

ENGLISH SUMMARY

Chapter I: The Danish Economy

The Danish economy is experiencing a period of rapid growth. Unemployment has fallen by more than 30,000 persons during the past year and currently amounts to 4.8 per cent of the labour force. Over the coming years, demand growth is expected to remain at a high level in Denmark as well abroad. Total demand is expected to rise approximately 4½ per cent in 2006, falling back towards 2¾ per cent in 2008. Due to capacity restrictions, these growth rates are likely to lead to a sharp increase in imports. Hence, over the coming years, net exports are expected to contribute negatively to GDP growth, despite exports being set for solid growth rates. At the end of the day, GDP is expected to rise by slightly more than 2½ per cent this year and slightly less than 2 per cent in 2007 and 2008.

Increasing house prices are a major driving force behind the current upturn. Consumption is benefiting from massive capital gains on houses and will most likely also benefit from a further improvement in the labour market. On the other hand, rising interest rates and oil prices are tending to reduce growth in consumption. In total, private consumption is expected to grow at a solid rate of around 3 per cent this year, falling slightly to a level around 2½ per cent in the two following years. With the prospect of solid growth in demand, the investment ratio is set to increase, partly as a compensation for a limited supply of labour.

The international outlook is relatively bright as well, with the prospect of the European economy benefiting from a gradual German recovery. With this background, growth in Danish export markets is expected to reach 2¾ per cent this year, which marginally exceeds the growth rate in 2005. Growth in export markets is expected to remain at high, though slightly decreasing, levels during the forecast horizon.

Unemployment is currently at a historically low level. This limits the possibility of increasing employment further and

it thereby constitutes a ceiling for growth in aggregate production over the coming years. The sharp increase in total demand is therefore expected to mean that a still larger proportion of demand must be satisfied through imports. Against this background, the current account surplus is expected to deteriorate significantly over the coming years.

Due to the improved labour market situation, the labour force is expected to increase by around 10,000 persons towards 2008, despite demographic factors contributing negatively to labour force growth. The expected growth in employment by approximately 40,000 persons is conditional on this increase in the labour force and cannot be realised without it.

The likely response of the economy to various shocks over the coming years must be assessed in the light of an extraordinary amount of uncertainty as the economy moves closer to a situation of full capacity utilisation. In the report, the current situation is compared to the upswings in the eighties and the second half of the nineties. The gap between actual and structural unemployment in the current upturn approximates the size of that in the nineties, but it is not quite as large as that in the eighties. The general economic structures are better now than during the earlier upswings and the economy has become even more integrated with the global economy. This provides a plausible explanation as to why wage responses have been relatively subdued despite significant increases in employment. Wage demands are moderate because workers regard the threat of job outsourcing as a relevant one.

So far, developments in the labour market have been purely positive. The sharp decrease in unemployment has been met by only moderate increases in wage rates. Despite the outlook for further drops in unemployment, increases in the wage rate are expected to remain at moderate levels over the forecast horizon – gradually rising to around 4½ per cent in 2008. This might be seen as a relatively optimistic view, and it is conditional upon an increasing supply of labour, a relatively high level of growth in productivity, and a significant portion of demand growth being covered by imports.

Nevertheless, unemployment is now at such a low level, and the demand for labour so strong, that the risk of the economy overheating must be taken seriously.

Table 1 Short-term outlook for the Danish economy

	Current prices	Per cent of GDP	Percentage change, volume				
	DKK bn.		2004	2005	2006	2007	2008
Private consumption	751.9	48.5	3.7	3.7	3.1	2.8	2.6
Public consumption	401.9	25.9	1.7	1.2	1.4	0.7	0.7
Gross fixed capital formation	322.2	20.8	4.3	8.8	8.8	5.4	4.3
consisting of:							
Residential investments	87.1	5.6	10.6	12.6	7.9	4.8	4.5
Business fixed investments	207.9	13.4	1.1	8.1	9.9	6.0	4.5
Public investments	27.2	1.8	12.4	2.9	2.0	2.0	2.0
Stockbuilding ^{a)}	2.3	0.1	0.1	0.2	0.1	0.0	0.0
Total domestic demand	1,478.3	95.3	3.4	4.3	4.1	2.8	2.5
Exports of goods and services	754.8	48.6	2.6	8.7	6.1	3.5	3.1
Imports of goods and services	681.5	43.9	6.4	11.1	9.2	5.3	4.6
GDP	1,551.5	100.0	1.7	3.4	2.7	1.9	1.7
Key indicators							
Consumer prices, percentage change ^{b)}			1.4	2.1	2.2	2.1	1.9
Unemployment, per cent ^{c)}			6.1	5.5	4.5	4.4	4.5
Current account, DKK bn.			33.3	44.3	23.9	14.3	4.6
Current account, per cent of GDP			2.3	2.9	1.5	0.8	0.3
General government financial balance, DKK bn.			24.8	61.4	44.0	41.8	37.9
General government fin. balance, per cent of GDP			1.7	4.0	2.7	2.5	2.1
Hourly wage costs, percentage change			3.1	2.7	3.8	4.1	4.3
Terms of trade, percentage change			0.6	0.9	-0.6	0.4	0.3

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

b) Implicit private consumption deflator.

c) Percentage of the total labour force. National definition.

Note: The DKK/USD exchange rate is taken as 6.00 in 2005, 5.93 in 2006, and 5.81 in 2006-08.

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

Policy recommendations

The purchasing power of Danish households has risen substantially over the past years. A major reason behind this is substantial tax-free capital gains on real estate. In the current situation, where the level of unemployment is so low, this rise creates a serious risk of the economy overheating.

Import of labour is one possible way to ease the situation on the labour market, but unfortunately the EU agreement on transitional arrangements for the free movement of labour in connection with enlargement was recently extended. The agreement places restrictions upon the flow of labour market services provided by citizens of the new member states of the EU into established member countries, including Denmark.

Fiscal policy has contributed to growth in overall activity through tax cuts, the tax freeze (according to which the Government has promised not to raise any taxes), and growth in public consumption, which has exceeded all projections. In the current situation, with only few idle resources, this is clearly not appropriate. Further tax cuts would increase the risk of the economy overheating and they should obviously be avoided in the present circumstances.

The Government's proposal for welfare reform aims at handling problems concerning fiscal sustainability by reforms rather than by increasing public savings. This is an appropriate strategy and in general the proposal contains various relevant goals and initiatives. According to the Government's own calculations, the proposal will ensure a public sector surplus until 2040.

The current tax freeze, which among other things embodies the principle that the taxation of the imputed rent on housing is fixed in nominal terms at its 2001 level, is only explicitly financed until 2010. A continuation of the tax freeze beyond 2010 would therefore require substantial further savings – as would any explicit tax cuts or increases in the level of public services. Fiscal sustainability will come un-

der further pressure if political negotiations result in less ambitious reforms than those proposed, e.g. if the retirement age is not increased by as much as proposed by the Government.

The reform proposal contains a variety of plans that aim at reducing unemployment and increasing labour supply. Inherent in the reform proposal is the abolition of the special rules regarding unemployed older members of the work force. Another component is a gradual increase in the retirement age as well as in the age for access to the voluntary early retirement pension scheme. It is proposed that the general retirement age be gradually increased from 65 to 67 years, while access to the voluntary early retirement pension scheme, which is today available to 60-year-olds, is to be delayed by three years. Both the Welfare Commission and the chairmanship of the Economic Council have called for a complete abolition of the voluntary early retirement pension scheme, as it is difficult to find economically valid reasons for subsidising early retirement among able persons. The Government's proposal suggests that the retirement age be indexed to the life expectancy of 60-year-old persons. Such an indexation of the pension age, which is to begin in 2025, is a necessary signal to clarify that the gradual increase in total lifespan must be accompanied by more active years in the labour market. The increase in the age that qualifies people for the early retirement scheme as well as the cancellation of the special rules regarding the elderly unemployed will contribute to a lower unemployment level among people at ages just below 60 years.

The reform agenda furthermore contains a proposal that people who have been out of work for more than 2½ years will be enrolled in a full-time programme of labour market activation. During a period of economic expansion like the current one, an unemployment spell lasting 2½ years is a clear signal that something is amiss. It might be an indication that the unemployed person is not qualified to get and keep a job. If this is the case, there is a need for this person to receive offers of training that will qualify him or her for work. However, it might also be a signal that the job-seeking process of the unemployed person has not been

sufficiently intensive or that it has been too narrowly focused. If that is the case, the activation programme should be designed in another way, to test whether the unemployed person really is to be considered a labour market participant and to encourage him or her to intensify his or her job-search. In such a case, the activation should be considered by the unemployed person to be a “threat”.

The more generous the unemployment benefit system, the greater is the need for using activation as a mean of testing whether the unemployed person is really a labour market participant. Presumably, the efficiency of the labour market policy will be increased if a clearer distinction between the two types of activation is introduced. Early in the unemployment spell, it is necessary to examine whether the unemployed person needs to receive courses or training which will increase his or her chances of getting and keeping a job. In this case, it will typically be more effective if such offers are given early in the unemployment spell.

Over the past years, the public budget has shown large surpluses. A significant part of this is attributable to the business cycle, combined with large increases in revenue from the taxation of dividends from pension funds as well as from the oil extraction activities in the North Sea. For this reason it is important to note that substantial portions of the revenues of recent years are of a temporary nature.

The significant revenues from the North Sea might tempt policy makers to conduct an expansive fiscal policy. To enhance budget discipline, all revenues from the North Sea ought to be directed to a special fund. One possible system would be to direct all revenues from the taxation of North Sea activities to a fund that uses the revenues to buy financial assets. A proportion of the dividends from these assets would be accumulated in the fund, while the remainder would be transferred to the public budget. If only the portion of the dividend that exceeds the average long-term growth rate in nominal GDP is transferred to the budget, the fund will maintain its size relative to GDP over time. Although the oil resources in the North Sea will some day be fully extracted, the revenue from the fund would be perma-

ment. Similarly, it would be natural to divert other temporary revenues – e.g. revenues from the sale of public assets – to the fund.

The portion of the dividends which flows from the fund to the public budget should not be earmarked for specific purposes, but should rather be an integrated part of the total revenues to the public budget. This would not rule out investing dividends from the fund in human capital accumulation or research into the development of alternative sources of energy, but such decisions ought not to be determined by the flow of income from the fund.

In the near future, when political agreement regarding the welfare reform has been reached, the natural next step in the reform process would be a tax reform and the cancellation of the tax freeze. Globalisation makes it necessary to turn away from the heavy taxation of mobile tax bases and move towards taxation of non-mobile tax bases. Such a reform is not allowed within the framework of the tax freeze, however. By fixing the nominal taxation on houses, the distortions in the tax system and in the real estate market are increased. As an absolute minimum requirement, revenues from real estate taxation must follow movements in house prices. Furthermore, the special low tax rate on real estate purchased before July 1, 1998 ought to be abandoned.

A symptom of the distortions of the tax system is the sharp increase in the use of fringe benefits as a substitute for wage increases. High tax rates on labour income make it beneficial for firms to increase effective disposable wages through other channels than by increases in gross wages. The increasing use of fringe benefits creates a loss of revenue from labour taxation. This development does reduce effective tax rates, but in an inefficient and arbitrary way. If tax reductions are to be given, they ought to be given in a direct and transparent way. Another symptom of the asymmetries in the tax system is with respect to the taxation of capital, where current rules make it beneficial to finance pension savings through increasing debt. Such distortions also erode the tax base and limit the possibilities of reducing taxes in the areas where reduction is most needed.

Chapter II: Industrial Policies: Balancing Costs and Benefits

Denmark's position as one of the world's most prosperous countries is based on the high level of value added created in Danish firms. The value added reflects the remuneration for labour and the return on capital in the production process. This income is a prerequisite for the tax revenue which finances the Danish welfare state. Hence, there are good reasons to analyse and to comprehend policies – including industrial policy – that can increase value added in Danish firms.

A broad range of policies have the potential to influence production in the business sector, the composition of this production, and the demand for production factors. For a small open economy, international conditions and agreements concerning free trade, liberalized capital markets and competition on product markets are crucial. National policies are equally important, including educational policy, labour market policy, research policy and tax policy.

It appears that industrial policy complements a broad range of other policies. In order to carry out an appropriate analysis of industrial policy it is necessary to delimit it. In the report, selective state aid is defined as subsidies and expenses on the public budget targeted towards business sector activities, and tax discounts due to deviations from “norms” in the tax system. The report presents statistics on selective state aid totalling DKK 27 billion in 2006. These figures exclude initiatives financed by local government and generous depreciation rules in the tax system.

Subsidies and expenses paid from the public budget will total almost DKK 7 billion in 2006. The main part of this total – DKK 4 billion – will finance institutions and activities supporting the business sector, i.e. R&D or supervision and regulation agencies. The business sector will receive DKK 3 billion in subsidies. The expenses targeted for R&D and innovation will amount to DKK 2.2 billion, including activities in public research institutions and activities financed directly in the business sector. The agricultural sec-

tor (including food processing) will receive 42 per cent of the total subsidies from the public budget.

The subsidies and expenses from the public budget have been reduced by DKK 3 billion in the period 1998-2006. This is primarily due to cuts in direct subsidies to the business sector, of which the most important are the abolition of subsidies to shipyards and to household services

Tax discounts favouring the business sector will amount to DKK 20.6 billion in 2006 – three times the amount of “visible” subsidies and expenses from the public budget. These advantages come from low taxation of profits, inputs of capital, labour, and intermediates in certain sectors in relation to the “norm” in the tax system. The service and transport sectors receive almost half of the tax discounts, and the agricultural sector including food processing receives less than 10 per cent. The tax discounts for the service and transport sectors are in the form of a low effective value added tax on financial services and other services, exemption of seamen from personal income taxation, and low excise duties on transport fuels. Tax discounts favouring R&D and innovation amount to DKK 4 billion.

The statistics on state aid presented in the chapter constitute the first attempt made to establish an overview of this central field since the important presentations by the central administration in the late 1990’s. Updated statistics improve decision-making in the field of industrial policy.

The general argument in favour of selective state aid is that market forces alone will not always produce an optimal allocation of resources as seen from the point of view of society. However, not all failures of the market place constitute reasons for government intervention. State aid is justified by market-place failures which seriously hamper certain activities or sectors or which prevent firms from capturing the full benefits of their investments.

The government has proposed supporting entrepreneurs with a previous record of high growth in revenue and employment. Entrepreneurs qualifying for support – the so-

called “growth entrepreneurs” – would be given a reduction in personal income taxation. Growth entrepreneurs have a higher level of productivity than other entrepreneurs and established firms. The report tries to identify a rationale for the selective support of this group of firms and individuals.

Not surprisingly, growth entrepreneurs invest more than other firms, and accordingly have lower profits due to higher levels of depreciation. However, high investment levels and low profits do not in themselves constitute barriers to further growth financed by commercial loans. In principle, one rationale for supporting growth entrepreneurs could be a high level of productivity in combination with the possibility that the entrepreneurs themselves would not be able to reap the full benefits of their effort. By the same logic one could generally argue in favour of public initiatives which support the reallocation of resources from low-productivity to high-productivity sectors. However, such a policy would demand massive public intervention, and the information necessary for directing support to the correct firms would be enormous. Hence, the Chairmanship concludes that the central elements in entrepreneurial policy should still be publicly financed advice to potential entrepreneurs and a continued effort to reduce administrative barriers.

Differentiated taxes and excise duties can also be an element in state aid. However, there are strong arguments in favour of neutrality, i.e. uniform taxation of all sectors, inputs and goods. Deviation from the principle of neutrality demands a specific and important reason.

Shipping companies and Danish seamen receive substantial tax discounts. The companies can choose to be taxed in the tonnage tax regime, which means a lower tax payment compared to the ordinary business tax system, and Danish seamen are exempted from income taxation. These conditions are similar to the taxation regime for the majority of EU shipping companies and employees.

A differentiated taxation of capital income, such as that represented by the tonnage tax, could be justified if the re-

gime of capital income taxation in force has undesirable aspects. In the most frequently used regime – source-based taxation of capital income – capital income is taxed at the firm level. This discriminates against capital-intensive sectors, e.g. shipping, compared to taxing capital income at the level of the owner of the firm (residence-based taxation of capital income). However, the report documents the fact that the discounts provided by the present tonnage tax are too great. Furthermore, the exemption from income taxation of Danish seamen is questioned in the report, because shipping companies could equally well employ seamen from abroad with similar qualifications. Especially in a situation with an increasing shortage of labour, it is not appropriate to subsidise employment in a sector with alternatives to skilled Danish employees.

Subsidising shipping companies could freeze up resources in a sector which, from the point of view of society, provides a low return. Calculations covering the period 1990-2002 indicate that capital invested in shipping companies had a substantially lower return than capital invested in manufacturing. In 2003-04 the situation changed, but this was mainly due to extraordinarily high freight rates of a temporary nature.

Arguments in favour of state aid that are based on principle should be supplemented by quantitative considerations. It is necessary to calculate the economic benefit to society, because the gain could be smaller than the direct and indirect costs of the scheme. Public expenses that have to be financed by taxes distort economic decision-making. In addition, support to private industries can hamper competition if implemented in an inappropriate way. Furthermore, state aid schemes will generate administrative costs when aid is granted, disbursed and checked. State aid to industries can also lead to rent seeking activities.

Cost benefit analysis is a useful tool to evaluate public initiatives. Cost benefit analyses evaluate the monetary values of both benefits and costs. An important element in the analysis is a description of the economic problems the aid is supposed to solve. These must be problems that the market

does not solve by itself. Even if the analysis has to stop after the description of all expected pros and cons, it improves the basis for making decisions.

Many initiatives have the potential to increase employment and improve the trade balance, and this is often considered a quality mark for a project. However, there is only economic benefit if the earnings of those employed and the return on capital are greater than they would be through an alternative use of resources. This gain is independent of the effect on employment and of whether the production is consumed in the home country or abroad.

Applied research and development should only receive state aid if these activities have a higher return to society than to private investors. That could be the case if knowledge is spread to other research areas. Analyses of existing and completed projects could contribute to an improvement in evaluation methodology and in this respect enhance analyses of state aid to future projects. It is difficult to undertake such analyses because of the lack of satisfactory information about projects which have received state aid. It is recommended that recipients of state aid should be obliged to supply pertinent information. In this way it would be possible to evaluate the economic gain from state aid in a more appropriate way. It is important to perform cost benefit analyses, both before and during the period state aid is given, in order to ensure that the initial reason for giving aid still exists. The ship-building industry, for instance, received state aid for about 30 years without any check being made on whether the economic gain had been sufficient to balance the costs of state aid to this industry.

In the 1990s the purchase of household services was subsidised. Both theoretical arguments and model calculations indicate that this subsidy induced an economic gain in the light of labour market conditions prevailing at the time. The economic gain was a result of a more efficient allocation of labour, because do-it-yourself work and moonlighting were diminished. This increased the supply of labour, especially from people in employment with high incomes. However, the gain from increasing the subsidies to household services

should be compared with the gain that could have arisen from a reduction in marginal tax rates.

The EU has common rules for state aid. State aid is in principle forbidden if the aid actually or potentially distorts the competition between member states and influences the trade between member states. However, some forms of aid are allowed.

The state aid statistics from the EU Commission follow the EU rules for state aid. They show that Danish state aid amounts to about DKK 8 billion per year, which is slightly above the EU average measured as a proportion of GDP. This statistic is quite different from the statistic calculated in this report.

The state aid rules of the EU are under revision, and a major element in this revision is an improved economic element in state aid appraisal. This is in line with the recommendation of the Chairmanship for increased use of cost benefit analysis.

In the chapter it is also recommended that a public register for state aid in the EU is established. The register should consist of detailed information about all appropriations of state aid in member states. This could improve transparency for competitors and the options for evaluating the effect of state aid.

Chapter III: Traffic, Congestion and Infrastructure

Main results

A widely debated instrument for transport regulation is road pricing, whereby car drivers pay a fee depending on where, how much and when they drive. Road pricing and other types of transport taxation are analysed in this chapter. The main findings from this analysis are:

- The amount of transportation is rising and the need for further regulation is acute and increasing.

- Large parts of the present system of transport taxes are not efficient and ought to be changed. These include the use of yellow vehicle registration plates¹ by private households and the taxation of diesel-powered cars, vans and lorries.
- There could be social-economic gains from introducing a payment ring around Copenhagen. This type of taxation is more narrowly targeted than the present taxation. The level of gain would increase in the future because of the increasing traffic.
- The fee charged in a payment ring must be high if it is to result in significant social-economic gains.
- Kilometre-based road pricing is a very precise instrument for traffic regulation. Large investment and operating costs mean that there would probably not be a welfare gain from kilometre-based road pricing in the Copenhagen area. However, technological developments and increasing levels of traffic are expected to make road pricing more cost effective within the foreseeable future.
- Higher taxation of car transportation combined with lower taxation of income would induce social-economic benefits.
- Changes in transport taxation might redistribute incomes between regions. This could be avoided by appropriate use of the revenue generated.
- Social-economic analyses of investments in infrastructure are carried out systematically, but this is not always reflected in political decisions. Infrastructure investments should be a part of a plan for public investment.

A well-functioning transportation system is important for a country's economy and the welfare of the population. Effective and cheap transportation reduces costs to trade and industry and makes it possible to recruit employees with

1) Vehicles with yellow vehicle registration plates are given a significant reduction in the registration fee, but a car with yellow plates may only have seats for two persons. Yellow plates were introduced to reduce the taxation of businesses, but they are widely used in Denmark for purely private purposes.

relevant qualifications from a large area. In addition, firms can market products in a larger area, which in turn increases specialisation and the possibility of, for example, increasing returns to scale in production. Competition is enhanced, resulting in efficient production and lower consumer prices. Furthermore, effective transportation increases consumer choice and leisure time flexibility.

Passenger and freight transport have increased during the past decades. This has put the transportation system under pressure and congestion is increasing, especially in and around the major cities.

Transport causes negative externalities such as noise, accidents and air pollution. Technological progress has in some cases reduced emissions but other emissions, e.g. the CO₂ from transportation and congestion, are increasing. These externalities make it necessary to regulate the total amount of transport as well as the ratio between the different means of transportation used.

Transportation is both taxed and subsidised and is therefore important to the public budget. The revenue from transport taxes amounts to around DKK 43 billion, corresponding to six percent of the public income from taxation. Transport subsidies correspond to one percent of the public income from taxation. In addition, a substantial amount of public funds is spent on infrastructure investments and maintenance.

The costs of transportation, including taxes and subsidies, affect the costs of commuting. Thus, the taxation of transportation has an impact on labour supply and, in turn, on the revenue from income taxation. Higher transport prices increase the costs of working, but on the other hand higher transport prices also ease congestion, lessening commuting times and thus reducing the costs of working.

Regulating transportation is complex. Authorities must choose where and how to invest in infrastructure, and how to regulate externalities. The procurement of public revenue must also be taken into account. The individual decisions are not necessarily independent. If infrastructure invest-

ments are carried out the welfare gain from introducing road pricing will change, and introducing road pricing will in turn change the expected gain from infrastructure investments.

The public revenue is an important benefit from transport taxes. Raising revenue distorts the economy and private production is reduced. This distortion is large for income taxation. In comparison, consumers' reaction to changes in transport prices is smaller. This means that taxation of transportation is not particularly distortionary, and it follows that transport comprises a good tax base. Thus, it can be beneficial to increase transport taxes and reduce income taxes. However, such changes will affect the income distribution, a factor which should be taken into account.

There is a need to differentiate transport taxes, as the level of the externalities depends upon geography and the time of day. Existing taxes, such as registration taxes and fuel levies, do not depend on where and when the transportation occurs. It is possible to differentiate taxes with road pricing, but it is costly, as all vehicles must have a GPS installed. An alternative instrument is payment rings, e.g. around city centres. This instrument is not as precise as road pricing as there is no direct connection between the payment and the kilometres driven, but the system costs are lower.

Transport taxation

The taxation of transport in Denmark is complex. Several taxes are less than suitable and ought to be revised. It is therefore necessary to review transportation taxes in order to achieve an overall tax system that creates the right incentives and public revenues at appropriate levels. Several examples of how the regulation ought to be changed are given below.

Diesel-powered cars and vans are taxed more leniently than gasoline-powered vehicles. The relatively low taxes combined with a better fuel efficiency have contributed to raising the proportion of diesel cars on the road. This is an unfortunate development, as the negative externalities are greater for diesel cars. However, future EU norms may

mean that the negative environmental effects of new diesel cars will be reduced. This may lower the level of external effects of diesel cars towards those of gasoline-powered cars, especially outside urban areas.

Analyses in the chapter show that the taxation of diesel cars is too low. If cross-border trade considerations dictate that the diesel fuel tax cannot be increased, it is possible to raise the equalisation levy on diesel vehicles.

Vehicles used in businesses are taxed less than vehicles used for private purposes, and the taxes typically amount to less than the value of the externalities. There is a need to increase the taxation of lorries. It is problematic to raise the fuel levies because of the effects on cross-border trade and competitiveness. As a result, road pricing may be a necessary instrument.

The design of the registration tax system for vans creates incentives to buy large vans instead of small ones. This is not appropriate, and large vans should be taxed relatively more heavily. Furthermore, it is recommended that the annual taxation of vans should be calculated as a green petrol tax, using the same principles as for cars.

The taxes are differentiated depending on the expected purpose of the cars. Taxes are lower for cars with yellow vehicle registration plates and for mobile homes. The purchase of yellow plate vehicles by households for purely private purposes is increasing. It is not appropriate that large cars are taxed less just because they have fewer seats. Such purchases exploit a loophole in the legislation and this loophole should be closed. This can be done by changing the rules for cars with yellow registration plates, or by a significant increase in the car ownership tax when the cars are used for private purposes.

Over the years several environmental externalities stemming from transportation have been reduced, and there are fewer accidents. However, economic growth is expected to increase externalities in the future, particularly congestion.

Negative externalities in urban areas are significantly larger than in rural areas. One reason is the greater degree of congestion in urban areas, but environmental effects are also greater in urban areas because they are more densely populated. Calculations of the levels of environmental and other external costs are uncertain, but it is important to consider them.

The marginal value of the externalities for car traffic in urban areas during rush hour is probably greater than the total taxation per kilometre. This indicates that car taxes are too low in urban areas. This factor is most significant for diesel cars, as these are taxed less but pollute more. Taxes are higher than the external costs outside the rush hour and in rural areas. However, this does not imply that taxation is too high in these cases, as transport ought to be taxed not only to meet costs but also to generate revenue.

A simultaneous reduction of the registration fee and increase in taxes that depend on the kilometres driven should be considered. This would reduce the average age of the cars on the road, but still limit the number of kilometres driven.

Higher fuel levies might lead to an unfortunate increase in cross-border trade. Road pricing throughout the whole country would most likely solve this problem. However, this is a major step which is probably not relevant until the investment and operating costs are reduced by technological developments. If cross-border trade considerations exclude increased fuel levies in the shorter term, an alternative approach would be to reduce the registration fee and raise the green petrol tax for cars. This would also reduce the average age of the cars on the road, but compared to the introduction of road pricing the effect on kilometres driven it would be less precise.

Road pricing and payment rings

Both investments in infrastructure and road pricing can reduce congestion. Until now the Danish strategy has focused solely on infrastructure investments. However, combining the two instruments is often a better way to solve the

problems. The infrastructure costs can be reduced and society will experience a gain if the present strategy is supplemented by road pricing.

In cooperation with the Danish Transport Research Institute, the Secretariat of the Danish Economic Council has developed an economic model, ASTRA, to analyse the consequences of road pricing. ASTRA is an equilibrium model which focuses on transportation, congestion and the labour market. The model is based upon several simplifying assumptions, so the results should be viewed as indications only.

Table 2 shows the welfare effects of introducing either road pricing in Copenhagen and Frederiksberg municipalities or a payment ring around them. These instruments are combined with different ways of using the revenue: income tax reductions, increased subsidies for public transport in Copenhagen, or larger commuter tax deductions for people who commute to Copenhagen.

Table 2 Welfare consequences of road pricing in or a payment ring around Copenhagen

	Reduced income taxes	Subsidisation of public transport	Commuting tax deduction
	----- DKK, millions -----		
Road pricing, DKK 4 and 2 per km ^{a)}	-24	-218	-282
Payment ring, DKK 40 and 20 per passage ^{a)}	382	221	152

a) Payment in and outside the rush hours respectively.

Source: Own calculations using ASTRA.

Social-economic benefits would be generated if a payment ring was established, and the best way to spend the revenue would be to ease income tax. The effects on regional income distribution can be eliminated if the revenue is used

for income tax reductions in the affected regions. The analyses indicate that the fee should be relatively high if a payment ring is established. This is necessary because of the high system costs.

The results indicate that there is no gain from introducing road pricing. This is a result of the heavy costs of running the system.

However, the uncertainties within the model are significant, and the calculated gains are relatively small and uncertain. As a consequence, it is not possible to recommend establishing a payment ring at present. The possibility is interesting, and more exhaustive analyses should be initiated in order to determine whether there would be a gain.

In the long term, congestion is expected to increase. This will increase the gains from road pricing or a payment ring, and within ten years these gains will be significantly greater than today, if infrastructure investments are not made.

Infrastructure investments

Investments in infrastructure can reduce congestion. The increasing traffic means that continuous investments in infrastructure are probably cost-effective. However, it is neither appropriate nor realistic to fully remove congestion through infrastructure investments (or through road pricing for that matter).

It is commendable that social-economic analyses for major investments within the transport sector have been carried out over a number of years. The methodology has been improved in recent years, and a common methodology for road and rail investments has been established.

However, some decisions regarding infrastructure investments are based on insufficient analytical material. For instance, in some cases either a social-economic analysis or an environmental assessment analysis has not been completed. It is recommended that future decisions concerning major infrastructure investments are only made if a social-economic analysis of the costs and benefits is available.

It is not possible to include all costs and benefits in a social-economic analysis. As a result, decision makers might find that a certain infrastructure project with a seemingly low net present value should be initiated anyway, because there are gains which are not incorporated in the analysis. In this case, these gains should at least be listed. Furthermore, it is recommended that – as a part of the cost-benefit analysis – a calculation is performed to establish the value of the excluded effects necessary if the project is to have a sufficient net present value. This can supplement the methodology for dealing with omitted effects recommended by the Ministry of Traffic.

Concerns about regional distribution seem to have affected earlier decisions regarding infrastructure investments. Cost-effective investments in the Copenhagen area have not been implemented, while projects in the provinces which were not cost effective have been carried out. Targets relating to regional distribution should not be achieved by choosing infrastructure investments with low cost effectiveness. Regional distribution targets should be achieved using other instruments, such as equalisation schemes or general state grants.

An overall plan for public investments should be made; see the earlier recommendation on this in *Danish Economy, Spring 2004*. Investments in infrastructure should be included in this plan, and the plan should not only determine the investment target for the following years, but should also include cost benefit analyses of the projects. Within the framework of such a plan, infrastructure projects will be compared not only with other infrastructure projects but also with other types of public investment. This may increase the chances of choosing the most cost efficient projects.