



DIRECTIONS IN DEVELOPMENT

Finance

Pension Reform in Southeastern Europe

*Linking to Labor and Financial
Market Reforms*

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Editors



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CHAPTER 10

Retirement Reform in a Mature Welfare State: The Danish Experience

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The Danish welfare state model is an extended one and includes a public sector that distributes more than 50 percent of gross domestic product (GDP).¹ Income transfers imply relatively high compensation rates, especially for low-income earners, and the welfare services provided by the public sector are of a relatively high standard. The welfare system is universal in the sense that entitlements to benefits and individual services are available to all inhabitants who fulfill objective criteria. The financing of public expenditures is collective and relies on direct and indirect taxation of earned income.

The Danish welfare model both enables and relies on high labor market participation rates for both men and women.² Labor market participation rates are therefore close to 80 percent for individuals in the working ages, and the potential for increasing the tax base through a larger labor force is correspondingly low. Labor market participation

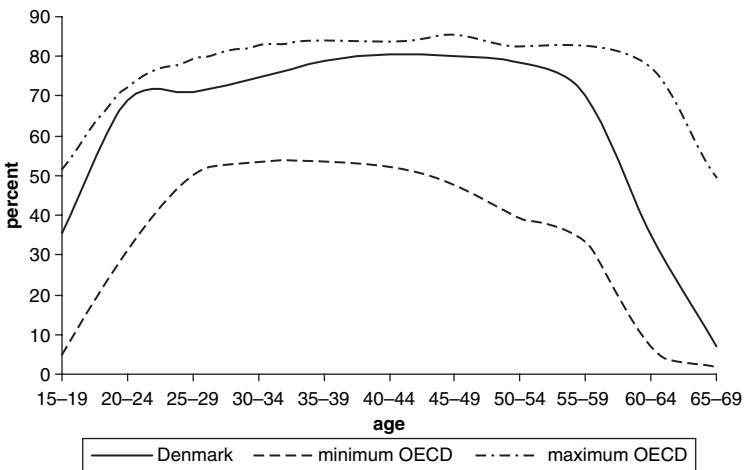
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rates remain high until around age 60, when a significant drop in the rate is experienced (see figure 10.1).

The delinking of benefits and services from their financing implies a strong intergenerational dependency in the net contribution to the public sector. Young and old individuals are net receivers of public benefits and services, whereas the middle-aged are net contributors to the public sector, as shown in figure 10.2. This age dependency in net contributions is one reason why the Danish and, more broadly, Scandinavian welfare systems may be more vulnerable to changes in demographic composition than other types of welfare models. A second reason is that the policy instruments for improving the financing of the welfare state may be more limited in Scandinavian countries because of high initial market participation rates.

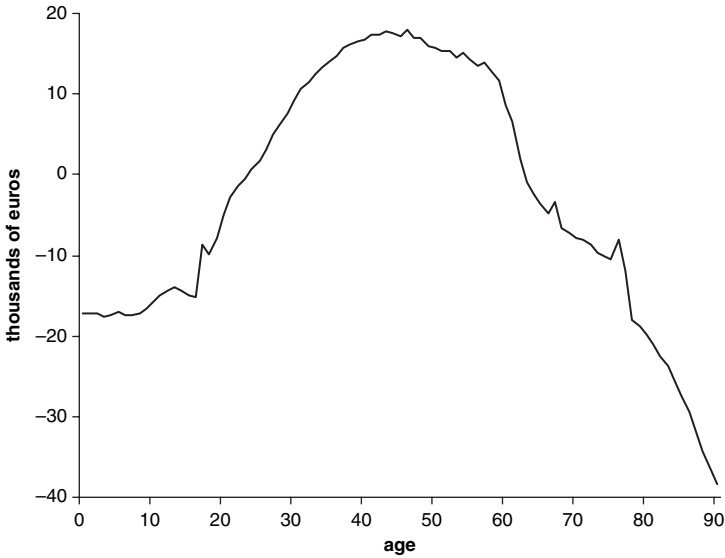
The potential for financing increased aging-related expenditures by increasing the tax rates may also be limited. First, the tax burden is already around 50 percent of GDP, and this, through the marginal tax rate on labor income, generates tax distortions of the labor supply that run counter to the necessity for a large labor force. The distortionary consequences of high labor taxation are likely to increase as a result of globalization, making further tax increases even less attractive. In addition to

Figure 10.1. Labor Market Participation Rates, 2002



Source: OECD and Statistics Denmark data.

Note: OECD, Organisation for Economic Co-operation and Development.

Figure 10.2. Net Contribution to Public Finances Depending on Age, 2004

Source: Author's calculations based on the Danish Rational Economic Agents Model (DREAM).

the economic aspects, current political willingness to increase taxes on the part of both the incumbent government and the leading parties of the opposition is limited.

Reform strategies based on tight expenditure rules are available but will imply either a reduction in the standards for provision of public services to individuals or a decrease in the income replacement ratio of social transfers. This may not in the long run be compatible with maintaining the current type of welfare system.

To retain the welfare model, a reform strategy based on increasing the labor force and, at the same time, reducing the number of recipients of transfer income has been adopted by the Danish government and parliament. The most recent reform involves postponing the statutory pensionable age in the public pension system. The general idea of the retirement reform is that the statutory pensionable age is to be indexed to the life expectancy of a person age 60 so that the expected public pension period remains constant at approximately 19.5 years. The indexation scheme is being phased in very slowly and therefore does not affect the statutory pension age until 2019.

The aim of this chapter is to assess the long-run gradual reform strategy of postponing the statutory pension age.

Projection of the Danish Economy Given Current Welfare Arrangements

To assess the financial consequences for the public sector of the aging of the population and the expected permanent annual increase in longevity, an economic projection is made.³ The projection is based on exogenous demographic projections that are fed into the Danish Rational Economic Agents Model (DREAM). This is an overlapping-generations–computable general equilibrium (OLG-CGE) model that includes a very detailed modeling of the Danish welfare system (see, for example, Pedersen and Stephensen 1999). In the projection it is assumed that current welfare arrangements are maintained, and fiscal sustainability is assessed on the basis of this assumption.⁴

The main implication of the assumption of unchanged welfare arrangements is that the distribution between wage income and social transfers (including social pensions) tends to be neutral with respect to growth.⁵ Similarly expenditures on public consumption are assumed to increase with productivity growth.⁶ The projection also implies that the financing of the welfare system remains unchanged (unchanged direct and indirect tax rates) and that therefore public revenues tend to increase proportionally to the income in the economy.⁷ For a given age structure of population, these assumptions imply that public expenditures and revenues remain approximately constant in relation to GDP.

The question raised is therefore to what extent the aging of the population necessitates change in either current welfare arrangements or their financing to ensure fiscal sustainability. This change is measured as the necessary permanent reduction in collective public consumption relative to GDP. Any compensating change in private spending is ignored.⁸

In comparison with most European economies, the initial conditions for the Danish economy are rather favorable. Unemployment was down to about 4 percent of the labor force by mid-2006. Average economic growth measured by real GDP growth during the period 1966–2005 was 2.1 percent, with a somewhat lower growth rate in recent decades. There has been a current account surplus almost every year since the late 1980s, and the foreign asset position has been positive since 2005. Fiscal discipline has been demonstrated by governments of different color over

the last couple decades. Net public debt has been brought down from 89 percent of GDP in 1986 to 28 percent in 2005. The ratio of gross public debt to GDP was 36 percent in 2005.

The projection of future production and income in the economy depends on productivity growth and the evolution of the size of the effective labor force. The projection of the labor force is based on the demographic forecast and the assumption that current labor market participation rates remain constant for a given age, sex, and country of origin. These joint assumptions imply that the labor force is gradually reduced until 2040; the total reduction is 8.8 percent of the 2004 level.

The reduction in the labor force reduces production, other things being equal. This reduction has, however, only a marginal effect on the long-run level of real production, which almost doubles (increases by 95 percent) by 2040 as a result of the assumed annual Harrod-neutral technological progress rate of 2 percent per year, close to the historical growth rate. The projection implies that real private consumption increases by 110 percent between 2004 and 2040. The additional increase in real private consumption relative to production is a consequence of the doubling of the number of retirees in the period until 2040. This demographic change also drives the increase in real public consumption, which grows 124 percent until 2040. In this case the additional growth reflects both the increased number of retirees and the fact that public consumption per individual increases with age.

Public expenditures increase by 9 percentage points, from 50 to 59 percent of GDP, during the period from 2005 to 2040. The increase is almost equally divided between increases in public transfers stemming from the larger number of pensioners and growth in spending on public services for increased health care and elderly care. This indicates that although the population-aging phenomenon is of fairly modest proportions in Denmark, the institutions of the Danish welfare system imply large economic consequences.⁹ The increase in public expenditures relative to GDP of 9 percentage points over the next 35 years is comparable to the increase relative to GDP in the previous 35 years. But the historical increase came about because of expansion of the types of welfare arrangement included in the public service.

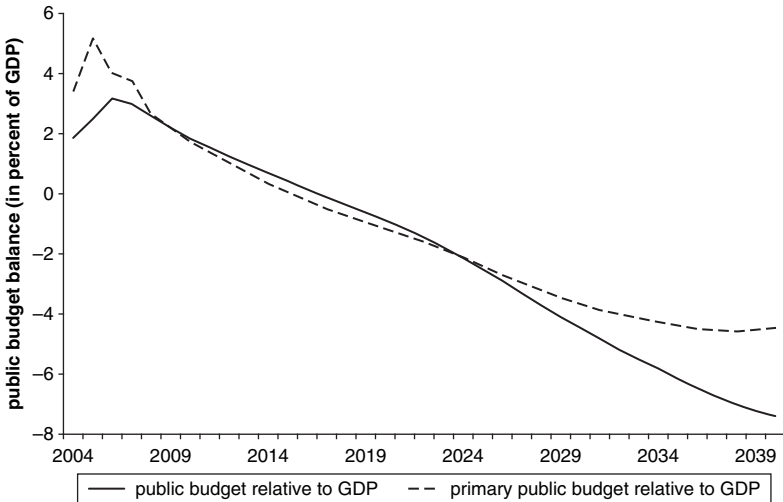
Public revenues also increase relative to GDP.¹⁰ From 2010 to 2040 revenues increase by almost 3 percentage points. This rise appears to result from taxes on the payout from funded (second-pillar) pensions. Danish legislation implies that contributions to funded pensions are

deductible from gross income for purposes of determining taxable income. The flip side of this deductibility is that pension payments from funded pensions are subject to income tax. Since funded pensions in Denmark are far from being mature, current taxes on pension payments are based on a much lower level of contributions relative to GDP than current contributions. The Danish funded pension system is not expected to mature before around 2060, and therefore the increase in tax revenue relative to GDP continues beyond 2040.

These developments imply that the Danish public budget surplus of 5 percent of GDP in 2005 is gradually reduced and becomes a deficit around 2015. From this point on, deficits will increase. The primary deficit amounts to 4.5 percent of GDP in 2040, and the deficit on the total budget becomes 7.4 percent of GDP, given the assumptions of the projection, as illustrated in figure 10.3.¹¹ The gradual deterioration of the primary public budget over time follows the gradual change in the composition of population as relatively large generations retire and relatively small generations enter the labor force. This development is reinforced by the annual increases in life expectancy of the retirees.

A permanent reduction of public expenditures amounting to 4.0 percent of GDP is required to ensure fiscal sustainability. Therefore, even the relative modest increase in the Danish dependency ratio, from 0.5 to

Figure 10.3. Danish Public Budget without Pension Reform



0.75, necessitates a fairly substantial permanent change in the welfare arrangements or their financing.

Retirement Reform

To deal with the expected fiscal consequences of the aging of the population, the Danish parliament in June 2006 adopted a retirement reform that was supported by 90 percent of the votes in the parliament.

The reform has two elements. First, it raises the statutory retirement age of the Danish voluntary early retirement pension (VERP) scheme by two years, from age 60 to age 62, in the period 2019–22. The maximum period of the VERP is maintained at five years per individual, and the statutory pension age for the Danish social security pension is accordingly also increased by two years in the period 2024–27. Second, from 2025 on, the statutory retirement age of the VERP is indexed to the life expectancy of a person age 60. The statutory pension age of the social security pension follows the increased life expectancy with a lag of five years. The indexation of the retirement age of the VERP is renewed every five years. Increases in the legal retirement age resulting from the indexation may be zero, a half-year, or one year for each indexation, depending on the growth in the life expectancy of a 60-year-old individual.¹²

The reform affects individuals who are currently 48 years old or younger, not individuals close to the current retirement age. The downside of this provision is that the reform cannot be expected to affect either the size of the labor force or the number of pensioners in the next 15 years. This is a major concern, as the large postwar generations will retire during this period.

Currently, less than 5 percent of the Danish population retires without entering directly into the disability pension system, the VERP, or the social security pension system. Approximately 50–55 percent of the population retires into the VERP, 20–25 percent involuntarily retires into the disability pension system, 15 percent retires directly into the social security pension system, and approximately 5 percent retires before the legal pension age of the social security pension without receiving other types of public transfers.

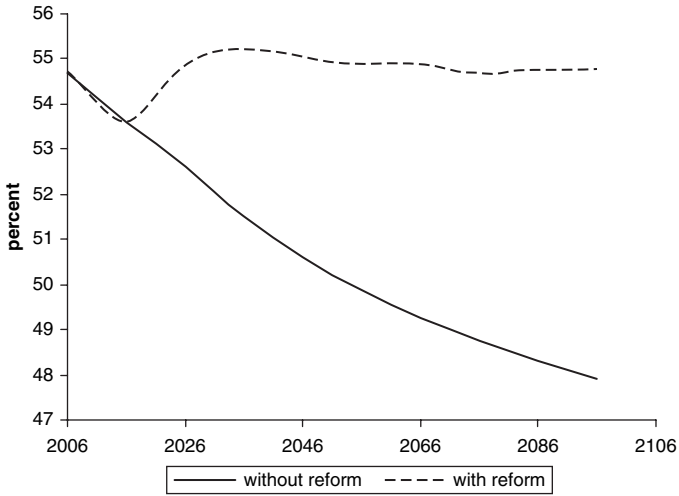
A prerequisite for enrolling in the VERP is that the individual be entitled to unemployment benefits before entering the retirement scheme. In principle, therefore, only those individuals can enter the VERP who are employed or are receiving unemployment benefits. It is

not possible to retire from the labor market and enter the VERP after retiring. Since the pension from the VERP is relatively high (50 percent of the income of an average worker), and since 80 percent of the pension is public transfers, incentives to remain in the labor force until eligible to retire into the VERP are very strong. This situation implies that the expected impact of the retirement reform on the effective retirement age is high. It is assumed that only a very limited number of additional individuals retire voluntarily prior to reaching the legal pension age of the VERP and so make themselves ineligible for pensions from the VERP. It is expected that the number of individuals who involuntarily retire into the disability pension scheme will increase rather significantly because of the lack of possibilities for voluntary retirement. Data based on questionnaires suggest that 20 percent of individuals who retire into the VERP will be unable to remain in the labor force for health reasons (Danish Welfare Commission 2006), and analyses based on register data on health yield a figure between 10 and 20 percent (Danish Economic Council 2006). The current assessment is based on the former, more pessimistic assumption.

The philosophy of the indexation scheme is that the expected maximum length of the period spent as retired in either the VERP or the social security pension scheme remains at the current level, approximately 19.5 years. The generations that retire in the coming years before the indexation mechanism is initiated will have a longer expected retirement period in these two pension systems. Since, however, increasing numbers of individuals are expected to retire into the disability pension system, the expected effective retirement period rises over time. With the indexation rule of the reform, the expected average period in retirement increases from the current 17.0 years to 19.0 years in 2040, which should be compared with an expected increase in the average expected retirement period to 22.5 years under the current retirement rules. The indexation rule in fact obtains the effect that the average share of life spent in the labor force remains at the current level of 55 percent of life in the long run. The delay in the introduction of the indexation rule implies, however, that generations who retire in the coming years may expect a lower share of life in the labor force and, accordingly, a larger share of life in retirement (see figure 10.4).

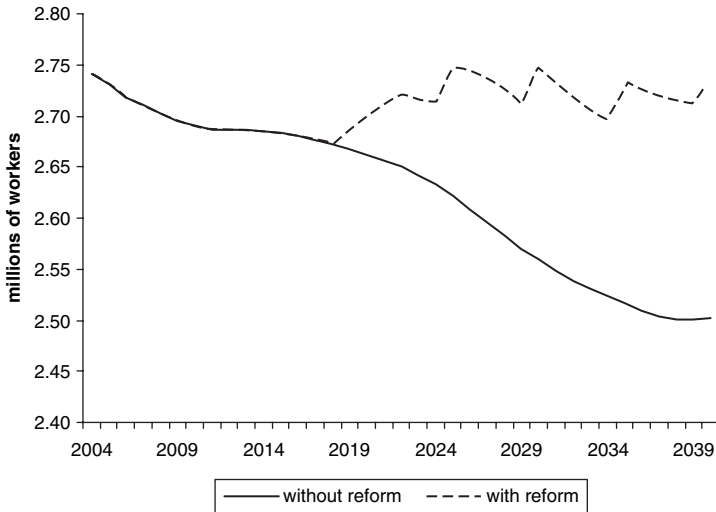
The retirement reform has positive effects on the labor force from 2019 on. During the period 2020–40 the drop in the labor force experienced during 2004–20 is redressed, so that the labor force increases by 2.0 percent during the 20-year period to 2040, as shown in figure 10.5.

Figure 10.4. Share of Lifetime Spent in the Labor Force with and without Reform



Source: Author's calculations based on demographic forecast in DREAM (2006).

Figure 10.5. Labor Force with and without Reform



Source: Author's calculations.

The effects on the labor force appear discontinuously every five years after 2025. This is because of the indexation mechanism that operates every five years to increase the statutory retirement age by one year. The first three times the mechanism acts, the retirement age is postponed a whole year. This yields the three major peaks in figure 10.5, at 2025, 2030 and 2035. In each of those years the increase in the labor force is approximately 1.5 percent. Although there is a general tendency toward a tight labor market in the future because of the simultaneously decreased labor supply and increased labor demand, business cycle effects may dominate, and there is a risk that the increase in the labor supply will be badly timed vis-à-vis the business cycle, generating short-term increases in unemployment.

The macroeconomic effects of the retirement reform stem from the combined effects of the increased labor force and the reduced number of recipients of public transfers. The labor force is expected to be 9 percent higher in 2040 than without the reform. This implies that the current level of the labor force is regained in 2040, whereas without the reform there would have been a reduction of 8.8 percent. The increase in the labor force generates an increase in production of 5 percent and an increase in consumption of 4 percent in 2040, compared to the situation without reform.¹³

Public expenditures are reduced by 3.4 percentage points relative to GDP in 2040 as a result of the reform; 2.0 percentage points is attributable to the reduction in public transfers and the rest to the reduction in public services. The reduction in the ratio of expenditures on public services to GDP stems partly from the increase in GDP and partly from an endogenous cost reduction that appears through a wage moderation effect from the less tight labor market. Since labor intensity is high in public services, this tends to reduce the relative price of these services.

Public tax revenue is reduced by 2.5 percentage points relative to GDP because public transfers in Denmark are taxed according to the income taxation scheme; increases in the labor force and reductions in the number of pensioners only affect tax revenues through taxation of the increase in income.¹⁴ The net increase in the primary public budget in 2040 is therefore 0.9 percentage point of GDP. The annual improvement in the public surplus is affected by the timing of the indexation, and so five-year cycles are observed. It so happens that the improvement in 2040 is particularly low, as a result of this cycle effect, and therefore a more relevant measure of the improvement of the public budget is the

effect on fiscal sustainability. The necessary permanent reduction in public expenditures falls from 4.0 percent of GDP without the reform to 2.2 percent with the reform. The reform therefore solves almost half of Denmark's fiscal sustainability problem.

The improvement in fiscal sustainability is obtained by stabilizing the ratio of public transfers to GDP at the current level. In particular, the pension system is sustainable, given the reform. Public revenue relative to GDP is also stabilized, which implies that the remaining unsolved part of the fiscal problem is attributable to the increases in public services, particularly health care and elderly care expenditures, relative to GDP.

Time-Inconsistency Problems

The reform has two major flaws from a political-economy point of view. Both have to do with time-inconsistency problems. The first is a consequence of the timing of the reform. Current politicians have abstained from indexing the statutory retirement age for the generations that will retire in the coming 12 years, but they expect that future politicians will postpone the retirement age for the generations that are retiring in the period when those politicians are active. In fact, the reform is implemented in such a way that the indexation is high in the initial phase because indexation has to catch up with the increase in life expectancy in the next 12 years. There is a risk that political pressures will emerge to postpone the reform further into the future.

The second time-inconsistency problem stems from the design of the indexation rule as a discontinuous mechanism that postpones the statutory retirement age in intervals of five years and therefore potentially implies relatively large increases. A large increase in the retirement age may not be politically credible if the economy is at a trough in the business cycle. In that case political pressures to avoid increasing the legal retirement age in the specific situation may be felt, since the short-term effect may be an increase in unemployment.

Both these time-inconsistency problems could have been avoided by alterations in the reform. First, the mechanical increase in the retirement age that is to start in 2019 could have been initiated, for example, with a five-year announcement in 2011, and indexation could have been initiated in 2015. In this way, current politicians could have signaled that they were prepared to incur the potential political costs in the same way as future politicians. Second, by indexing the statutory retirement age, for example, every year or every second year and by increasing the legal

retirement age in steps of, say, one month, the discontinuities in the labor supply might easily have been avoided. In addition, such a rule might be fairer, as individuals of about the same age would have almost the same statutory retirement age.

Conclusion

Indexation of the statutory retirement age of voluntary retirement systems to the life expectancy of a 60-year-old individual is sufficient to ensure sustainability of the pension system, even with a fixed compensation ratio of the pay-as-you-go pensions. This holds even in a situation of a substantial increase in the number of individuals who retire involuntarily into the more generous disability pension system.

Indexation of the statutory retirement age is not sufficient to finance the total costs of aging because the potential increase in public expenditures on health care and elderly care cannot be financed without invoking an indexation rule which implies that the share of life in employment increases as life expectancy is increased. This may run counter to the individual's desire to spend a part of the growing wealth in a growing economy by increasing the amount of leisure.

Indexation of the statutory retirement age is therefore not a universal remedy for all the financial effects of aging. Nevertheless, it remains a simple and powerful tool for securing sustainability of the pay-as-you-go pension system without reducing annual pensions relative to the wage rate.

Notes

1. The analysis in this paper is based on work carried out while the author was affiliated with the Danish Rational Economic Agents Model (DREAM) and the Danish Welfare Commission.
2. Public provision of child care and old-age care enables high labor market participation rates for both men and women.
3. The projection was originally published in Danish in DREAM (2006).
4. Technically, fiscal sustainability requires evaluation of primary budgets over an infinite future, and the present analysis does not deviate from this. It is technically assumed, however, that the phenomenon of increased longevity stops at year 2100 and that the population becomes stationary after this point, implying that the economy is approaching a steady state after 2100. The analysis is therefore restricted to evaluating the robustness of the welfare arrangements given the expected aging of the population until 2100, but not permanently increasing life expectancy.

5. Current Danish legislation implies that transfers are indexed to the wage rate.
6. The projection does not include the well-known effects of Baumol's "cost disease" or Wagner's recognition that the income elasticity for services is greater than one. The projection also ignores potential cost reductions from healthy aging.
7. Two major exceptions are revenues from Danish North Sea oil production and revenues from pension payments from fully funded contributions defined under the second-pillar pension schemes.
8. Since the policy implies a permanent reduction in spending beginning in 2011, the primary surplus is increased by an almost constant amount relative to GDP from 2011 on. Aging of the population, however, is a gradual process that leads to a gradual deterioration of the primary budget. The consequence of the policy is therefore that the government follows a savings strategy. This implies that the size of the necessary adjustment becomes highly sensitive to the relevant yield on savings (i.e., the interest rate corrected for growth and inflation). In addition, even if there may be efficiency gains from the tax smoothing implied by the policy, there are also large intergenerational distribution effects (see Andersen and Pedersen 2006). Therefore, it should be stressed that these policies are to be viewed only as means for measuring the size of the problem, not as policy recommendations.
9. The increase in the dependency ratio is only a result of the retirement of the large postwar generations (with echo effects) and an expected increase in longevity. The fertility rate is expected to stabilize around the current level of 1.9 children per woman.
10. Large revenues from North Sea oil production and nonstructural revenues from taxation of interest income of pension savings imply that 2005 revenue relative to GDP is comparable to the 2040 ratio.
11. The largest public deficit in Danish economic history was 8.5 percent of GDP in 1982.
12. The indexation of the retirement age of the VERP is based on the observed life expectancy of a 60-year-old individual in the year of the announcement and is announced 10 years in advance, and so the indexation of the social security pension is announced 15 years in advance.
13. Production functions exhibit constant returns to scale but sluggish adjustment in the capital stock because of the convex cost of installation. This is why the observed increase in production in 2040 is lower than the observed increase in employment.
14. The negative effect on public revenue relative to GDP also appears to stem from the unaffected revenues from North Sea oil production and taxation of pension payments. It is reinforced by a reduction in private savings and, therefore, lower capital income tax revenue because of the reduction in the expected pension period.

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