.1	8.3	8.7	8.8	8.7
	As a share of total GDP						As a share of total employment					
Private sector	86.3	82.2	78.1	78.1	78.2	78.5	83.6	77.5	68.0	67.5	67.6	68.1
Public sector	12.9	17.2	21.2	21.1	21.0	20.7	13.2	21.0	30.8	31.4	31.3	30.7
Other producers	0.8	0.6	0.7	0.8	0.9	0.8	3.2	1.5	1.1	1.2	1.1	1.1

Table L. **Production structure and performance indicators** (cont.)B. Sector performance  
Constant prices

	Productivity growth (sector GDP/sector employment)					Investment As a share of total industry investment					
	1990-91	1991-92	1992-93	1993-94	1994-95	1989	1990	1991	1992	1993	1994
	<b>Tradeables</b>										
Agriculture	3.6	-10.1	16.1	9.7	6.8	6.0	6.8	5.3	6.0	4.8	4.4
Mining and quarrying	19.8	6.2	9.5	8.6	2.1	1.1	1.5	2.1	2.5	2.7	2.8
Manufacturing	2.3	2.5	5.8	1.4	-0.3	16.6	16.3	18.8	17.6	17.6	18.7
<i>of which:</i>											
Food, beverages and tobacco	11.1	4.3	0.2	-1.1	-10.7	3.3	3.2	4.0	3.7	..	..
Textile, wearing apparels and leather industries	5.5	-6.2	2.9	2.1	5.6	0.7	0.6	0.5	0.4	..	..
Wood and wood products, including furniture	-2.6	1.5	16.0	1.8	-2.4	0.9	1.1	0.9	1.1	..	..
Paper and paper products, printing and publishing	0.2	0.6	2.6	10.3	10.4	1.9	1.5	2.1	1.3	..	..
Chemicals and chemicals petroleum, coal rubber and plastic products	-3.8	6.4	0.8	12.0	-2.4	3.1	2.9	3.7	3.5	..	..
Non-metallic mineral products except products of petroleum and coal	-0.7	5.9	9.6	-6.3	-4.7	0.9	1.1	0.9	0.7	..	..
Basic metal industries	-8.1	6.9	5.2	20.0	10.2	0.2	0.2	0.3	0.4	..	..
Fabricated metal products, machinery and equipment	-1.4	0.6	8.2	-0.2	6.1	5.2	5.4	5.8	5.9	..	..
Other manufacturing industries	10.2	3.1	9.9	3.4	-6.9	0.4	0.5	0.6	0.5	..	..
<b>Non-tradeables</b>											
Electricity, gas and water	26.5	-10.8	3.7	4.6	6.6	7.4	7.8	6.5	6.6	5.9	5.4
Construction	-1.1	-1.4	-3.6	-4.0	2.6	3.1	3.2	2.7	3.0	3.1	3.1
Wholesale and retail trade, restaurants and hotels	4.2	-0.3	1.2	2.1	-2.6	7.1	7.1	6.1	6.1	..	..
Transport, storage and communication	2.7	8.5	5.3	7.5	4.6	19.8	20.1	22.6	22.4	..	..
Finance, insurance, real estate and business services	-2.0	-4.7	2.2	4.0	-2.3	27.4	25.3	25.0	23.6	..	..
<i>of which:</i> Dwellings	4.7	0.8	-5.4	-3.0	0.4	26.1	22.8	21.5	22.2	..	..
Community, social and personal services	-1.1	4.2	-3.6	5.4	2.1	11.6	11.9	11.1	12.1	..	..
						As a share of total investment					
Private sector	2.7	3.3	3.3	2.9	-0.1	86.4	87.3	87.0	84.2	83.5	83.9
Public sector	1.3	-1.9	0.2	0.6	-0.3	13.6	12.7	13.0	15.8	16.5	16.1

Table L. **Production structure and performance indicators** (*cont.*)  
 C. R&D expenditure and total employment in the Business Enterprise Sector

	Share of R&D Expenditure %	Share of R&D Employment %	Average R&D/employee 1 000 SKr			
<b>Firm size in persons, 1989:</b>						
0-50	10	23	5 000			
50-90	5	12	5 000			
100-199	9	13	800			
200-499	15	19	9 000			
500+	61	33	21 000			
	1990	1991	1992	1993	1994	1995
<b>R&amp;D expenditure</b> as % of domestic product	1.63	1.70	1.74	1.79	..	1.83

Source: OECD, *Science, Technology, and Innovation Policies, Denmark, 1995*; OECD, *National Accounts*.

*BASIC STATISTICS:  
INTERNATIONAL COMPARISONS*

**BASIC STATISTICS: INTERNATIONAL COMPARISONS**

	Units	Reference period <sup>1</sup>	Australia	Austria	Belgium	Canada	Denmark	Finland	France	Germany	Greece
<b>Population</b>											
Total	Thousands	1994	17 840	8 031	10 124	29 251	5 206	5 088	57 960	81 407	10 430
Inhabitants per sq. km	Number	1994	2	96	332	3	121	15	106	228	79
Net average annual increase over previous 10 years	%	1994	1.4	0.6	0.3	1.6	0.2	0.4	0.5	2.9	0.5
<b>Employment</b>											
Total civilian employment (TCE) <sup>2</sup>	Thousands	1994	7 680 (93)	3 737	3 724 (92)	13 292	2 508	2 015	21 781 (93)	35 894	3 790
of which: Agriculture	% of TCE	1994	5.3 (93)	7.2	2.6 (92)	4.1	5.1	8.3	5.1 (93)	3.3	20.8
Industry	% of TCE	1994	23.7 (93)	33.2	27.7 (92)	22.6	26.8	26.8	27.7 (93)	37.6	23.6
Services	% of TCE	1994	71 (93)	59.6	69.7 (92)	73.3	68.1	64.9	67.2 (93)	59.1	55.5
<b>Gross domestic product (GDP)</b>											
At current prices and current exchange rates	Bill. US\$	1994	331.6	198.1	227.9	544	146.7	97.2	1 328.5	1 832.3	73.1 (93)
Per capita	US\$	1994	18 588	24 670	22 515	18 598	28 181	19 106	22 944	27 826	7 051 (93)
At current prices using current PPP's <sup>3</sup>	Bill. US\$	1994	327.9	162.3	204.2	596.7	107	82.5	1 111.8	1 601.7	118
Per capita	US\$	1994	18 382	20 210	20 166	20 401	20 546	16 208	19 201	24 325	1 450
Average annual volume growth over previous 5 years	%	1994	2.2	2.5	1.6	1.1	1.9	-1.6	1.1	2.6	1.4 (93)
<b>Gross fixed capital formation (GFCF)</b>											
of which: Machinery and equipment	% of GDP	1994	21.4	24.8	17.4	18.7	14.8	14.3	18.1	18.5	17.4 (93)
Residential construction	% of GDP	1993	9.8	8.7	7.8	6.2	7.2	5.90	8.10	7.5	7.8
Average annual volume growth over previous 5 years	%	1994	0.8	3.7	0.4	-0.1	-2.8	-12.9	-1	0.8	2.7 (93)
<b>Gross saving ratio<sup>4</sup></b>											
	% of GDP	1994	16.8	25.3	22	16	17	16.6	19	21	15.5 (93)
<b>General government</b>											
Current expenditure on goods and services	% of GDP	1994	17.5	18.8	15	20.2	25.3	22.4	19.6	17.7	19.1 (93)
Current disbursements <sup>5</sup>	% of GDP	1993	36.9	48.4	55.3	49	61.1	58.9	51.5	45.6	51.2
Current receipts	% of GDP	1993	33.5	48.6	50.1	43	58.3	52.5	46.8	45.7	40.2
<b>Net official development assistance</b>											
	% of GNP	1993	0.34	0.31	0.41	0.46	1.03	0.76	0.66	0.44	..
<b>Indicators of living standards</b>											
Private consumption per capita using current PPP's <sup>3</sup>	US\$	1993	10 803	10 546	12 090	11 863	10 042	8 814	11 395	10 733	6 367
Passenger cars, per 1 000 inhabitants	Number	1990	430	382	387	469	311	386	413	480 <sup>8</sup>	169
Telephones, per 1 000 inhabitants	Number	1991	464	432	410	586	577	544	511	420 <sup>8</sup>	413
Television sets, per 1 000 inhabitants	Number	1991	480	478	451	639	536	501	407	556 <sup>8</sup>	197
Doctors, per 1 000 inhabitants	Number	1993	2.2 (91)	2.3	3.7	2.2	2.8 (92)	2.6 (92)	2.8	3.2 (92)	3.8 (92)
Infant mortality per 1 000 live births	Number		6.1	6.5	8	6.8	5.4	4.4	6.5	5.8	8.5
<b>Wages and prices (average annual increase over previous 5 years)</b>											
Wages (earnings or rates according to availability)	%	1994	3	5.5	3.7	3.3	3.5	4.8	3.5	5.2	14.6
Consumer prices	%	1994	3	3.4	2.8	2.8	2.1	3.3	2.5	3.3	16.2
<b>Foreign trade</b>											
Exports of goods, fob*	Mill. US\$	1994	47 363	44 881	137 259 <sup>7</sup>	165 358	41 850	29 514	235 337	422 243	8 958
As % of GDP	%	1994	14.3	22.7	60.2	30.4	28.5	30.4	17.7	23	11.5 (93)
Average annual increase over previous 5 years	%	1994	5	6.7	6.5	7.1	8.3	4.9	5.6	4.4	3.4
Imports of goods, cif*	Mill. US\$	1994	49 731	55 071	126 006 <sup>7</sup>	148 297	35 932	23 091	220 508	376 566	21 111
As % of GDP	%	1994	15	27.8	55.3	27.3	24.5	23.8	16.6	20.6	30.1 (93)
Average annual increase over previous 5 years	%	1994	4	7.2	5	5.4	6.1	-1.3	3.5	6.9	5.4
<b>Total official reserves<sup>6</sup></b>											
As ratio of average monthly imports of goods	Ratio	1994	7 730	11 523	9 505 <sup>7</sup>	8 416	6 203	7 304	17 986	52 994	9 924
		1994	1.9	2.5	0.9	0.7	2.1	3.8	1	1.7	5.6

\* At current prices and exchange rates.

1. Unless otherwise stated.

2. According to the definitions used in OECD *Labour Force Statistics*.

3. PPPs = Purchasing Power Parities.

4. Gross saving = Gross national disposable income minus private and government consumption.

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6. Gold included in reserves is valued at 35 SDRs per ounce. End of year.

7. Data refer to the Belgo-Luxembourg Economic Union.

8. Data refer to western Germany.

9. Refers to the public sector including public enterprises.

10. Including non-residential construction.

Sources: Population and Employment: OECD, *Labour Force Statistics*. GDP, GFCF, and General Government: OECD, *National Accounts*, Vol. I and *OECD Economic Outlook*, Historical Statistics. Indicators of living standards: Miscellaneous national publications. Wages and Prices: OECD, *Main Economic Indicators*. Foreign trade: OECD, *Monthly Foreign Trade Statistics*, series A. Total official reserves: IMF, *International Financial Statistics*.

**BASIC STATISTICS: INTERNATIONAL COMPARISONS (cont'd)**

	Units	Reference period <sup>1</sup>	Iceland	Ireland	Italy	Japan	Luxembourg	Mexico	Netherlands	New Zealand
<b>Population</b>										
Total	Thousands	1994	267	3 571	57 190	124 960	398	93 010	15 382	3 526
Inhabitants per sq. km	Number	1994	3	51	190	331	153	47	377	13
Net average annual increase over previous 10 years	%	1994	1.1	0.1	0	0.4	0.8	2	0.6	0.8
<b>Employment</b>										
Total civilian employment (TCE) <sup>2</sup>	Thousands	1994	138	1 168 (93)	20 152 (93)	64 530	162 (91)	32 439	6 631	1 560
of which: Agriculture	% of TCE	1994	9.4	12.7 (93)	7.5 (93)	5.8	3.7 (91)	25.8	4	10.4
Industry	% of TCE	1994	26.1	27.7 (93)	33 (93)	34	31.5 (91)	22.2	23	25
Services	% of TCE	1994	65.2	59.7 (93)	59.6 (93)	60.2	64.8 (91)	52.1	73	64.6
<b>Gross domestic product (GDP)</b>										
At current prices and current exchange rates	Bill. US\$	1994	6.2	52	1 017.8	4 590	10.6 (92)	371.2	334.3	51.2
Per capita	US\$	1994	23 199	14 550	17 796	36 732	27 073 (92)	3 991	21 733	14 513
At current prices using current PPP's <sup>3</sup>	Bill. US\$	1994	5.1	54.3	1 068.4	2 593.7	11.7	673.3	285.9	57.3
Per capita	US\$	1994	19 271	15 212	18 681	20 756	29 454	7 239	18 589	16 248
Average annual volume growth over previous 5 years	%	1994	0.6	4.7	1	2.1	4.1 (92)	3	2.3	2.5
<b>Gross fixed capital formation (GFCF)</b>										
of which: Machinery and equipment	% of GDP	1994	15.2	15.1	16.4	28.6	20.4 (93)	20.7	19.3	20
Residential construction	% of GDP	1993	3.9	6.3	7.4	11.5	..	9.4	8.6	9.3
Average annual volume growth over previous 5 years	%	1994	4.4	4.1	5.3	5.4	..	4.9	5.1	4.9
	%	1994	-4	1	-2.3	1.4	6.5 (92)	7.7	0.4	5.8
<b>Gross saving ratio<sup>4</sup></b>										
	% of GDP	1994	16.9	19.5	18.8	31.2	60.2 (92)	15.1	24.4	20.7
<b>General government</b>										
Current expenditure on goods and services	% of GDP	1994	20.6	16	17.1	9.8	17.1 (92)	11.8 <sup>9</sup>	14.2	14.7
Current disbursements <sup>5</sup>	% of GDP	1993	34.9	..	53.2	26.9	..	..	55.4	..
Current receipts	% of GDP	1993	35.9	..	47.1	32.9	..	..	54.5	..
<b>Net official development assistance</b>										
	% of GNP	1993	..	0.15	0.42	0.27	0.34 (92)	..	0.88	0.22
<b>Indicators of living standards</b>										
Private consumption per capita using current PPP's <sup>3</sup>	US\$	1993	11 546	7 750	11 029	11 791	15 545	4 853	10 726	9 266
Passenger cars, per 1 000 inhabitants	Number	1990	464	228	478	282	470	85	356	440
Telephones, per 1 000 inhabitants	Number	1991	527	300	400	454	511	70	477	436
Television sets, per 1 000 inhabitants	Number	1991	319	276	421	613	267	148	485	443
Doctors, per 1 000 inhabitants	Number	1993	3	1.7 (92)	1.7 (91)	1.7 (92)	2.1 (92)	1	2.5 (90)	2
Infant mortality per 1 000 live births	Number		4.8	5.9	7.3	4.5 (92)	8.5 (92)	18	6.3	7.3
<b>Wages and prices (average annual increase over previous 5 years)</b>										
Wages (earnings or rates according to availability)	%	1994	..	4.6	5.9	2.4	..	5.3	3.2	2.1
Consumer prices	%	1994	6.3	2.7	5.2	2	3.1	16.1	2.8	2.5
<b>Foreign trade</b>										
Exports of goods, fob*	Mill. US\$	1994	1 628	34 125	189 802	396 149	..	60 882	155 084	12 169
As % of GDP	%	1994	26.3	65.7	18.6	8.6	..	16.4	46.4	23.8
Average annual increase over previous 5 years	%	1994	2.7	10.5	6.2	7.6	..	21.7	7.6	6.5
Imports of goods, cif*	Mill. US\$	1994	1 464	25 812	167 690	274 916	..	79 346	139 800	11 859
As % of GDP	%	1994	23.6	49.7	16.5	6	..	21.4	41.8	23.2
Average annual increase over previous 5 years	%	1994	0.7	8.1	1.9	5.5	..	25.5	6.1	6.1
<b>Total official reserves<sup>6</sup></b>										
As ratio of average monthly imports of goods	Ratio	1994	201	4 189	22 102	86 214	..	4 301	23 655	2 540
	Ratio	1994	1.6	1.9	1.6	3.8	..	0.7	2	2.6

\* At current prices and exchange rates.

1. Unless otherwise stated.

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**BASIC STATISTICS: INTERNATIONAL COMPARISONS (cont'd)**

	Units	Reference period <sup>1</sup>	Norway	Portugal	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States
<b>Population</b>										
Total	Thousands	1994	4 337	9 900	39 150	8 781	6 994	60 573	58 375	260 651
Inhabitants per sq. km	Number	1994	13	107	78	20	169	78	238	28
Net average annual increase over previous 10 years	%	1994	0.5	-0.1	0.2	0.5	0.7	2.1	0.3	1
<b>Employment</b>										
Total civilian employment (TCE) <sup>2</sup>	Thousands	1994	1970 (93)	4 372	11 760	3 926	3 772	19 664	25 044 (93)	123 060
of which: Agriculture	% of TCE	1994	5.6 (93)	11.5	9.8	3.4	4	44.8	2.2 (93)	2.9
Industry	% of TCE	1994	23.1 (93)	32.8	30.1	25	28.8	22.2	26.2 (93)	24
Services	% of TCE	1994	71.3 (93)	55.7	60.2	71.6	67.2	33	71.6 (93)	73.1
<b>Gross domestic product (GDP)</b>										
At current prices and current exchange rates	Bill. US\$	1994	103.4 (93)	87	482.4	196.6	257.3	130.7	1 019.5	6 649.8
Per capita	US\$	1994	23 984 (93)	8 792	12 321	22 389	36 790	2 157	17 468	25 512
At current prices using current PPP's <sup>3</sup>	Bill. US\$	1994	95.3	122	531.7	153	167.4	319.3	1 030.2	6 649.8
Per capita	US\$	1994	21 968	12 335	13 581	17 422	23 942	5 271	17 650	25 512
Average annual volume growth over previous 5 years	%	1994	2.1 (93)	1.4	1.5	-0.3	0.5	3.6	0.8	2.1
<b>Gross fixed capital formation (GFCF)</b>										
of which: Machinery and equipment	% of GDP	1994	22 (93)	25.7	19.8	13.7	22.8	24.5	15	17.2
Residential construction	% of GDP	1993	..	..	5.7	5.7	7.5	10.3	7.3	7.7
Average annual volume growth over previous 5 years	%	1994	-3.93	2.7	-1.2	-7.6	-0.4	5.1	-2.1	4.6
<b>Gross saving ratio<sup>4</sup></b>										
	% of GDP	1994	21.9 (93)	24.2	18.8	13.7	29.3	22.5	13.5	16.2
<b>General government</b>										
Current expenditure on goods and services	% of GDP	1994	22.1 (93)	17.2	16.9	27.3	14.1	11.7	21.6	16.4
Current disbursements <sup>5</sup>	% of GDP	1993	..	..	43.7	67.3	36.7	..	42.7	35.8
Current receipts	% of GDP	1993	1.23	0.36	40.1	59	36	..	36.8	31.7
<b>Net official development assistance</b>										
	% of GNP	1993	9 826	7 780	8 412	9 240	13 730	3 617	10 942	16 444
<b>Indicators of living standards</b>										
Private consumption per capita using current PPP's <sup>3</sup>	US\$	1993	378	260	307	418	441	29	361	568
Passenger cars, per 1 000 inhabitants	Number	1990	515	273	340	687	603	143	445	553
Telephones, per 1 000 inhabitants	Number	1991	423	187	400	468	406	175	434	814
Television sets, per 1 000 inhabitants	Number	1991	3.2 (92)	2.9	4.1	3	3	0.9	1.5 (92)	2.3 (92)
Doctors, per 1 000 inhabitants	Number	1993	5	8.7	7.6	4.8	5.6	52.6	6.6	8.5 (92)
Infant mortality per 1 000 live births	Number		4	..	7.2	5.4	..	..	6.7	2.8
<b>Wages and prices (average annual increase over previous 5 years)</b>										
Wages (earnings or rates according to availability)	%	1994	2.7	9	5.6	5.7	3.9	73	4.6	3.6
Consumer prices	%	1994	34 645	17 072	73 129	61 122	70 467	18 456	205 170	512 627
<b>Foreign trade</b>										
Exports of goods, fob*	Mill. US\$	1994	30.9 (93)	19.6	15.2	31.1	27.4	14.1	20.1	7.7
As % of GDP	%	1994	5	6.1	10.5	3.4	6.4	9.5	6.1	7.1
Average annual increase over previous 5 years	%	1994	27 345	25 967	92 182	51 730	68 126	22 976	227 026	663 256
Imports of goods, cif <sup>6</sup>	Mill. US\$	1994	23.3 (93)	29.9	19.1	26.3	26.5	17.6	22.3	10
As % of GDP	%	1994	2.9	6.6	5.2	1	3.2	37.9	2.8	7
Average annual increase over previous 5 years	%	1994	13 033	10 627	28 475	15 929	23 790	4 911	28 094	43 350
<b>Total official reserves<sup>6</sup></b>										
	Mill. SDRs	1994	5.7	4.9	3.7	3.7	4.2	2.6	1.5	0.8

\* At current prices and exchange rates.

1. Unless otherwise stated.

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