

## ENGLISH SUMMARY

### Chapter I: Danish Economy

The economic boom in Denmark which started in 1993 is now fading. Economic growth is expected to fall from about 2½ per cent this year to only 1 per cent in 1999 and 1¼ per cent in 2000 (see table 1). The relatively rapid slowdown is due to a tightening of economic policy, a considerable deterioration of competitiveness, and slower growth abroad. With slower domestic growth, the increase in employment will come to an end. In 2000 unemployment is expected to be at the same level as in 1998, i.e. about 6¼ per cent of the labour force (national definition). Inflation will remain subdued, and the public surplus will increase. A current account deficit of around 1 per cent of GDP is expected in both 1999 and 2000.

The expected slowdown in the Danish economy is mainly due to weaker domestic demand as a result of tighter economic policy. Private consumption growth is expected to be relatively low. This is due to an expected decline in real disposable income in 1999 and falling propensity to consume in 2000, mainly caused by lower house prices. Lower house prices will also result in decreasing residential investments. Due to weaker demand growth and increased uncertainty about the domestic and international business situation, business investments are expected to fall in 1999 and increase only moderately in 2000.

Economic prospects for the world economy have deteriorated sharply. Japan and other East Asian countries are in deep recession, and the Asian crisis has spread to other emerging market countries, including Russia and Brazil. However, the recovery in Europe does not seem to be seriously threatened by the international crisis, and the slowdown in Norway and the United Kingdom, two of Denmark's main trading partners, is to a large extent due to domestic conditions in these countries. Economic activity has strengthened in Germany, France and other continental European countries as well as in Sweden, due to stronger domestic demand with respect to both consumption

and investment. In the United States the long-lasting economic upturn continues, but from next year it will go on at a slower pace. Even though economic prospects are still relatively favourable, there is a risk of a weakening due to more turbulent financial markets.

The turmoil in the financial markets may reflect falling optimism and fear that the crisis could spread to Europe and the United States. The latest interest rate cuts in both the United States and Europe are likely to be beneficial worldwide, and possibly the international crisis has reached bottom. The crises in Asia and Russia have only a limited impact on overall economic development in Denmark. However, some sectors, including agriculture and shipping, are negatively affected. On average, Denmark's trading partners are expected to experience economic growth of around 2½ per cent per annum over the next couple of years.

Danish exports will fall in 1998, and are only expected to pick up slightly in 1999 and 2000. The weakness in exports means that a current account deficit around 1 per cent of GDP is expected in both 1999 and 2000 in spite of the slow rate of growth in domestic demand.

Employment in the private sector is expected to fall in 1999 and 2000 as a result of the relatively slow economic growth. It is assumed that public employment will increase by 8,500 persons in 1999 and by around 6,000 in 2000. This will offset the decline in private employment, so that total employment is expected to remain nearly unchanged. The labour force is also expected to remain constant in size, and in 2000 unemployment will therefore be at the same level as in 1998, that is around 180,000 persons, corresponding to about 6¼ per cent of the labour force (national definition). Wage cost growth is expected to slow to around 4½ per cent as the expansion in employment ceases.

Table 1: Short-term prospects for the Danish economy

	1997	1997	Percentage change			
	Current prices	Per cent of GDP	in volume terms			
	DKK bn. <sup>d</sup>		1997	1998	1999	2000
Private consumption	568.9	50.7	3.6	3.6	1.6	1.3
Public consumption	284.6	25.3	2.2	1.6	0.9	0.6
Gross fixed capital formation, of which:	225.3	20.1	10.4	5.1	-1.5	2.3
Residential investments	47.3	4.2	8.8	-0.2	-3.4	-1.5
Fixed business investments	156.8	14.0	12.0	7.8	-1.0	3.1
Public investments	21.2	1.9	2.4	-6.0	-2.2	2.0
Stock building <sup>a</sup>	6.5	0.6	-0.2	0.5	-0.5	0.0
Total domestic demand	1085.4	96.7	4.5	4.0	0.2	1.4
Exports of goods and services	403.9	36.0	4.3	-0.2	3.2	2.7
Imports of goods and services	366.3	32.6	7.6	3.8	1.4	3.0
GDP	1123.0	100.0	3.3	2.4	1.0	1.3
<b>Key indicators</b>						
Consumer prices, percentage change <sup>b</sup>			2.2	1.8	1.9	2.1
Unemployment, per cent <sup>c</sup>			7.7	6.4	6.3	6.3
Current account, DKK bn. <sup>d</sup>			6.4	-16.3	-10.2	-11.6
Current account, per cent of GDP			0.6	-1.4	-0.8	-0.9
General government financial balance, DKK bn. <sup>d</sup>			2.6	11.7	30.0	26.5
Gen. government financial balance, per cent of GDP			0.2	1.0	2.5	2.1
Hourly wage costs, percentage change			3.8	5.0	4.2	4.4
Terms of trade, percentage change			-0.8	-1.1	-0.4	0.2

a) The percentage changes are calculated as the real changes in stock building relative to real GDP in the previous year.

b) Implicit private consumption deflator.

c) Percentage of total labour force.

d) The DKK/USD exchange rate is taken as 6.68 in 1998 and 6.23 in the years 1999 and 2000.

Sources: Statistics Denmark, *National Accounts* and own estimates.

Despite the slowdown, the general government financial balance is expected to improve to 2½ per cent of GDP in 1999 from about 1 per cent of GDP in 1998. The improvement partly reflects the fact that the supplementary pension scheme introduced in 1998 will be converted into an ordinary tax on earned income next year and thus counted as part of public income. Furthermore, environmental taxes will be increased in 1999. In 2000 a small worsening of public finances is expected because of slow economic growth and lower tax pressure.

## **Policy recommendations**

The economic upturn in Denmark has been driven primarily by domestic demand. In 1999 and 2000 domestic demand growth is expected to slow considerably. Exports will not be able to take over, mainly because of competitiveness problems. Since 1995, wages have increased faster in Denmark than abroad. Danish competitiveness has been under strong pressure, and there have been significant losses in market shares. In 1998 exports will decrease, partly because of the labour conflict this spring and the negative effects on agricultural and service exports of the crises in Asia and Russia. Wage competitiveness is expected to deteriorate further in 1999 and 2000, and as economic growth abroad will slow at the same time, export prospects are not favourable. An improvement in the prospects for exports would require that Danish wage inflation was brought back in line with, or preferably, for a period, kept below, foreign wage inflation. A reduction in wage inflation is also needed to ensure the credibility of the fixed exchange rate policy.

First and foremost, it is up to the labour market parties to curtail Danish wage inflation. However, economic policy should help to ensure that wages do not increase too fast. Wages have increased more slowly than in previous economic upturns, partly due to the labour market reforms in recent years. However, the fact that Danish wage inflation has been higher than abroad for several years indicates that further reforms are needed if lasting reductions in unemployment are to take place. One possibility,

analysed in *Danish Economy, Autumn 1997*, is to introduce an earned income tax credit which would increase the low wage-earners' gains from working, thereby reducing wage pressure. Greater effort to avoid bottlenecks in the labour market is another possibility.

An economic upswing, of course, makes it easier to tighten labour market policy. However, it is important that labour market policy is not relaxed when times are harder, as this would lead to increased structural unemployment, with the result that wage pressure would emerge sooner in the next economic upturn.

Labour market reforms and slower economic growth will help to reduce wage inflation but it will take time. It is tempting to try to improve competitiveness by lowering indirect wage costs. However, this is not a good solution. If indirect wage costs were reduced to counteract the effects of excessive wage increases, wage formation would be affected. The labour market parties would be able to agree on higher wage increases in the expectation that the government would subsequently "save" the country's competitive position by lowering indirect wage costs. Thus, it is the labour market parties themselves who should solve the problems for which they are responsible.

During the economic upturn, the government announced that fiscal policy would be tight; but in fact fiscal policy has been expansionary, or at best neutral, during the whole upswing. This is partly because the existing institutional arrangements between the central government and the municipalities are ineffective for implementing the stated policy. The municipalities have not observed their budgets, and the central government has imposed new responsibilities upon the municipalities which require greater expenditures. The failure to tighten fiscal policy has contributed to the relatively high wage increases in Denmark.

A current account deficit around 1 per cent of GDP is expected in both 1999 and 2000. In reality, it would only be by tightening fiscal policy more than has been assumed in the forecast that a current account surplus could be quickly reestablished. Even if fiscal policy had been tightened during the economic upswing in the period 1993-98, employment would still have increased, though to a smaller extent than it actually did. However, in the current economic situation it is likely that additional fiscal tightening would reduce total employment. In other words, the government's goal of eliminating the foreign debt has come into conflict with employment considerations.

A current account deficit of around 1 per cent of GDP for a couple of years will not be disastrous, and for employment reasons fiscal policy should not be tightened further at this point. A reduction in employment would make it harder to implement labour market reforms, and at the same time experience shows that it can be difficult to turn things around if unemployment starts increasing significantly.

The deterioration of the current account from 1997 to 2000 is due to a fall in savings, and on the face of it this deterioration is therefore more worrying than the deterioration from 1993 to 1997, which was caused by increasing investments. However, it is normal for savings to weaken in the beginning of a period with relatively low economic growth, as it takes time for consumption to adjust to lower income growth. The important thing is what happens to savings in the longer run. The recent tax reform will mean a gradual reduction in the tax deductibility of interest payments. This will strengthen savings, and it is therefore likely that the current account will be improved in the medium term.

It is, however, not evident that Danish savings have been strengthened enough. There are several reasons why it is important to increase savings. Higher savings are necessary if the government's objective of eliminating the foreign debt is to be compatible with a high rate of employment. Higher savings are also required to solve the problems caused by the ageing of the population. The economic burden caused by the increasing number of pensioners will be appreciable in 10-15 years. However, it is important that measures to meet this increasing

economic burden are implemented as soon as possible. The necessary measures will be less painful if action is taken in good time.

## **Chapter II: Ageing – A Challenge to the Welfare State**

In the coming years, senior citizens (those aged sixty-five or more) are expected to make up a dramatically increasing proportion of the population. For every senior citizen, there are four persons between the ages of twenty and sixty-four in the population today, but this number will decrease to two and a half in 2040. The focus of this chapter is an analysis of the challenges to the welfare state caused by this demographic change.

The fact that the number of senior citizens in society will be about 40 per cent of the number of the working-age population in 2040, compared to 25 per cent today, is due to the ageing of the baby boom cohorts from the 1940s, historically low fertility rates, and a projected increase in life expectancy. The proportion of very old people (aged eighty or more) will also increase. This will be perceptible from 2020 onwards, and by 2040 the number of the very old is expected to be about 10 per cent of the size of the working-age population, compared to 5 per cent today.

The problems associated with the increasing proportion of senior citizens in society are increased by the fact that today withdrawal from the labour market takes place earlier than before. For men, the average age of retirement has fallen by four years during the last two decades. For women, however, the average age of retirement has hardly changed. The overall average age of retirement is now about sixty years. The old-age pension system as such does not encourage people to take early retirement, but a special early retirement scheme introduced in 1979 has provided such an incentive. Thus, individuals who have had an unemployment insurance for twenty years can begin

receiving a post-employment wage at the age of sixty. Early retirement is especially pronounced among the unskilled and among skilled persons for whom the replacement rates are relatively high.

The Danish pension system consists of four elements:

- A public pay-as-you-go plan
- A funded public plan (ATP)
- Funded labour market pension schemes
- Funded private pension schemes

All Danish citizens aged sixty-seven and over are entitled to a minimum public pension of DKK 46,812 annually and, depending on other income, a supplement of DKK 39,576 for single persons and DKK 20,568 each for cohabiting couples.

On top of this, all employees and unemployed persons contribute to a defined contribution scheme (ATP). This is a funded public pension scheme. Maximum pensions from this scheme are at present about DKK 18,000 annually.

In the beginning of the 1990s, compulsory labour market pension schemes were expanded, and today around 80 per cent of the labour force is covered by a labour market or private pension scheme. The size of the contributions is negotiated on the labour market. Pensions are provided on a defined contribution basis, usually paid as annuities. Contributions range between 5 and 15 per cent of the salary.

The last element in the Danish pension system comprises individual pension schemes. All pension contributions are tax-deductible from personal income, and the pensions are taxed when they are paid out. Taxation of yield is more favourable than for other kinds of saving accounts.



The economic implications of the growing number of senior citizens in the next millennium have been calculated using an applied general equilibrium model for Denmark.<sup>1</sup> The model places special emphasis on economic circumstances for the population calculated by generations and includes a description of a pension scheme in the Danish economy. The calculations show that expenditures on public pensions, nursing homes and home help are expected to increase considerably. A decrease in the labour force will at the same time affect production and decrease the tax base. However, tax revenue will increase due to greater taxable income being paid out from labour market and private pension schemes.

Projections show that overall, taxes must increase by 6½ per cent of GDP for the period 2005 to 2035. The calculations are based on demographic projections from Statistics Denmark. It is assumed that labour market pension schemes will increase to at least 9 per cent of wage income, and that the real interest rate after tax will be 2.6 per cent for pension capital. The international real interest rate is set at 4 per cent in the calculations. It is assumed that public expenditures will be constant for a given cohort. Furthermore, it is assumed that the public budget is balanced in every period. This is ensured by varying the tax rate for personal income. All persons are assumed to leave the labour market at the age of sixty-two and to receive post-wage transfer income until the age of sixty-seven, when they start to receive old age pension and income from pension funds.

Other reports have also come to the conclusion that public expenditures in Denmark will increase due to the ageing of the population. However, the increase in taxes required is about twice as high in our calculations. Half of the increase can be explained by an increase in the proportion of senior citizens in the latest population projection from Statistics Denmark. The other half is mainly explained by updated information about public expenditures on the different cohorts and by the use of a different model.

1) Pedersen, L. H., P. Stephensen and P. Trier (1998): A CGE Analysis of the Danish Ageing Problem. Statistics Denmark, Copenhagen.

Today's pensioners have relatively low levels of income, approximately two-thirds of the income of the working-age population. Old-age pensions from the government are the primary income for around 80 per cent of pensioners today, and therefore the income dispersion among the pensioners is less than for the population as a whole.

In the future, most pensioners will receive income from labour market pension schemes. Thus, future pensioners can expect a relatively high replacement rate. For example, a person with a mean wage income of DKK 250,000 can expect a replacement rate as a pensioner of around 0.37, whereas a person with the same wage having a labour market pension scheme can expect a replacement rate of 0.67. This implies that future pensioners will be better off than the present pensioners. In this chapter, hypothetical income for future pensioners is calculated and the income distribution of future pensioners is analysed. The calculations suggest that the median income of future pensioners will be around 40 per cent higher than the income of today's pensioners. At the same time, however, a relatively large group of future pensioners will be without a private pension scheme. This group will have the same income level as today's pensioners. Thus, the income dispersion for future pensioners is expected to be greater than today.

The public pension will be less important for future pensioners; fifty per cent of them will have a higher income from a labour market pension scheme than from their public pension. Pensioners in the highest end of the income distribution will primarily be those who were employed full time while of a working age. People who had periods of unemployment or of part-time employment during their working lives will dominate the middle section of the income distribution as pensioners. Finally, most people who had no connection to the labour market while of working age, or only a slight connection, will find themselves in the lower end of the income distribution after retirement.

Higher mean income and a greater expected level of income dispersion among future pensioners make it relevant to consider making a larger proportion of public services to senior citizens dependant upon income. This could be one of the measures needed to reduce future public expenditures. Another measure could be to extend the use of fees for public services for senior citizens. Finally, a change in the rule of indexation for public pensions, i.e. indexation according to prices instead of wages as at present, could be a possibility.

### **Chapter III: Sustainable Development**

Since the 1987 report of the World Commission on Environment and Development, the so-called Brundtland Commission, the concept of sustainable development has been high on the international agenda. The Brundtland Commission defined sustainable development as 'development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs'. The fundamental concern behind the concept of sustainability is whether current economic progress is obtained at the expense of the well-being of future generations. In particular, concerns have been expressed as to whether today's use of the earth's natural resources poses a risk to future generations. This chapter discusses a wide range of conceptual and practical issues that must be resolved before sustainability can be expressed in operational terms and measured.

Sustainable development is basically a question of inter-generational distribution or equality. Yet deciding on how much the well-being of future generations should affect the political decisions of today is a matter of ethics. It is therefore unlikely that a universally accepted consensus as to what constitutes sustainable development can be achieved. Nonetheless, as the concern for future generations must be taken seriously, attempts to express the concept of sustainability in operational terms will be valuable as long as the underlying assumptions are made clear.

Any empirical measure of sustainability must include a comprehensive and consistent description of the state of the natural environment and the environmental impact of human activity. However, while they are necessary, environmental indicators cannot on their own show whether or not an economy is on a sustainable path. Nature is only one aspect of sustainable development, and it is an important challenge to determine how the depletion of natural assets, pollution and other changes in the quality of nature can be integrated with measures of economic progress. An economic approach to sustainable development requires that nature be valued in monetary terms. To do this in practice, information is needed about the state of the natural environment, the effects of changes in environmental quality on production and human welfare, and the shadow prices that humans assign to the different services provided by nature. At present, there are large gaps in our knowledge about all of these issues. Consequently, economic measures of sustainable development are characterised by uncertainty as well as limited coverage in terms of the aspects of nature that can be included.

Provided nature can be valued appropriately, the idea of the economic measures of sustainability is that nature can be considered as part of the total national wealth, which also includes physical capital in terms of machines and buildings as well as human capital. Since national wealth, which is the assets that current generations leave for the future, will be an important determinant of the well-being of future generations, it is natural to define sustainable development as non-declining national wealth. The most frequently used sustainability measure is the change in national wealth. This measure is often called “genuine savings” in order to emphasize the point that the concept goes beyond the traditional concept of national net savings by, for example, including the value of depletion and depreciation of natural assets.

In the Danish national accounts, traditionally-measured national net savings have been positive in each year during the period 1986-96, amounting to approximately 5 per cent of net national product (NNP). Genuine savings are derived from these figures by making adjustments for changes in the stocks of natural and human capital. Three types of “green” adjustments are made in

the analysis. Thus, the depletion of oil and natural gas deposits, the emissions of greenhouse gasses and the emissions of three air pollutants are accounted for. Together, these three adjustments for reductions in the natural capital are estimated to be around 2.5 per cent of NNP annually. By contrast, it seems reasonable to assume that the annual net investments in human capital, including research and development, have corresponded to at least 5 per cent of NNP, leading to positive adjustments to genuine savings. The calculations therefore suggest that current Danish development will not prevent future generations from having the same level of welfare as the present generations. However, this conclusion must be viewed in the light of the uncertainties inherent in the calculations and the wide range of changes in the environment that have not been taken into account due to the lack of the necessary information.

Another reason for interpreting genuine savings with caution is that the measure is based on a weak definition of sustainable development. Any form of capital can in theory be substituted by any other form of capital. Even substantial reductions in the natural capital will therefore not conflict with sustainable development, as long as investments in other forms of capital are sufficiently large. For some types of natural capital, e.g. nature's life-supporting functions, this assumption is obviously problematic, as there are some lower critical limits for the quality of nature. Consequently, using genuine savings as a measure of sustainability only makes sense when changes in natural capital are relatively modest.

The concept of genuine savings is based on the notion that sustainable development requires non-declining national wealth. However, besides the size of the national wealth, the potential living standards of future generations will depend crucially on future technological progress. Technological progress may not only increase the overall level of consumption, innovations and new inventions, but may also help to alleviate some of the current environmental problems. Historically, technological advances have, for example, increased the energy efficiency in many economic sectors and reduced certain types of local air pollution. Yet economic growth tends to increase other environmental problems, most notably those associated with energy consumption, such as the greenhouse effect.

Some environmental problems are characterised by having a long gestation period and being uncertain and irreversible. These problems are of particular interest when trying to assess the sustainability of today's development. In this respect, one pillar in the Danish environmental policy is the precautionary principle, which states that if there is any uncertainty about the effects of a given environmental problem, one should introduce low safe minimum standards, for example, or ambitious targets for pollution reductions. Using the greenhouse effect and global warming as an example, it is shown in the chapter that the precautionary principle may be a rational decision criterion for environmental problems characterised by uncertainty and irreversibility. Thus, when it is not possible to rule out the risk of a catastrophic outcome, it will generally be optimal to pay a high risk premium today, in particular if one of nature's life-supporting functions is under threat.

It should be clear from the above discussion that analyses of sustainable development suffer from uncertainty at many levels. Some of this uncertainty is unavoidable, since sustainability necessarily involves the very long run, for which predictions are always quite speculative. However, a better understanding of the interaction between nature and human activity and of how the two spheres can be consistently integrated would make it possible to improve analyses of sustainable development. In addition, this information would also facilitate analyses of environmental problems and policy in general.

Despite the uncertainty, the analyses suggest that current Danish development does not seem likely to compromise the well-being of future generations. Yet the market will not by itself ensure that continued economic progress does not lead to an unacceptable depreciation of natural assets. Effective public regulation is therefore required to ensure the appropriate exploitation of natural resources, producing a reasonable balance between gains and losses from pollution and other uses of nature as well as a suitable degree of consideration for the well-being of future generations.