

Financial Restraints in a Mature Welfare State

– The Case of Denmark¹

Torben M. Andersen
School of Economics and Management
University of Aarhus
CEPR, IZA and CESifo

and

Lars Haagen Pedersen
Danish Rational Economic Agents Model, DREAM

May 2006

Abstract:

The Scandinavian welfare states are mature in the sense of having a high level of standards for public provisions of welfare services as well as a high replacement level for income transfers, especially for low income groups. In this welfare model, individuals have basic rights to welfare services and social transfers independently of their ability to pay, their labour market history etc. The financial viability of the model relies on a high tax burden and a high level of labour force participation for males and females. Evaluated on the basis of international comparisons of income levels and inequality, the model has performed well. In a forward looking perspective, however, the welfare model faces problems that may bring the financial viability of the model at stake. Two important challenges are demographic changes and the so-called growth dilemma (increased demand for services and leisure). We discuss these issues using Denmark as an example and argue that while these two challenges may be of the same order of magnitude, it is easier to propose solutions to the demographic challenges than to the growth dilemma which are consistent with the basic principles of the welfare state.

¹ Comments and suggestions by Andrew Glyn are gratefully acknowledged.

1. Introduction

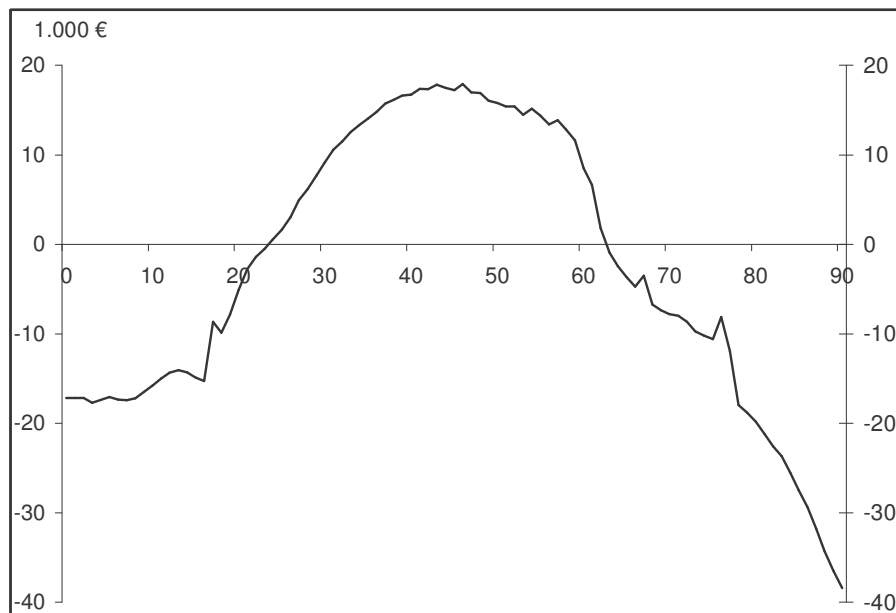
A basic principle underlying the Scandinavian welfare model is universalism. Entitlements for welfare services and transfers are individual, and the financing is collective via tax payments depending on the ability to pay (primarily directly or indirectly via income earned). The detachment of entitlements and financing at the individual level is a key feature having beneficial effects in terms of distribution, equal opportunities and insurance. However, it also raises problems since it induces distortions of various forms. As scholars of specific welfare arrangements in the Scandinavian countries are well aware, there are many deviations from the principle of universalism, but still there are strong universal elements in many welfare arrangements.

The Scandinavian welfare model is extended and relies on a large public sector allocating and distributing more than 50 per cent of GDP. The social safety net implies that the replacement income offered by transfers is relatively high (especially for low income groups and groups with low or no attachment to the labour market). Moreover, the level of services provided via the public sector (day-care, education, hospitals, old-age care etc.) is high. This reflects the idea that the public provisions should meet the needs and requirements of the majority of the population, and not just provide a minimum, which would be the default level or a level to be supplemented by private additions. The “service side” of the welfare state is thus equally important to the “transfer side”.

This welfare model has two important characteristics, namely that it is very employment oriented, and that it implies a strong inter-generational social contract. The employment dependency arises both from the fact that most people would be entitled to some form of income transfer in the absence of the ability to support themselves, and from the fact that employed individuals have higher income and therefore pay higher taxes. Hence, the objectives with respect to service levels and redistributions set a lower level for the share of the population in employment and the tax burden. For financial viability of this model, a combination of high employment rates and tax burdens are necessary. This is also seen from the fact that the tax burden is about 50 per cent of GDP, and that the labour force participation rates for both males and females are very high (close to 80 per cent). Hence, effectively, the expansion of the welfare state has been possible due to a willingness to increase taxes and the labour force participation rate. The latter applies in particular to women as the labour force participation rate for women in Scandinavia is high by international standards. In this context, it is also important to point out that the welfare state provides institutions, such as subsidized day-care for both children and elderly and maternity/parental leave, which support a high female labour force participation rate.

A natural consequence of the extended welfare arrangement is a strong life-cycle dependency in the net contributions to the welfare state. As child and young, one tends to be a net-beneficiary (child care, education etc.), net-contributions are made during working life, and as old, one again becomes a net-beneficiary (pensions, old age care). Naturally, there is also, at a given moment, a substantial dispersion across individuals of a given age, in particular for age groups normally considered to be work ages. Figure 1 displays the development in the net-contribution of the average person as depending on age, and it clearly demonstrates the strong life-cycle pattern. This captures a social contract between generations in which individuals in work age groups via (net) tax payments provide the financial basis for welfare arrangements directed toward young and old members of society. In its outset, the social contract is of the pay-as-you-go type.

Figure 1. Net-contribution to public finances depending on age



Note: The average net contributions by persons aged 76 years are larger than the surrounding age groups due to technical assumptions in DREAM regarding tax on funded capitalized pensions and tax on bequests

Source: Own calculations on the DREAM-model

The welfare model can be credited with great achievements which are best summarized by noting that the average income level is among the highest in the world, and that the distribution of income is very equal in international comparison. In a forward looking perspective, there are thus important achievements to maintain as well as various challenges which need to be taken seriously. This paper considers two particularly important challenges, namely, demographic shifts (ageing) and the growth dilemma.

The demographic composition of the population is changing, and this affects the balance in the social contract, cf. figure 1. An increase in the dependency ratio due to an increasing number of elderly (partly driven by increases in longevity) and fewer individuals in the work force imply that the financial sustainability of current welfare arrangements cannot be taken for granted.

The second challenge – the growth dilemma – is less obvious but potentially equally important. Intuitively, most people would expect growth to facilitate the financing of the welfare state. This is, however, not the case under two constraints intimately linked to the characteristics of the welfare state. Namely, that welfare services should be provided at a level meeting the needs and requirements of most (and thus will develop in tandem with private consumption possibilities) and the distributional constraint that all groups in society should share the income growth to maintain an unchanged income distribution profile.

This paper considers the role of these two challenges with reference to Denmark as an example of a mature Scandinavian welfare state. This provides a background for both assessing the orders of magnitudes and possible financing strategies. The main conclusion is that the welfare state is facing a significant financing problem which either requires a substantial increase in the employment level or substantial tax increases (or adaptation of welfare arrangements including alternative modes of

financing). It is also argued that while it is straightforward to find measures which can deal with some of the consequences of the demographic changes (in particular changes in longevity), it is much more difficult to find measures to deal with the growth dilemma that do not conflict with key principles of the welfare model.

The debate on the future of the welfare state has featured other issues including globalization and individualization. It is beyond this paper to consider these two issues.

The paper is organised as follows. The challenges are briefly outlined in section 2 dealing with demographic shifts and section 3 describing the growth dilemma. Section 4 discusses the scope for increasing employment given that labour force participation rates are already high. Finally, section 5 summarizes and concludes.

2. *The demographic challenge*

Most countries face a change in the age composition of the population (see e.g. IMF (2004)). The change in the age composition of the population in Denmark is in international comparison not that drastic, but its consequences should be seen in perspective of the welfare model as captured by the social contract (figure 1) as well as distributional considerations.

Demographic changes

Current Danish demographic projections² imply a gradual decrease in the population of 5 per cent between now and 2070 (from currently 5¼ mio. to less than 5 mio. in 2070). The social contract does not depend on the absolute size of the population, but on the composition of the population between age groups being net-beneficiaries and net-contributors. The projection implies that the number of persons in the age group 15 to 64 will fall by 10 per cent from 2002 to 2040, and by 16 per cent to 2080. In the same two periods, the number of old aged (65+) increases by 52 per cent and 47 per cent, respectively.

These two factors imply that the demographic dependency ratio increases by 27 per cent from 2002 to 2040, and by 28 per cent to 2080, cf. figure 2.³ This is driven by two main factors. First, there is an echo effect of the large cohorts from the 1940s and 1950s, and the drop in fertility during the 1980s. Second, longevity is increasing. The projection underlying figure 2 assumes an increase in longevity of about 0.1 per cent per year to 2020 and slightly less thereafter. Note that growth in life expectancy in Denmark has been among the lowest in OECD countries. Hence, the projected increase is far from implying catch-up. Likewise, it is moderate relative to UN projections (UN (2004)) assuming a growth of 0.2 per cent per year as well as what seems to be the trend in life expectancy world wide (see Oeppen and Vaubel (2002)).

Figure 2 summarizes the demographic development in terms of the dependency ratio which directly relates to the social contract in the welfare state. Although it has a hump (the echo effect), the

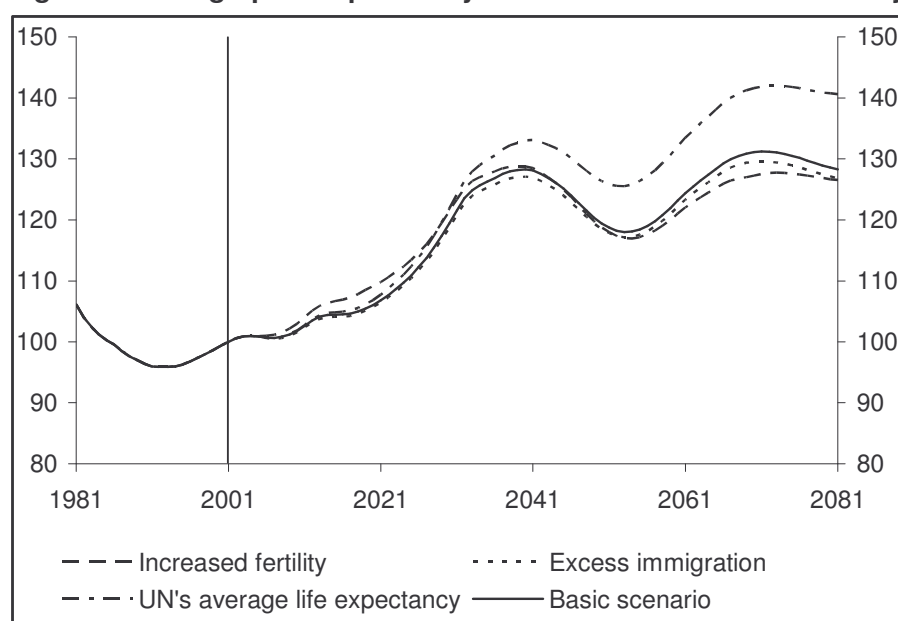
² For details and references see e.g. Andersen, Hougaard Jensen and Pedersen (2006).

³ The demographic dependency ratio is defined as number of children, youth (age 0-14 years) and old (65+ years) relative to the number of persons in the age group 15-64 years.

upward trend is clear, and it is driven by increased longevity⁴. This clearly shows that the demographic changes constitute a permanent rather than a temporary challenge.

Clearly, such demographic projections are uncertain, and it is therefore important to consider the sensitivity to various changes in the underlying assumptions. Three factors – fertility, longevity and immigration – are considered, cf. figure 2, and to make them comparable, they have been quantified in such a way that they have similar effects on the population size in the long run (an increase of about 4 to 5 per cent after 75 years), cf. Danish Welfare Commission (2004). The principal point of the figure is to show that the major sensitivity factor for the dependency ratio is longevity. Changes in fertility and immigration have relatively moderate effects, while an increase in longevity (here the growth rate assumed in UN projections) has significant and lasting effects on the dependency ratio.

Figure 2. Demographic dependency ratio – base case and sensitivity



Source: The Danish Welfare Commission; DREAM and UN (2004).

Changing demography and unchanged policies

Combining the demographic changes in figure 2 with the properties of the social contract displayed in figure 1, it is straightforward that the social contract of the welfare state will face financial problems. The number of net-beneficiaries will increase relative to the number of net-contributors.

A more precise assessment of the financial implications needs to be model based to ensure a precise modelling of the arrangements included in the social contract and how they interact with the demographic changes. The results presented below are based on the DREAM model, which has an explicit and detailed modelling of existing welfare arrangements as well as an overlapping

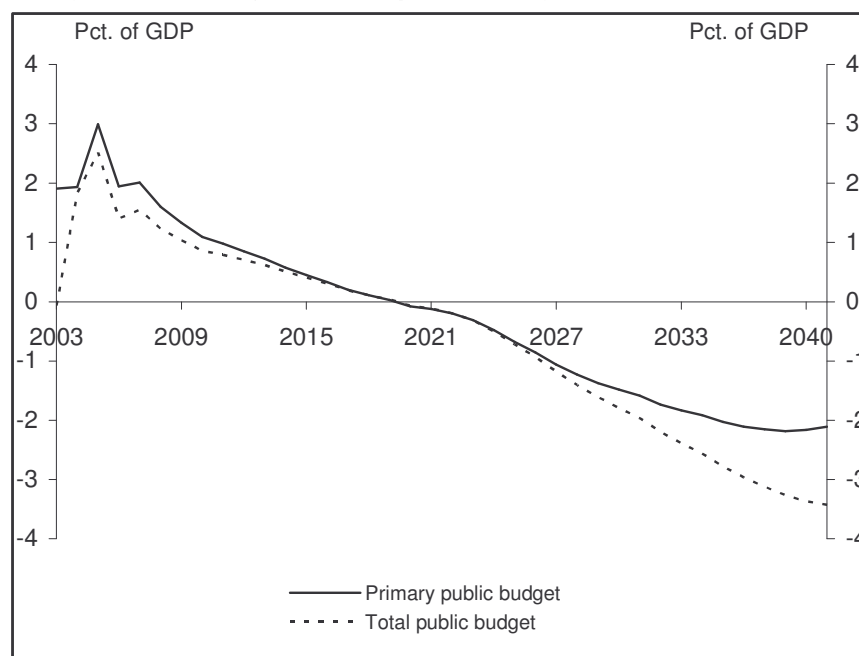
⁴ The future development differs from the historic path. In the past, increases in life expectancy have primarily been driven by decreases in child mortality, while the future path is driven by longer life length.

generations structure.⁵ The latter is crucial when making forward looking analyses of demographic changes.

In the following, we consider the implications of the demographic changes for otherwise unchanged welfare arrangements (for details see Danish Welfare Commission (2004) and Andersen and Pedersen (2006)). In particular, it is important to note that current standards for welfare services are maintained, public wages follow private wages, and that transfer income is also following private wages. The latter can be interpreted as making the projection under the assumption of an unchanged distribution profile.

The base scenario is displayed in figure 3, and it is seen that public expenditures gradually will outpace revenues, and systematic deficits will arise. Although the initial financial position is favourable with a surplus, the total balance will approach a deficit between 3 and 4 per cent of GDP. In short, current welfare arrangements are not financially viable given the demographic changes.

Figure 3. Primary and total public budget balance 2003 - 2040



Source: The Danish Welfare Commission (2006)

Various adjustments can be made to ensure fiscal sustainability. The order of magnitude of these adjustments may be illustrated by the fact that the permanent increase in the base tax⁶ is about 8 percentage points, corresponding to 3.5 per cent of GDP or a permanent increase in employment of about 10 per cent (see Andersen and Pedersen (2006)).

⁵ DREAM is an acronym for Danish Rational Economic Agents Model. For further details see Knudsen *et al.* (1998, 1999) and Pedersen, Stephensen & Trier (1999). More information is available at www.dreammodel.dk

⁶ This tax rate is the "basic rate" in the direct income taxation system. 90 per cent of all individuals earning income pay this tax, and its tax base is approximately 50 per cent of GDP.

Note that neither increasing fertility nor immigration are straightforward solutions to these problems. An increase in fertility will in net terms first deteriorate public finances (day care, education), then improve public finances (via an increase in labour supply and employment) and eventually deteriorate public finances (more old people). This will be spanned over the life time of the new born, but since they will have a long life expectancy, the net effect on sustainability is negative (the permanent tax change will be 8.6 if fertility increases from 1.7 to 1.8). Immigration is also not a solution to the problem in light of the experiences with respect to labour force participation. Increased immigration from high income countries would basically be neutral for fiscal sustainability, while increased immigration from low income countries would make matters worse since these groups on average have a labour force participation rate much below the standard in the Danish labour market.

In sum, the demographic changes raise fundamental questions concerning the financial viability of current welfare arrangements. One may say that there are two favourable aspects. Denmark starts out from a position with a surplus on the primary balance and a relatively moderate debt level (25 per cent of GDP).⁷ The deterioration in public finances comes gradually but steadily and leads to systematic deficit. Since the demographic change is permanent, the financing problem is also permanent. In short, current welfare arrangements are not financially sustainable even under the conservative assumptions made here, including unchanged policies/standards and a moderate increase in longevity.

3 *The growth dilemma*

While the demographic challenge primarily is a question of changes in the quantitative dimension (fewer individuals in working ages, increased number of elderly people), the growth dilemma deals with qualitative dimensions of the welfare state. The problem is the ability to provide (and finance) welfare services that meet the needs and requirements of most people. Since economic growth and development create new opportunities, this has to be seen in a relative perspective. It is not sufficient merely to ensure the provision of the same services as known today. To maintain the welfare state, it is important, in a forward looking perspective, to ensure that public services meet contemporary standards. The standards people expect for e.g. schools and hospitals today are very different from what was considered acceptable say in the 1960s.

It is often hypothesized that growth will make it easier to finance the welfare state. This is simply a “the pie gets bigger” argument. The consequences of growth may not be that straightforward due to key objectives of the welfare state.

Direct budget effects of growth

It is intuitive that growth automatically creates more leeway in public finances. If productivity increases in the private sector, and wages and income go up, tax revenues will increase as well (for given tax rates). This is the effect most have in mind when conjecturing that growth makes the financing of the welfare state easier. However, growth likewise affects public expenditures. There

⁷ Compared with central and southern European countries one may add that the demographic change is more moderate.

are basically two types of expenditures, namely wage expenditures and income transfer. The former will, over the medium to long-run, have to follow wage developments in the private sector. The latter will also grow under the distributional constraint that the relative distribution of income remains stable (here between employed and non-employed).

Hence, to a first approximation, public expenditures will grow in parallel to the growth rate for given welfare arrangements. Growth will be neutral with respect to public finances. This is basically an argument about budgetary arithmetic outlining how revenues and expenditures respond to growth.⁸ However, behavioural responses are also released.

Demand for public services and transfers

Continued growth makes it unrealistic that there will be no demands for more and improved welfare services. Historically, we have seen an expansion of welfare services and standards alongside growth.

In principle, two effects are at stake, namely, the Baumol and the Wagner effect. The Baumol effect is that the relative price of services tends to increase with growth to the extent the rate of productivity increases for services will be lower than for production of ordinary goods. The Wagner effect refers to the fact that the income elasticity of the demand for services in many cases is larger than one (e.g. for health care). Hence, we face the challenge that the demand for services may increase at the same time as their relative price goes up⁹. The challenge for the welfare state is how to square these two mechanisms with the principle that service provision is tax financed and there should be free and equal access for all.

Provision of public services is ultimately a political decision. Therefore, in principle, it is possible for policy makers to deny the Baumol and the Wagner effects by not accommodating the pressure. However, this would leave an increasing spread between the services provided by the welfare state and the needs and requirements of the population. Gradually, this would lead to increasing dissatisfaction with public services. Moreover, it would violate the premise of having a standard level of public services which meets the demand of the majority and which does not need supplements. Eventually, this development may erode the support for the welfare state.

To assess the orders of magnitudes involved, it may be useful to consider the historic experience. Expenditures on welfare services in Denmark increased from 13.3 per cent of GDP in 1971 to 17.8 per cent in 2001. This corresponds to an annual growth rate of 0.15 percentage points above the underlying growth rate of GDP. If the growth rate of public service expenditures corrected for demographic changes is broken down into three sub-periods corresponding to a decade, one finds that the growth rate exceeds the public sector wages in all three periods. In the period 1971-1981, the expenditures rose by 129 per cent of the increase in public sector wages, in the period 1981-

⁸ There are important exceptions to neutrality of the public budget with respect to growth. These appear if public income is not related to the growth of income in the economy. The two dominant examples are: public income from extraction of non-renewable natural resources and taxation of payments from funded pension schemes. In the Danish case, the latter plays an important role. For Norway, the former plays a role and causes growth to worsen the financial problems, see Frederiksen et al. (2004).

⁹ The Baumol effect implies that expenditures as a share of GDP remain constant even with unchanged standards. The Wagner effect implies that general growth increases demand for services which causes an upward trend in the expenditure share.

1991, the similar figure was 117 per cent, and finally, in the period 1991-2003, the increase in public expenditures was 140 percent of the public wage increase (see Danish Welfare Commission (2004)). Under the assumptions of unchanged standards and the basic Baumol effect (no productivity increased in service production), the excess growth corresponds to increased standards in public sector service provision.

In the assessment of the consequences of demographic shifts in the previous section, we assumed expenditures on welfare services per person to increase by the wage rate (the basic Baumol effect). Using the national account measure of real public expenditures, this assumption implies that real public consumption will have increased 21 per cent by 2040. In the same period, real aggregate private consumption will have increased by 99 per cent, given the assumption of an annual productivity growth of 2 per cent.

If the historical experience of an additional annual 0.15 percentage point increase in public service expenditures is used in a forward perspective as a yardstick for the potential orders of magnitudes involved, public finances will develop as illustrated in figure 5. Using 2040 as a reference point, the total balance has deteriorated by 2 percentage points of GDP compared with the baseline generated by demographics (unchanged service provision), i.e. from 3.4 to 5.5 per cent of GDP.

Increased income may also lead to an increased demand for social insurance. Historically, transfer incomes have been extended to include more contingencies. If the growth rate of public transfers corrected for demographic changes is broken down into the same three sub-periods as above, one finds that the growth rate of public transfers exceeds the regulation determined by the growth rate of private wages¹⁰. In the period 1971-1981, the growth in expenditures to public transfers is 149 per cent of regulation determined by private wage growth. In the period 1981-1991, the similar measure is 144 per cent, and finally, in the period 1991-2003, the increase in expenditures is 126 per cent of regulation determined by private wage growth (see Danish Welfare Commission (2004)).

The additional increase in the expenditures to public transfers is due to extended coverage of the public transfers. A decomposition of the growth in expenses on transfer income in excess of the annual regulation from 1984 to 2002 shows that demographic changes account for about 40 per cent of the increase, whereas about 60 per cent is due to extensions of programmes to include new or wider groups. Finally, the level of benefits has increased slightly less than the annual regulation in the period. This is partly due to the introduction of a (successful) programme to reduce youth unemployment that includes a reduction of the unemployment benefits to this group. An additional effect stems from increased labour market pensions that tend to reduce the average level of social pensions.

Increased demand for social insurance can also be expected in the future, among other things to address a potential increased risk from globalization (Rodrik (1998)). However, we disregard this in the following and focus only on the effects on expenses of transfer income arising from demographic changes.

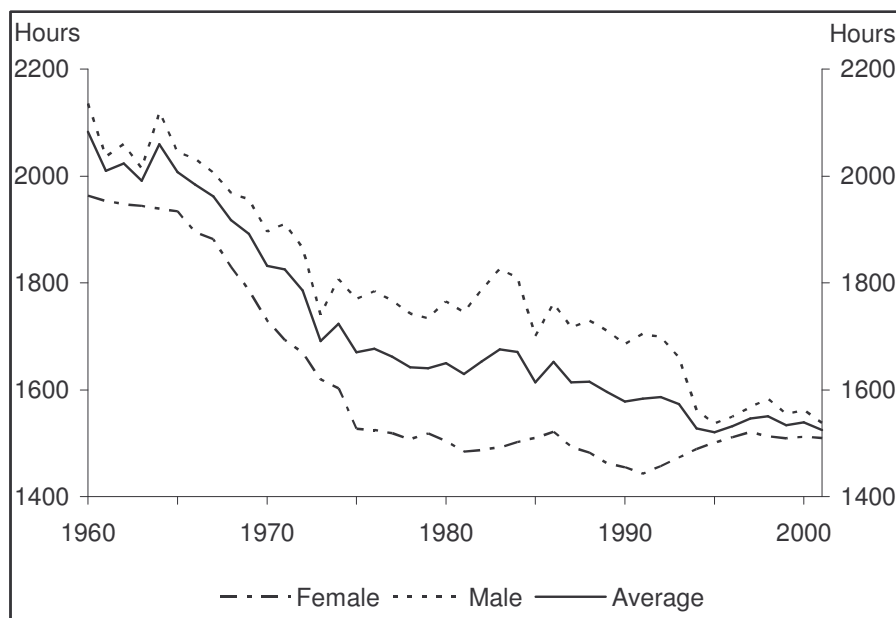
¹⁰ In Denmark, transfers are indexed to private wages. In a forward looking perspective, having transfers move proportionally to private wages corresponds to an unchanged distribution profile between the working and non-working population.

Leisure

Growth creates new possibilities. One is that it makes room for an increase in both material well-being (consumption) and leisure. The precise split depends on preferences, but historical experience shows that a non-trivial part has been taken out in the form of more leisure. This is no problem per se, but it raises questions in relation to the financing of the welfare state since it effectively implies that a non-taxed activity is chosen. Hence, through this mechanism growth narrows the financial basis of the welfare state. The separation of the financing of the welfare services from the use of the services in the Scandinavian welfare model generates a common pool problem where the individual ignores the potential reduction in the public welfare service as a consequence of the increased leisure (cf. below).

The precise effect on leisure is obviously uncertain, but the order of magnitudes can be put in perspective by considering the historical experience. Historically, there has been a declining trend in annual working hours. From 1971 to 2001, annual working hours have decreased by 0.5 per cent. However, since the mid 1970s, the trend decline has been less strong with an average annual decrease between 0.3 and 0.4 per cent per year, cf. figure 4. This comes on top of the tendency towards a falling labour force participation rate, which has been reduced from the all-time high level in 1988 of 0.80 to a current level of 0.77. The tendency to decline may partly be explained as a demand for more leisure in the form of earlier retirement (cf. below) as a result of improved economic conditions.

Figure 4. Development in annual working hours 1960 - 2001



Source: Statistics Denmark, Macroeconomic model, ADAM

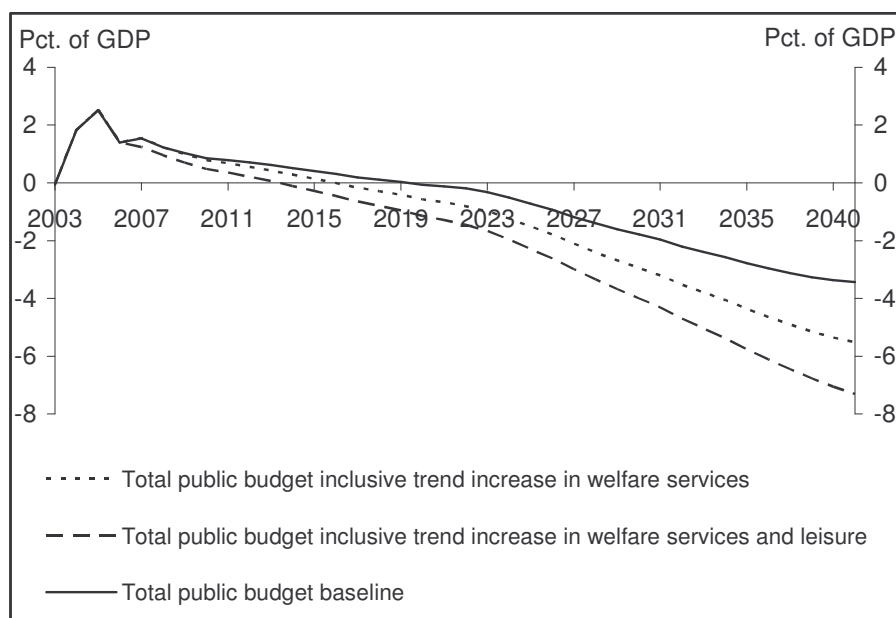
To see the financial implications of increasing demands for leisure, figure 5 includes a scenario where leisure increases by 0.10 per cent per year (between 1 and 2 hours the first years). The isolated effect of the increase in leisure on the total public budget in 2040 is a deterioration of the deficit by almost 2 percentage points of GDP, i.e. from 3.4 to 5.1 per cent of GDP. Figure 5 displays the combined effect of the trend increase in public services and the (reduced) trend increase in the demand for leisure. The combined effect implies that the public deficit in 2040

increases by almost 4 percentage points, namely, from 3.4 per cent of GDP in the baseline to 7.3 per cent of GDP.

Financial consequences of the growth dilemma

Summarizing the effects of the growth dilemma of increasing demand for services and leisure, we find that it under fairly moderate assumptions can have a significant effect on public finances amounting to a deterioration of the primary balance by 2 per cent of GDP and a deterioration of the total budget by almost 4 per cent of GDP in 2040. Hence, this problem is of an order of magnitude equally important to the effects of the demographic changes.¹¹

Figure 5. Total budget exclusive and inclusive a trend increase in welfare services and leisure



Source: Own calculations using the DREAM model

One open question is whether growth will also increase the willingness to pay taxes, such that the gap – at least the part driven by growth – can be filled by increasing taxes alongside the increase in public welfare service provision and more leisure. The underlying logic is simple. If the problems are driven by underlying demands derived from the preferences of the population, there should also be a willingness to pay. However, the logic may not be that simple precisely because the welfare state builds on a principle of decoupling the link between entitlements and financing for the individual (the principle of universality). While this principle in other respects may be considered a virtue of the Scandinavian welfare model, it does in this context raise some problems.

¹¹ The size of the growth dilemma of course depends crucially on the time horizon. Extending the time horizon to year 2100 and assuming that the additional growth in expenditures to public services continues until this point in time implies that the isolated effect of this part of the growth dilemma doubles the necessary adjustment to obtain fiscal sustainability. The isolated effect of increased leisure is almost of similar size when the trend reduction is prolonged to 2100.

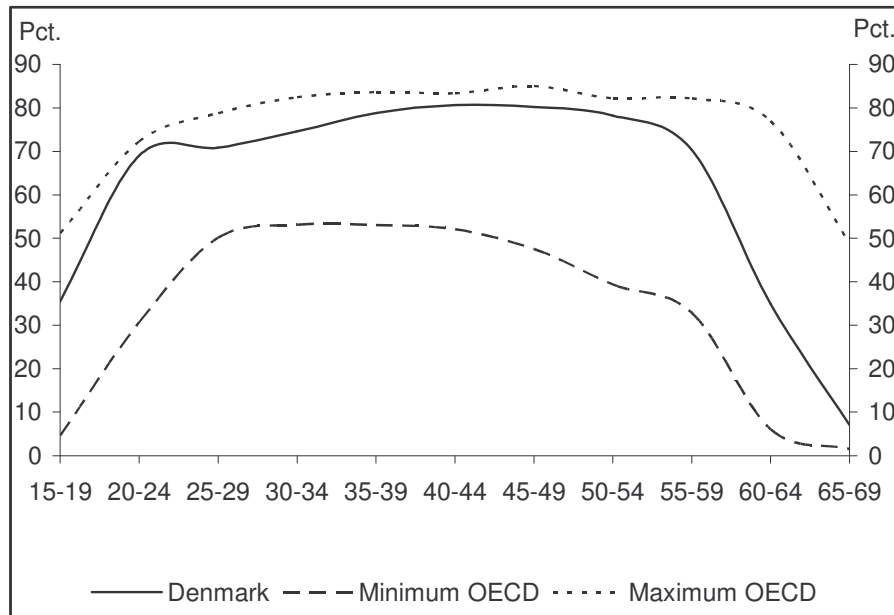
It is an implication of the welfare society that the decoupling of entitlements and financing causes the trade off between consumption and leisure faced by each individual to be distorted by taxes, i.e. the private cost of leisure is smaller than the social cost. Likewise, raising demand for public services is for various groups not directly related to the contributions via tax payments. To put it differently, the individual choice of consumption vs. leisure has an externality since it affects the common pool of resources arising via taxation of income and consumption. It is not clear that the common pool problem is lessened by more growth.

4. *Reform strategy: increasing employment*

Facing a problem of fiscal sustainability of the welfare state, various reform routes may be considered. In broad terms, there are three routes. One route would be to increase taxes gradually to avoid financial imbalance. This would eventually require a rather substantial increase in taxes. It raises both a political and an economic problem. The political is whether it would be possible to increase the average tax burden significantly above the current level slightly above 50 per cent (cf. discussion in preceding section). The economic problem is that the distortionary consequences of taxation, in particular labour income taxation, are likely to increase due to globalization. Hence, the costs of maintaining an unchanged tax burden will increase, and therefore a further tax increase would be less attractive. At present, there is no strong political willingness to let taxes increase. A second route would be to cut back on either welfare service provision or the social safety net. This would go counter to the demand pressure identified above in relation to the growth dilemma, and it would lead to a different type of welfare model. Whether it is a political feasible route is unclear, but it would not qualify as a solution maintaining the current type of welfare model. The final option is to increase employment. If the share of the population in employment can be increased, it has a significant effect on public finances since most individuals without a job are entitled to a transfer income, and since employed individuals tend to have higher income and therefore pay more taxes. The sensitivity of the welfare state to a change in the employment share is very large: An increase in the employment rate of 1 per cent would improve the budget balance by 0.5 percentage points of GDP.

In the following, we will discuss the scope for increasing the employment rate further. A route which may not be easy to follow since labour force participation already at the outset is very high, and since increasing demand for leisure in various forms is creating a trend in the opposite direction. In figure 6, we plot the labour force participation rate as a function of age, and compare it to the OECD maximum and minimum.

Figure 6. Age-dependent labour market participation rates



Source: OECD and Statistics Denmark

For most age groups, the labour force participation rate in Denmark is high by international standards. This underlines the point made in section 1 that the welfare model is an employment oriented model. There is a small gap to the OECD max for persons in the late 20s and early 30s. This is partially caused by maternity and parental leave schemes (part of the welfare package), but also a relatively high graduation age for highly educated. For the prime age groups, labour force participation is close to the OECD max. The major deviation arises for the age group between 60 and 65 primarily due to an early retirement scheme (the official pension age is 65, but early retirement is possible from the age of 60, cf. below).

Nothing dictates that the current OECD maximum for labour force participation rates constitutes an upper limit on labour force participation rates. However, it is obvious that the larger the labour force participation rate, the more difficult it is to increase it further. Especially when taking other objectives of the welfare state into account. While there is scope for improving the labour force participation rate for young and prime age groups, in particular for immigrants and descendants from low income countries, the following focuses on the potential for increasing the retirement age. This is so for two reasons. First, as illustrated by figure 6, there is a large quantitative potential here if labour force participation of the age group 60-65 years can be brought closer to the OECD maximum, and since it raises the interesting question of how to adjust the social contract underlying the welfare society to increased longevity.

Retirement and pension

Currently, the retirement decision is influenced by two public pension schemes, namely, the early retirement scheme and the social pension scheme. The early retirement scheme was introduced in 1979 as a labour market measure to allow a substitution of jobs between old and young workers. Subsequently, the scheme has to a larger extent been considered as an integral part of the welfare package. The current rules require payment of a contribution premium in 25 of the last 30 years,

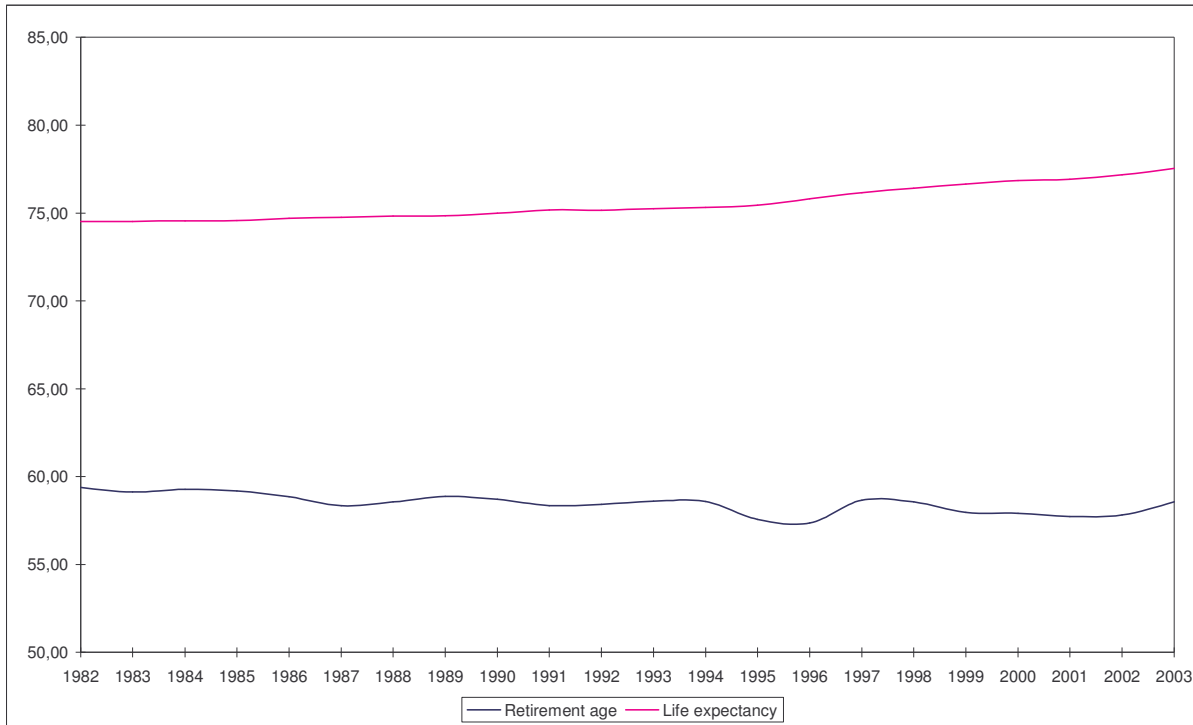
and they allow early retirement from 60 years to the official pension age at 65 years. The early retirement benefit depends on the age at which the benefit is claimed, and the scheme has some incentives to postpone early retirement to the age of 62 years (via a premium and more favourable treatment of pensions savings). The contribution rate finances between 1/4 and 1/3 of the total costs of the scheme. Currently, 190.000 (almost 60 per cent of the age group 60-65) are on early retirement.

The official pension age is 65 years (recently (2005) lowered from 67 years), and there is a universal entitlement to a pension scheme consisting of an unconditional base pension and means tested supplements.

During the late 1980s and 1990s, mandatory and fully funded labour market pensions were negotiated by the labour market parties. The contribution rates have gradually been increased and for the dominant part of the labour market organized by the main organisations (The Danish Confederation of Trade Unions, LO and The Danish Confederation of Employers, DA) more than 90 per cent would have a contribution rate of 10.8 per cent in 2007. For white collar workers contribution rates are generally higher. The labour market pension funds are still in a build-up phase such that current pension payments per individual are low compared to the expected payments to future generations of pensioners. In addition, elderly pensioners are currently not covered. Pension savings are indirectly tax subsidized since contributions are deductible in the income taxation and pension payments are taxed as income. The subsidy arises from the fact that the average income of pensioners is lower than in the working part of life, and therefore, the average taxation is lower due to the progressive income taxation. Moreover, the taxation of pension funds is favourable implying a favourable taxation of the return.

There has been a tendency to a decrease in the retirement age, while life expectancy has been increasing, cf. figure 7. In short, the retirement period has been expanded from both ends, i.e. earlier retirement and longer longevity. The former effect is reflected in the low labour force participation rate for the age group 60-65, cf. figure 6. These developments bring the financial viability of the social contract at stake.

Figure 7. Average retirement age and average life expectancy at birth



Source: The Danish Welfare Commission (2006)

Retirement, longevity and the social contract

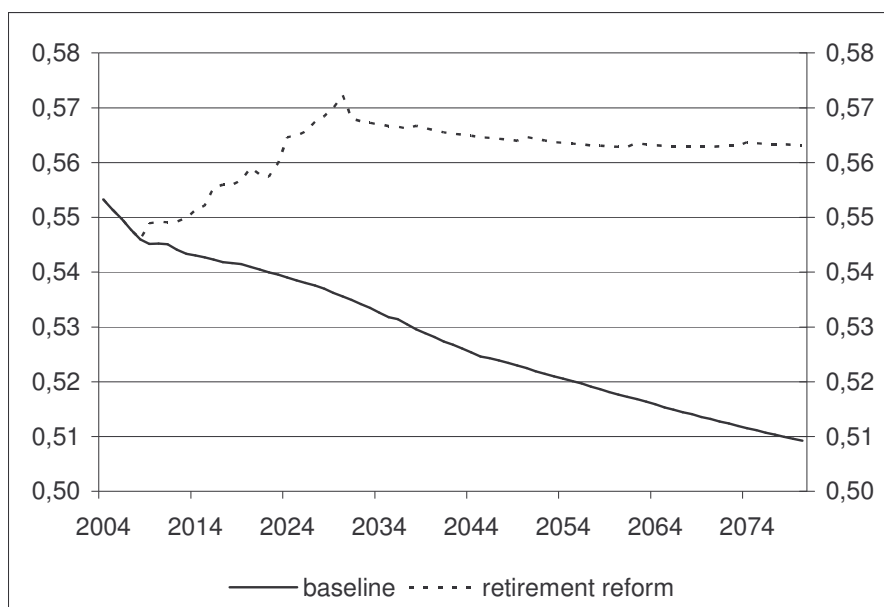
One perspective by which to address the question of the needed reform to ensure fiscal sustainability of the social contract and thus the welfare state would be to consider how much the retirement age should be changed. The key question here is how large a fraction of life the average person of a given generation (and thus with a given life expectancy) should spend in the labour market.

It should be noted that the social contract includes an important implicit insurance element related to various social events though life, including the ability to work and longevity. The social contract has as a core element a life insurance since the welfare state via service provision and income transfer provides for the elderly, and the entitlement is for the whole life. Life insurance is special in the sense that the insurance covers the event of having a long life time (something most would appreciate), and in the specific case of the welfare state this is equivalent to decent living standards for old citizens. The insurance element runs across individuals with different longevity.

It is a consequence of this insurance element that it is not sufficient that each individual in employment postpones retirement by, say, the increase in life expectancy at the age of 60. This would only compensate for the longer life length of the individual, and would not be sufficient to ensure balance for the insurance mechanism implied by the social contract. In short, individuals that have left the labour market earlier for various reasons (health, disability) will also experience an

increase in life expectancy¹². To illustrate this point, note that the current demographic projection implies an increase in life expectancy of roughly one month per year. If the pension age is linked to life expectancy and thus increased by one month per year, one would expect that the average person would spend a relatively larger fraction of life in the labour market (the whole increase in life expectancy is added to working years). However, although this is the case for those staying on the job market, it is not the case for the average person due to the fact that not all are working up to the eligibility age for pension. The average increase in the retirement age will be 0.3 – 0.4 months per year, i.e. approximately 1/3 of the increase in the pension age. As a consequence, the average share of life spent in the labour market will be unchanged. In figure 8, the evolution of the part of life that an average person spends in the labour force in case of no regulation of the current early retirement age is compared to a situation where the early retirement system is gradually phased out over 20 years and the retirement age of the social pension is increased by one month annually.

Figure 8. Average part of life in the labour force with and without retirement reform



Source: Own calculations using the DREAM model

A second crucial aspect is related to another dimension of solidarity in the social contract and concerns the effects of the early retirement scheme. Consider the following two reforms: I) a gradual phasing out of the early retirement scheme (over a 20 year period) and an indexation of the eligibility age for pension to life expectancy, II) keeping the early retirement scheme and adjusting the early retirement age and the pension age so as to ensure the same effect on fiscal sustainability. The indexation would then, in the latter case, have to be by 2.5 months per year and thus significantly above the increase in life expectancy. The point is that if some individuals are to have the option of leaving the labour market early, those remaining would have to stay longer.

¹² In Danish Welfare Commission (2006) it is documented that longevity is increasing proportionally for all groups in society except groups on disability pensions.