



Working to Account?

Social Security Without Dependency



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Preface

The UK's social security system fulfils the same fundamental role as other Western schemes. It provides cash benefits when earnings stop and it also redistributes lifetime income. Starting with the national insurance acts of the 1900s to cover for unemployment or sickness and old age, it developed through the *Widows, Orphans and Old Age Pensions Act* of 1925 and other measures before the introduction of the Beveridge scheme for national insurance in 1946*. Beveridge proposed benefit in return for contribution – a popular basis for an affordable scheme without means testing. However much of that framework has, over time, unravelled.

Today the UK faces the same problems as other Western economies trying to meet the social needs of today. Costs are rising as populations age; employment patterns are less fixed as people move in and out of fluid labour markets; benefit systems are often a problem, leading to dependency or discouraging work, and reducing output and revenue. At the same time governments find the tax base is less secure: globalisation allows taxpayers and investors to move to lower cost economies and so sources of revenue shrink.

Reform, therefore, is needed. This study by Peter Birch Sørensen and Lans Bovenberg explains how the balance can be struck between protection for the unemployed and a system which encourages work and saving. Instead of the present arrangements for benefit where too often there is little incentive for lower paid people to earn and save, each person would own an individual saving account, and see exactly what was in the account; if they did not draw on benefits, they would see their savings grow, with a bonus on retirement. Those who drew benefit would nonetheless have the same entitlements as now, but would be without the bonus on retirement. In this way incentive to work and earn would be built into the system.

The authors illustrate how the system would work in practice, by reference to the Danish model. The parallels between both countries are striking. In the UK, as in Denmark, around two-thirds of sums paid by the individual towards the system, would benefit the individual, not others or the less well-off. The system would redistribute over the life cycle, very much as Beveridge intended.

Such a reform would bring overall economic and social gain: economic growth and the removal of tax on labour would make for a more competitive economy. Society too would be the richer. Our benefit system would avoid the moral hazard which has bedevilled the UK's recent history: means testing and the penalties on saving have left us with expensive dependency traps, few incentives, and a system buckling under rising demand, high costs and complex and confusing bureaucracy.

Sheila Lawlor,
Director, Politeia

* *Social Insurance and Allied Services*, Report by Sir William Beveridge, November 1942, Reprinted London, HMSO, 1995, Cmd 6404. The two measures here are *The Widows', Orphans' and Contributory Pensions Act of 1925* and *The National Insurance Act of 1946*.

I

Introduction

Social Insurance Systems: The Need for Reform

Today, redistribution from the rich to the poor is seen as a basic function of the modern welfare state. This redistribution operates through tax and social insurance systems, such as the UK national insurance system. Voters, however, tend to disagree on how far governments should pursue tax and benefit goals. This is largely because of the tough trade-offs which characterise redistribution of income and social insurance. The trade-offs - between equity and economic efficiency and between insurance and incentives - are, by their nature, controversial. Governments may achieve a more equal distribution of income by levying taxes and offering transfers, but taxes and transfers weaken the incentives to work, save and invest, reducing the size of the 'pie' available for redistribution. Moreover, by insuring against income risks through social transfers, governments blunt the individual incentives of the people themselves to prevent, where possible, the various contingencies (like unemployment or sickness). This phenomenon known as 'moral hazard' also reduces total output and income.

In recent years globalisation, population ageing and technological change have tended to worsen these trade-offs. Globalisation increases the international mobility of capital and labour, hampering the ability of governments to impose redistributive taxes and to offer social benefits without inducing the rich to emigrate (or to export their wealth) and without attracting poor immigrants. Moreover, the rising ratio of retirees to people of working age increases the tax cost of providing a given level of public pensions, health care and other services to the elderly. At the same time rapid technological change, biased against low-skilled workers, increases the unemployment risks that the low-skilled face, and raises therefore the cost of offering effective unemployment insurance.

The changing nature of such social risks also puts the welfare state under pressure. As the economy shifts from blue-collar work in industrial sectors to white-collar work in service sectors and knowledge-intensive activities, mental causes of sickness and disability become more prominent. These types of sickness and disability are harder to diagnose than those with physical causes; as a result it is more difficult to verify whether a potential recipient is in fact eligible for a social insurance benefit. Changes in technology and the organisation of work have also made many segments of the labour market more 'fluid', as people move more often between jobs and in and out of the labour market. In such a transitional labour market it is more difficult to establish whether a person is voluntarily or involuntarily out of work; the problem of moral hazard in unemployment insurance is exacerbated.

These developments increase the costs both of income redistribution and social insurance. At the same time the dynamic world economy, with its rapid technological progress and changing patterns of international trade, leads to greater risks for people and greater need of social insurance.

As a result the trade-offs between equity and efficiency and between insurance and incentives have deteriorated in recent years. Against this background governments are looking for ways to redesign their tax-transfer systems so that the goals of redistribution and social insurance are secured at a lower cost in terms of economic efficiency.

This study offers a blueprint for reforming social insurance systems (including the UK's national insurance system). It will argue that partial financing through mandatory individual savings accounts could make a large number of taxpayers better off without making anybody worse off, provided such a system is combined with a guaranteed minimum level of social protection for the lifetime poor.

The reform proposal focuses on the financing of social transfers to citizens of working age. Though it does not need simultaneous reform of old-age pensions, the individual accounts for the working population could be integrated with the pension system and Chapter III will show how.

To help the reader evaluate the reform proposal, Chapter II will discuss the basic functions of social insurance, clarify some alternative concepts of redistribution, and present empirical estimates of the degree to which the social insurance systems in some modern welfare states succeed in redistributing lifetime incomes from the rich to the poor. Chapter III will then lay out the proposal for social insurance reform in detail and illustrate how it might work in practice, using the Danish welfare state as a case study. The data will suggest parallels between the UK and Danish systems. Chapter IV will discuss the merits of, and some possible objections to, the proposed reform from a broader economic, social and political perspective.

II

How Do Welfare States Redistribute?

Social Insurance: Aims and Objects

Social insurance for the working population aims to protect citizens against large income losses caused by unemployment, sickness, disability and other social events that temporarily or permanently reduce or eliminate their capacity to earn income. Britain's national insurance system was initially envisaged as a form of social insurance system and is supposed to serve the same function of protection against lost income. In theory people whose income fluctuates could protect themselves against these income risks and smooth their consumption over time through different means: by undertaking precautionary saving for rainy days, by borrowing when their income was temporarily low, or by taking out private insurance against various contingencies. However, problems of imperfect and asymmetric information that prevent a perfect functioning of private markets for credit and insurance mean that such a laissez-faire solution would leave many citizens with little protection. For example, a potential lender may not know enough about the future earnings capacity of an unemployed person to be willing to offer him credit against his expected future income. Similarly, when insurance companies do not have the information needed to distinguish (fully) the 'good risks' from the 'bad risks' among their customers, they cannot differentiate (fully) insurance premiums according to risk. Hence they will tend to overcharge the good risks and undercharge the bad ones, thus deterring the former customers and attracting only the latter ones, possibly to the point where it becomes unprofitable to offer any insurance at all.

Even though the government is also imperfectly informed, it can use its taxing power to pool the risks among all taxpayers; it can make sure that the money that it pays out to people in need is balanced in the aggregate through tax receipts. Through the tax-transfer system the government can force the good as well as the bad risks to participate in a system of social insurance in those cases where the opting-out behaviour of the good risks cause private insurance markets to fail.

One of the basic functions of social insurance is to offer *liquidity insurance* enabling people who could not otherwise obtain (sufficient) credit or insurance to maintain an acceptable living standard in periods of temporary income losses. Of course, the government, rather than pay out a social insurance benefit without obliging the beneficiary to repay later, could lend the amount to the citizen in temporary need and oblige him to repay the money with interest and with instalments conditional on his future earnings. An example in the sphere of education is the UK's student loan system. However, governments tend to choose the former

because social insurance serves another objective, that of *equity*: it allows income to be redistributed from those with good luck to those with bad luck.

Discussions of redistributive policies usually take a short-term perspective, focusing on redistribution of annual incomes or at least incomes earned over a relatively short time. However, a person's annual income is often a very poor indicator of his lifetime earnings capacity, since individual earnings tend to vary a lot over the life cycle. An obvious example is a student in higher education who may have a very low income while being educated but who may end up with a high lifetime income as a result of the extra earnings capacity generated by his education. Similarly, a parent withdrawing temporarily from the labour market to care for a small child may earn nothing during that period but may still earn a respectable income over the long run after having re-entered the labour market. Another example is a person suffering a single spell of, say, six months of unemployment during his entire working career. During that particular year he may be pushed to the bottom of the income distribution even if he ends up in a much higher bracket of the distribution of lifetime incomes.

This suggests that as long as *the system of social insurance provides adequate liquidity insurance against temporary income losses*, the objective of redistribution should be specified in terms of *lifetime* rather than *annual* incomes, since a person's lifetime income is a much better indicator of his long-term earnings capacity than his annual income. In other words, apart from offering liquidity insurance, the other basic function of the system of social insurance is to *redistribute lifetime income* from those with good luck to those with bad luck in life. A person's lifetime income may be low if earnings capacity is harmed over a large part of his working career: this can be due to circumstances beyond his control – e.g. a number of spells of cyclical unemployment. Lifetime income may also be low if he is unlucky to be born with limited innate abilities; or the development of his potential for learning or the social skills needed to succeed in the labour market may be hampered if the individual grows up in a disadvantaged background. Most people would agree that it is fair to redistribute income in favour of disadvantaged citizens: and this is most effectively done if redistributive policies focus on the distribution of lifetime rather than annual incomes.

It can be argued that all citizens, at least up to a point, benefit from a tax-transfer system that redistributes lifetime income; such a system can be seen as an insurance device from the perspective of (the parents of) unborn and young children who do not know their future position in society. If they end up with bad luck in life, the social insurance system will protect them; if they are risk averse, they will be willing to pay a price for this protection in the form of the taxes they must pay if they end up being well off.

Of course, a person's realised lifetime income is not a perfect indicator of his capacity to earn income. For example, a person with a good earnings capacity may still end up with a relatively low lifetime income if for some reason he chooses not to work very hard or if he impairs his earnings potential through irresponsible behaviour. Ideally one would like to redistribute in favour of individuals with low earnings *capacities* rather than low *actual* earnings, at least to the extent that low realised earnings are the outcome of a deliberate individual choice which can be reversed. However, in practice policy-makers can only observe the actual incomes of individuals (and even that is sometimes very difficult!), so a person's realised lifetime income remains the best available indicator of his earnings capacity.

In summary, the basic goals of social insurance are to provide liquidity insurance against temporary income losses and to redistribute lifetime incomes. The reform proposed in chapter III will be judged against these criteria.

How to Redistribute: From Rich to Poor or over the Life Cycle?

Existing public transfer programmes tend to be focused on the redistribution of annual rather than lifetime incomes. As a consequence, much of the redistribution achieved by modern welfare states is a *redistribution over the individual's life cycle* - also known as *intra*-personal redistribution - rather than so-called *inter*-personal redistribution from the lifetime rich to the lifetime poor. In other words, a large fraction of the taxes currently levied to finance social insurance benefits is essentially money that the taxpayer transfers to himself over the life cycle rather than a transfer of lifetime incomes across different individuals. Over the course of his life a person pays taxes, and a part of those taxes finances the various benefits he receives at various points in his career, e.g. benefits received during spells of unemployment and sickness, education grants, child and family benefits, etc. However, since there is rarely a direct link between taxes paid and benefits received, the taxes and benefits tend to distort economic behaviour, mostly by discouraging work and encouraging the take-up of benefits even if they are not really needed.

The recent evidence from a sample of Western countries including the UK, Denmark, Italy and Sweden shows that a large part of the tax bill tends to be redistributed, not from rich to poor but to the taxpayer over his lifetime. The figures for the UK are between 62 per cent and 71 per cent for intra-personal redistribution and between 29 per cent and 38 per cent for inter-personal redistribution. For Denmark, Italy and Sweden the figures are of the same order (Table 2). A more detailed examination of the Danish figures will be helpful in illustrating the position.

The Danish social insurance system provides a striking example of the degree of 'churning' in modern Western European welfare states, that is, the higher proportion of intra-personal relative to inter-personal redistribution. Table 1 summarises the most recent estimates of the impact of the Danish tax-transfer

system on the distribution of lifetime incomes. The estimates were produced by the Danish Economic Council, based on a comprehensive data set covering a representative 10 per cent sample of the Danish population above 18.¹ The table groups the population into ten deciles according to the size of their total accumulated lifetime income before taxes and transfers ('market income'). Thus the column headed D1 shows average figures for the poorest 10 per cent of the population; the column headed D2 gives average figures for the second-poorest 10 per cent of the population, etc., so the column D10 indicates the average numbers for the richest 10 per cent of all individuals.

The first row in Table 1 shows the average lifetime market incomes in the different income groups. The second row, 'Taxes reserved for social insurance', shows estimates of that part of the direct and indirect tax bill which serves to finance the various social insurance programmes, while the third row indicates the total social insurance benefits received by individuals in each income group over their life cycles. Individuals receiving social transfers in a given year also pay some amount of tax (at least indirect tax) during that same year. If taxes paid during the year exceed the benefits received, the benefits can be said to be fully financed by the taxpayer himself, and if the tax bill amounts to, say, half the benefits collected during the year, the taxpayer has self-financed half of his benefit income in the same year. The fourth row in Table 1 shows the amount of direct and indirect taxes that the various income groups paid in return for benefits received during the same year of their life. Another part of the transfers received over the life cycle is financed by the recipient himself via the taxes paid in the other years of life. This self-financing of benefits through taxes paid in some other year is shown in the fifth row of the table. The sixth row indicates the net transfers received over the course of life by those who end up receiving more benefits than the taxes they pay, and the seventh row shows the differences between total taxes paid and total benefits received by those who end up being net contributors over the life cycle.

¹ Established by the Danish parliament in 1962, the Economic Council is an independent think tank advising the Danish government and parliament on issues of economic policy. A detailed explanation of the method used to estimate lifetime incomes can be downloaded from:
www.econ.ku.dk/pbs/default.htm#Recent%20working%20papers

**Table 1. Inter-personal versus intra-personal redistribution in Denmark
(1,000 euros, 2002 income levels).¹**

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Average
1. Accumulated lifetime market income	470	795	991	1146	1287	1421	1576	1755	2030	2859	1433
2. Taxes 'reserved' for social insurance	211	277	311	338	363	388	418	454	512	711	398
3. Transfers received over the life cycle	546	521	477	434	399	377	348	324	295	262	398
4. Self-financed transfers received in the same year	155	171	171	168	167	167	167	169	173	180	169
5. Self-financed transfers received in another year	54	101	130	149	159	163	157	143	117	81	125
6. Net transfers received over the life cycle by those who are net recipients (3.-4.-5.)	337	249	176	117	73	46	24	11	4	1	104
7. Net taxes paid over the life cycle by those who are net contributors (2.-4.-5.)	2	5	10	20	37	58	94	142	221	450	104

1. All figures are total amounts accumulated over the life cycle, assuming a zero growth-adjusted real discount rate. The notation DX indicates lifetime income decile X.
Source: Bovenberg, Hansen and Sørensen (2007a, Table 1).

Not surprisingly, we see from Table 1 that net receipts from the social insurance system are on average higher among the lower income groups and that net contributions to the system are on average higher among high-income earners. This reveals that some amount of redistribution from the lifetime rich to the lifetime poor certainly takes place. However, the table also shows that even in the top decile of the lifetime income distribution (D10) there are some individuals who receive more benefits than the taxes they pay (witness the positive number in row 6 and column 10), and even at the very bottom of the income distribution some people are net taxpayers on a lifetime basis (see the positive figure in row 7 and column 1).

The table allows us to estimate the average amount of intra-personal redistribution over the individual's life cycle relative to the inter-personal distribution of lifetime income from the rich to the poor. To do so, we focus on the last column in the table showing averages across the entire population. Adding the figures in the fourth and fifth rows of that column, we obtain the total amount of tax paid by the average person to finance social transfers to himself. Dividing this number (169+125) by the figure in the second row of the last column – showing the total taxes paid by the average person to finance social transfers (398) – we find that 74 per cent of the taxes levied to finance social insurance represent intra-personal redistribution over the taxpayer's own life cycle. In other words, only the remaining 26 per cent

of total taxes and benefits involve inter-personal redistribution from high to low lifetime incomes. Still, the 74 per cent of the tax bill that taxpayers essentially transfer to themselves distort their behaviour because of the missing direct link between taxes paid and benefits received.

The same pattern of redistribution can be observed in other Western countries. In recent years similar studies of intra-personal versus inter-personal redistribution have been undertaken for a number of other Western countries. Some of these studies experimented with alternative methods of estimation and therefore indicated only an interval rather than a single number for the degree of inter-personal redistribution. The findings from these studies are summarised in Table 2 showing the percentage of taxes collected to finance social insurance programmes that represents intra-personal and inter-personal redistribution, respectively. The strong message from all of these studies is that a very large part of the tax bill merely achieves a redistribution of resources from one stage of the taxpayer's life cycle to another rather than a redistribution from the lifetime rich to the lifetime poor.

Table 2. Intra-personal and inter-personal redistribution via the system of social insurance

Country	Percentage of total transfers representing	
	Intra-personal redistribution	Inter-personal redistribution
Australia ¹	38-52	48-62
Denmark ²	74	26
Ireland ³	55	45
Italy ³	55	45
Sweden ⁴	76	24
United Kingdom ¹	71-62	29-38

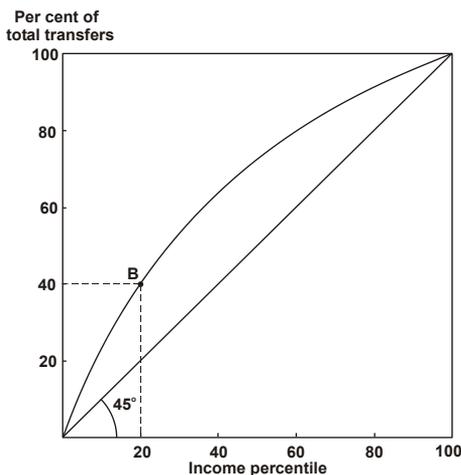
Sources: 1. Falkingham and Harding (1996). 2. Bovenberg, Hansen and Sørensen (2007). 3. O'Donoghue (2001). 4. Hussénus and Selén (1994)

Redistribution and the Impact of Social Transfers: The Danish Example

While existing social insurance systems do not achieve very much inter-personal redistribution overall, the amount of redistribution differs considerably across the various social insurance programmes. The differences will be estimated to illustrate the redistributive impact of the most important social transfer programmes in Denmark.

Figure 1 illustrates how one may measure the effect of a transfer programme on the distribution of income. Along the horizontal axis of the diagram citizens are ordered in different percentile groups according to the size of their disposable income. As we move from left to right along the horizontal axis, disposable income increases. The vertical axis measures the fraction of total transfers received by the various income groups from some transfer programme. The so-called *concentration curve* drawn in the diagram thus indicates the fraction of total benefits received by the poorest X per cent of the population. For example, point B on the concentration curve shows that the poorest 20 per cent receive 40 per cent of the benefits paid out under the hypothetical transfer programme considered. If all individuals were to receive exactly the same amount of benefit under some transfer programme, the concentration curve for that programme would coincide with the 45-degree line, since the poorest X per cent would then always receive exactly X per cent of total benefits. If the concentration curve for a transfer programme lies above the diagonal, the benefits from that programme tend to be concentrated among the lower income groups. Such a programme will help to reduce the inequality in the distribution of disposable incomes, compared to a programme that simply pays out the same lump sum benefit to everyone. Hence we may use the area between the concentration curve and the 45-degree line as a measure of the redistributive power of a transfer programme.

Figure 1. The concentration curve for a hypothetical social transfer programme



The so-called *redistribution indices* shown in Table 3 have been calculated in this way.² For each of the transfer programmes considered, the concentration curve and the corresponding redistribution index have been estimated using the

² To be quite precise, these redistribution indices are calculated as the area between the concentration curve and the diagonal divided by the area below the diagonal (which is $\frac{1}{2}$), so the value of the indices is actually twice the area between the concentration curve and the diagonal.

distribution of annual disposable incomes as well as the distribution of lifetime disposable incomes. Obviously, the higher the value of the redistribution index, the greater is the redistribution achieved by the relevant transfer programme.³ In an *annual* perspective, we see that social assistance benefits and education benefits are the most redistributive transfers. Housing benefits and supplementary retirement benefits (which are means-tested) also have a substantial redistributive impact on an annual basis. By contrast, in a *lifetime* perspective, most transfer programmes have a smaller effect on income distribution. The exception here is disability benefit which is more redistributive in a lifetime context, because (in Denmark) relatively generous benefits are involved; so in terms of annual income, the disabled are not among the poorest income groups. However, since disability typically involves a permanent loss of earnings capacity, the disabled tend to end up with relatively low lifetime incomes, so in a lifetime perspective disability benefits are more redistributive. A considerable part of housing benefits is granted to recipients of disability benefits. This helps to explain why housing benefits are slightly more redistributive in a lifetime context than in an annual context. Unemployment insurance benefits are also a bit more redistributive in a lifetime perspective, because the incidence of long-term unemployment tends to be concentrated on unskilled groups whose lifetime incomes are relatively low.

Table 3. The redistribution index for Danish transfer programmes, 2002

Transfer programme	Annual Income	Lifetime Income	Percentage share of total spending on social transfers (2004) ¹
Social assistance	0.70	0.47	6.2
Housing benefits	0.35	0.39	4.4
Disability benefits	0.14	0.39	13.8
Supplementary retirement benefits	0.37	0.19	n.a.
Sickness benefits	0.19	0.18	8.3
Unemployment insurance benefits	0.09	0.11	9.7
Child benefits	0.13	0.10	8.0
Grants to students in higher education	0.68	0.04	5.3
Early retirement benefits	0.00	0.04	10.8
Parental leave benefits	0.22	0.02	0.1
Basic retirement benefit	0.22	0.00	28.1 ²

1. The table excludes a number of minor programmes accounting for 5.3 per cent of total spending on social transfers. Total spending on social transfers amounted to 18.5 per cent of GDP in 2004.
2. Sum of basic and supplementary retirement benefits.

Sources: Danish Economic Council (2005, Table II.5) and Statistics Denmark.

³ In the Danish context considered here, all transfers are financed out of general government revenues, so to evaluate the relative degrees of redistribution achieved by the various programmes we do not have to consider how they are financed.

In general, the ranking of the various transfers according to their redistributive impact changes significantly as the focus shifts from an annual to a lifetime measure of income. Social assistance remains the most redistributive programme, but its redistributive effect is significantly smaller in a lifecycle context. Transfers such as parental leave benefits and the basic retirement benefit (which is a flat benefit granted to all Danish residents above the age of 65) have a significant impact on the distribution of annual incomes, but exert (almost) the same effect on the distribution of lifetime incomes as an identical lump-sum transfer to all individuals. The reason is that these benefits are granted in a phase of the life cycle when people earn low annual incomes, thereby helping to reduce inequality in annual incomes. However, the individuals who collect these benefits enjoy higher incomes at other times in the course of their life, so these benefits do not contribute much towards narrowing differences in lifetime incomes. The same type of argument holds even more strikingly for grants to students in higher education. While such grants are highly redistributive in an annual context, they have only small effects on the distribution of lifetime incomes.

It should be stressed that Table 3 only measures the degree to which the various transfer programmes systematically redistribute across various income groups. Even if no such redistribution took place, a particular transfer could still result in significant redistribution in other ways in which people differ; for example, child benefits obviously involve a systematic redistribution from childless citizens to families with children. Hence, a low value of the redistribution index in Table 3 does not necessarily mean that the transfer programme in question fails to achieve its intended distributional purpose.

Nevertheless, the fact that many important transfer programmes result in very little redistribution from the lifetime rich to the lifetime poor strongly suggests that the financing and design of these programmes should be reconsidered. Moreover, the fact that many programmes have very different redistributive powers in an annual and in a lifetime perspective indicates the importance of adopting a life cycle perspective on social insurance reform.

The blueprint for social insurance reform presented below is guided by these insights.

III

How to Reform: Mandatory Savings Accounts

Individual Accounts: A New Model for Social Insurance

In today's system a large proportion of taxes paid by the individual for social insurance is transferred back to him over the life cycle. This may not be perceived because no direct link exists between taxes paid and benefits received. As a result the taxpayer has every incentive to reduce his tax bill (e.g. by working and earning less) and take up social insurance benefits (even if not really needed). However, if a direct link between social security contributions and benefits could be established, these negative incentive effects would disappear, since the contribution would then no longer be a tax, and the benefit would no longer appear as funds transferred from the rest of society. This is the principle of the proposed social insurance reform.

The reform would mean that part of the taxes which currently finance social insurance programmes are replaced by mandatory contributions to individual savings accounts from which certain social insurance benefits would be drawn. In practice the system would operate as follows:

1. An individual account (IA) would be established for each taxpayer.
2. Every year the taxpayer would be obliged to contribute a certain percentage of his gross wage to his IA. The current labour income tax would be reduced by a corresponding amount.
3. Any benefits received under the system would be debited to the holder's IA.
4. Every year the account balance would be carried forward with an appropriate market interest rate (e.g., the after-tax interest rate on government bonds).
5. Any surplus on the IA recorded at the time the taxpayer reaches the official retirement age would be added to his ordinary public pension. Account balances below a certain limit could be paid out as a lump sum; remaining amounts would be converted into an annuity which would be added to the public pension.
6. For individuals with a negative IA balance at the date of retirement, the account balance would be set equal to zero. These individuals would simply receive the public pension to which they are entitled under current rules.

Before addressing the social insurance programmes which should be included in this design (see p.15), let us take a closer look at the key features of such an individual account system and the advantages it would bring.⁴

⁴ Readers with a background in economics may wish to consult Sørensen (2003) or Bovenberg and Sørensen (2004) for a more rigorous exposition of the points made in the next two sections.

Individual Accounts: Insurance

First, the proposed IA system provides *liquidity insurance*: whenever an account holder meets the eligibility criteria for receipt of one of the social insurance benefits included in the system (e.g. unemployment benefit), he can draw the full amount of benefit to which he is entitled even if his account balance turns negative or is already negative. Account holders therefore can never be forced to cut their consumption below the present levels under the current system. Under the account system the government provides the citizen with a credit on a 'rainy day', using his future mandatory contributions to the IA as collateral. For all those citizens who cannot borrow against their future labour income in the private capital market, the government thus provides an essential credit facility allowing them to smooth their consumption over time.

Second, the government offers *lifetime income insurance* via the 'bail-out' clause described in point (6) above. Because negative account balances are cancelled at the time of retirement, citizens are guaranteed the same minimum lifetime income as that offered by the present system of social insurance. The total retirement benefit can never fall below the public pension implied by existing rules, and during his working life a person can collect the same benefits at the same rates and under the same eligibility rules as at present. The negative account balances measure the extent to which these account-holders receive transfers from the rest of society over their working careers, since the negative balances must be covered by general tax revenues. Because the negative account balances reflect the difference between total contributions paid and total benefits collected over the entire active life of the account holder, the 'bail-out' clause implies that redistribution is based on *lifetime* income rather than on annual income, in accordance with the principle advocated in chapter II. Since contributions to the IA depend on earnings, and since benefits will mainly be drawn from the IA when the account-holder is out of work, the account balance at the date of retirement is a good measure of the account-holder's long-term (historical) earnings capacity. The government effectively offers, through the bail-out clause, a minimum lifetime income guarantee protecting the weakest members of society. The government can actually afford to offer such a lifetime income guarantee despite the fact that it must pay out the positive IA balances, because the improvement in work incentives implied by the IA system will strengthen the public finances (see p.24 below).

The proposed IA system therefore meets the two basic objectives of social insurance discussed in chapter II: liquidity insurance and lifetime income insurance. In addition, two other characteristics of the IA system should be stressed. First, contributions to the accounts must be *mandatory*, at least as long as the positive account balance does not exceed a certain (high) limit. As already noted, it is the government's power to impose mandatory contributions that allows it to offer liquidity insurance in cases where the private market fails to provide such insurance. In return for offering a credit facility through the IA system, the

government must be sure to get its money back from those who can afford to pay back, that is, from those whose long-run earnings capacity enables them to accumulate positive IA balances at retirement.

Second, to prevent abuse of the lifetime income guarantee, account-holders can only draw benefits *under the same eligibility criteria as the present ones*. If IA holders could freely draw from their accounts, they would have an incentive to withdraw as much as possible since the bail-out clause ensures that any negative balance is cancelled at the time of retirement. Obviously the government cannot allow or afford such abuse. It should be noted that these regulations also address problems arising from myopia, lack of self-control, and calculated behaviour. If left to rely on voluntary savings, some people lacking foresight or self-discipline may not save enough even if they could in fact provide insurance for themselves. Moreover, some people may speculate that if they do not save to protect themselves against unexpected income losses, the government will bail them out anyway because it cannot accept to have people starving. The mandatory nature of IA contributions and the restrictions on withdrawals from the accounts limit the scope for this type of behaviour.

Individual Accounts: Providing Incentives

One of the principal aims of such a reform is to reduce the negative incentive effects of the current tax-financed system of social insurance. The proposed IA system would succeed in doing this in two important ways. First of all, for all those who end up with a positive IA balance, the system will *reduce the marginal and average tax rate on labour income*, because part of the labour income tax is replaced by contributions to the individual accounts. Since these contributions are returned to the contributor with interest - either in the form of some future benefit during his working career or in the form of a higher retirement benefit - they are a kind of individual saving rather than a tax. Hence the IA contributions will not create the same disincentive to work as the current labour income tax. Indeed, for citizens who are forward-looking and not subject to liquidity constraints, the mandatory IA contribution will be equivalent to private saving. These individuals will realise that their IA contributions will be returned with a market interest rate;⁵ and by saving less on other accounts or by borrowing, they will be able to adjust their total savings to its desired level, despite being obliged to invest some of their savings in the IA. Thus, for these people the IA contribution will not work like a tax at all.

For those facing liquidity constraints, the mandatory IA contribution will to some extent be seen as a tax, since these persons cannot (by the definition of a 'liquidity constraint') transfer money to the IA from other accounts or borrow

⁵ Note that the government only has to pay an after-tax interest rate on the IA balances to make saving via the IAs just as attractive as long-term saving in other (non-subsidised) savings vehicles.

to pay the contribution. On the other hand, since these individuals do get their contributions back (with interest) at some later time (when they may also be liquidity-constrained), the contribution will only partly work like a tax, so their effective tax rate on labour income will fall to a degree depending on the severity of the liquidity constraint they face. Finally, for those who do not look ahead at all, living from 'hand to mouth', the mandatory IA contribution may of course be seen like just another tax, generating the same disincentives as the current labour income tax. On average, however, there is no doubt that the IA contributions will create a smaller disincentive to work than the labour income taxes they replace.

The second important incentive effect is that the IA system will *encourage people not to take up social insurance benefits* unless they really need them, since they effectively pay for the benefits themselves in the form of a lower IA balance and hence a lower pension. Indeed, since IA balances are carried forward with interest until retirement, any benefit drawn from the account is fully self-financed in present value terms for people who can look forward to ending up with a positive IA balance. In this sense the replacement rate in the transfer programmes included in the IA system is effectively reduced to zero. Because many of the relevant benefits can be collected only when the recipient is out of work, this self-financing of benefits creates a strong incentive to minimize periods of unemployment and absence from the labour market. As the case study presented below will illustrate, this feature of the IA system will generate an even stronger improvement in work incentives than the cut in the tax rate on labour income. Apart from strengthening the incentive to work, the self-financing of benefits implied by the IA system will also discourage benefit cheating and moral hazard more generally, by inducing people to take precautionary action to prevent the occurrence of the social events that trigger benefit payments under the current system.

Of course, these positive incentives will only affect those who expect to end up with a positive IA balance at the date of retirement. Those who expect to end up with a deficit will face exactly the same incentives as under the current tax-transfer system. Due to the lifetime income guarantee built into the system (the 'bail-out' clause), these individuals can collect the same benefits subject to the same constraints as under the current system, and their IA contribution will work just like the labour income tax it replaces since it is not returned to them. Hence these people have no incentive to change their behaviour. It should be noted, however, that some of those who end up with negative IA balances may actually respond to the positive incentives in the system until the time they realise that they will not be able to accumulate a positive balance.⁶

⁶ On the other hand, there may also be some who do not initially respond to the incentives because they do not expect to be able to build up a positive IA balance, even though they actually manage to do so.

How the System will be Run

What about the administration of the proposed system of individual accounts? Who would run them and under what rules?

The system could be run in different ways, though withdrawals from the accounts would be regulated by the eligibility conditions now in force in the current social insurance programmes.

One option is for the government to administer the scheme as a pure book-keeping system of 'notional' accounts. It would keep the records of contributions to, and payments from, each individual account and determine the amount of lump sum or annuity paid out to account-holder at official retirement age. In this scenario the IA system would be run on a 'pay-as-you-go' basis like the current system of social insurance for people of working age - that is, the contributions to the IAs would not be saved and invested in the capital market, even though account balances would be carried forward with the after-tax interest rate on government bonds as a matter of book-keeping.

As an alternative, the government might choose to give individual account-holders the option of leaving the administration of their accounts in the hands of a certified financial institution that invests the account balances in the capital market. In this case positive account balances would be carried forward with the rate of return that the savings can earn in the market. Whenever an account-holder became eligible for one of the social benefits included in the system, the relevant government agency would report to the private administrator of the account who would pay out the benefit from the account. If the account balance turned negative, the government would transfer a corresponding amount to the account and charge the government bond interest rate on the accumulated amount transferred.

By allowing account-holders this option, the government would give them freedom of choice over the investment of their mandatory savings, constrained by reasonable prudential regulations of the extent to which savings could be invested in risky assets.⁷ On the other hand, such a system of 'funded' accounts held in private financial institutions would be likely to involve higher administration and transactions costs than a government-run system of notional accounts which allows the government to reap economies of scale. In any case, taxpayers should always have the option of leaving the administration of their IA to the government as a pure pay-as-you-go book-keeping exercise.

The transition to the IA system could be designed in one of two ways, either phased in for different cohorts, or introduced for all on the same day. Under the first alternative, new young cohorts would become subject to the IA system as

⁷ Such regulation would be warranted since the government would have to bail out account holders who lose their assets.

they reach a certain age, while the cohorts above that age at the time of reform would continue under the current tax-financed system of social insurance. Under the second alternative, all individuals would become subject to the new IA system from day one. In this scenario people close to retirement age at the time of reform would obviously only be able to accumulate small IA balances, but with the passing of time the IA balances paid out at retirement would gradually increase, as the younger cohorts would have had longer time to accumulate their balances.

Both of these transition strategies would ensure a smooth and gradual phase-in of the new IA system, as the total account balances paid out by the government would build up slowly over time, starting from zero. Even if the IA system were designed as a funded system where account balances are invested in the capital market, it would not involve any significant redistribution across generations. The reason is that payments from the IA system would only include certain benefits for people of working age which would tend to be spread out over a person's working career. Hence people would not have to contribute to the system for years or decades before being eligible for any benefit from the system. This is in contrast to a funded system of old-age pensions which raises a problem of intergenerational fairness if it replaces a pay-as-you-go system of retirement benefits. In that case the young transition cohorts have to save to fund their own retirement benefits while at the same time paying taxes to support the current transition generation of retirees who did not fund their pensions. The transition to the proposed IA system does not generate a similar intergenerational distribution problem because it does not involve a similar systematic redistribution between young and old.

Designing the Individual Account: The Danish Example

How might the individual accounts be designed in practice? The proposal for an IA system for Denmark put forward by the Danish Economic Council in 2005 provides a good example.⁸ It also provides the opportunity to consider which specific transfer programmes should be included in the IA system. The natural candidates for inclusion in the IA system are the transfer programmes for people of working age which involve a high degree of redistribution over the individual life cycle and a low degree of redistribution from the lifetime rich to the lifetime poor. This was the guideline for the proposal from the Danish Economic Council (henceforth the DEC proposal). Specifically, the DEC proposed inclusion of the following transfers in the IA system:

1. Short-term unemployment benefits (for periods of unemployment up to three months)
2. Early retirement benefits
3. Grants to student in higher education
4. Sickness benefits (up to a limited number of sickness days)
5. Parental leave benefits
6. Universal child benefits

⁸ Peter Birch Sørensen participated in the development of this proposal as Chairman of the Danish Economic Council.

The redistribution indices in the second column of Table 3 (see p.11 above) showed that all the above programmes generate relatively little redistribution of lifetime incomes in the Danish context, compared to programmes such as social assistance, housing benefits and disability benefits. However, from the data underlying Table 3 the DEC found that the degree of lifetime income redistribution implied by benefits paid to workers suffering long periods of unemployment (exceeding three months) is about twice as large as the interpersonal redistribution generated by short-term unemployment benefits (for periods shorter than three months). For this reason the DEC proposal includes only short-term unemployment benefits in the IA system. Similarly, benefits paid during long periods of sickness tend to be more redistributive than those paid during short spells. Moreover, short-term sickness spells tend to be more difficult to verify. The DEC therefore proposed that benefits paid during a limited number of sickness days should be included in the IA system. Child benefits included in the system are universal flat benefits paid to all Danish mothers without any means-testing. Single mothers are entitled to additional means-tested child benefits which are more redistributive and are therefore not included in the IA system. For married couples, the DEC proposed that any benefit paid to one of the spouses should be debited by half the amount on the IA of each spouse, and for unmarried parents any child-related benefits would be similarly debited by half the amount on the IA of each parent. These rules are intended to ensure a reasonably equal distribution of IA balances between men and women.

The DEC proposed that the mandatory contributions to the IAs should be a fixed percentage of the base of the Danish payroll tax. This tax is levied on gross wage income and on the imputed labour income of the self-employed (with no cap for any of these groups); for wage earners, the tax is collected at the employee level. Under the DEC proposal, the percentage IA contribution would be set at such a level that total contributions would correspond to total expenditure on the transfers included in the IA system, and the payroll tax would be cut by a corresponding amount, estimated at roughly 8 percentage points. For each individual taxpayer, the mandatory contribution to the IA would thus be offset by a tax cut of exactly the same magnitude.

In addition, the DEC proposal has all the other features summarised in the first part of this chapter, including the requirement that account-holders must meet the current eligibility criteria to receive payments from their accounts, and the 'bail-out' clause that negative IA balances are cancelled at retirement. Through this provision for lifetime income insurance the above six transfer programmes included in the system become targeted at individuals and families with low lifetime incomes, whereas those who end up with positive IA balances effectively insure themselves over the life cycle, while still obtaining short-term liquidity insurance through their ability to draw on their accounts even if the balance is temporarily negative.

The Impact

The effects of the IA system on the distribution of lifetime incomes, the labour market and public finances and economic efficiency can now be summarised.

(i) Distribution of Lifetime Income. The data on lifetime incomes underlying Table 1 (see p.8) allowed the DEC to estimate the impact of the proposed IA system on the distribution of lifetime incomes in Denmark in the hypothetical situation where no one changes his or her behaviour. Although the very purpose of the reform is to induce a change in behaviour, these estimates nevertheless provide an indication of the impact on the distribution of economic welfare.⁹

Table 4 shows the estimated distributional effects of the proposed IA system in the absence of behavioural changes. The table groups the Danish population into ten income deciles according to the size of their lifetime disposable income obtained under the current tax-transfer system. The numbers shown in the table are based on the current patterns of earnings and take-up of the various benefits across the population. The second row of the table shows that the accumulated contributions to the proposed individual accounts rise relative to the accumulated withdrawals as lifetime income increases. This is not surprising, since contributions are proportional to earned income whereas most benefits are paid out in flat rates independent of income, and since the low-income groups tend to rely more on transfers than the high-income groups do. As a consequence, it can be seen from the third row that the account balances at retirement make up a higher percentage of lifetime income as income increases. Nevertheless, the fourth row of Table 4 shows that even among the poorest 10 per cent of the population (column D1) there are more than seven out of one hundred people who end up with a positive account balance. Moreover, even among the richest 10 per cent of the population (column D10), more than 20 out of 100 individuals end up with a negative account balance. Across the population as a whole, the last column of Table 4 shows that about 46 per cent will manage to accumulate an account surplus if behaviour is unchanged. However, according to the data underlying the table, many individuals would only have to change their behaviour a little bit (working a little more and collecting a little less benefit) in order to accumulate an account surplus. On this basis the DEC estimated that about 60 per cent of the population would end up with a positive IA balance once allowance is made for realistic behavioural responses to the system, discussed below (see p.24).

⁹ Indeed, even though Table 4 below neglects behavioural changes, the third column in the table nevertheless indicates the approximate impact of the IA system on the distribution of economic welfare if taxpayers have optimised their behaviour prior to the reform. If people have already adjusted their labour supply to the point where they are indifferent between working a little more and a little less, a small change in labour supply induced by the reform will not have any noticeable impact on their welfare. Hence it is legitimate to abstract from the effects of behavioural changes when we evaluate the effect of the reform on the distribution of welfare.

Table 4. Average payments to and from the individual accounts and account balances at the time of retirement across lifetime income deciles¹

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Average
Lifetime income (index)	62	79	86	92	97	102	107	113	121	141	100
Accumulated payment into account in percent of accumulated withdrawal from account	34	56	72	84	97	109	123	141	161	210	100
Account balance at retirement ² in percent of accumulated lifetime disposable income ³	0.1	0.4	0.7	0.9	1.2	1.4	1.8	2.2	2.5	3.3	1.6
Percent of adult population with positive account balance	7.2	17.1	27.7	36.3	43.0	51.2	57.2	65.8	71.0	79.7	45.6

- 1 The estimates assume a zero growth-adjusted real interest rate and unchanged behaviour.
- 2 Average account balance across the entire sample population, where negative account balances have been set to zero.
3. Accumulated income up until the official retirement age of 65; average across the entire sample population.

Source: Danish Economic Council (2005, Table VI.3).

Although Table 4 indicates that the proposed IA system does tend to shift the distribution of lifetime incomes in favour of the better-off, the overall increase in inequality is modest. Inequality is usually measured by the so-called Gini coefficient indicating the fraction of total income that would have to be redistributed from the richest half of the population to the poorest half to achieve complete equality. The Gini coefficient for the distribution of lifetime market incomes in Denmark is currently 0.253, which means that roughly one quarter of total income would have to be transferred from the richest half to the poorest half to ensure that everybody receives the same income before taxes and transfers. When taxes and transfers are accounted for, the Danish Gini coefficient drops to 0.127. Measured by the percentage reduction in the Gini coefficient, the current tax-transfer system thus reduces inequality by an amount equal to $(0.253-0.127)/0.253 = 49.8$ per cent. According to the DEC estimates underlying Table 4, the proposed IA system would increase the Gini coefficient for the distribution of disposable lifetime income from the current value of 0.127 to 0.133. After the reform the redistribution of market incomes implied by the Danish tax-transfer system would therefore be $(0.253-0.133)/0.253 = 47.4$ per cent; only a slight reduction compared to the 49.8 per cent of market incomes redistributed through the current system.¹⁰ Moreover, as will be explained below, although inequality would be slightly greater than

¹⁰ These mechanical calculations are only approximations since they abstract from the change in the distribution of market incomes that the IA system is likely to generate.

before, the total amount available for redistribution would increase as a result of the reform and no one would be worse off than before, due to the lifetime income insurance provided by the IA system.

(ii) Labour Market and the Public Finances. The proposed IA system implies that those who end up with negative account balances pay the same taxes and receive the same benefits as today, while those with positive balances receive an addition to their retirement pension. If behaviour were unchanged, the reform would therefore weaken the public finances as the government distributes the positive IA balances. According to the third row and last column of Table 4, the additional expense for the government would amount to 1.6 per cent of the existing labour income tax base. However, since the reform strengthens work incentives, the labour income tax base will increase, and if this increase is sufficiently large, the government will be able to finance the pay-out of the positive IA balances without having to raise any tax rates.

For those who expect to accumulate a positive IA balance, the reform will strengthen work incentives in three ways: First of all, it will reduce the *marginal* tax rate on labour income (the tax paid on an extra pound of earnings), since the mandatory contribution to the IA will not work like a tax, as explained above (see p.15). The lower marginal tax rate will encourage those who are already employed to increase the number of hours worked, to the extent that they have the possibility of doing so. We shall refer to this as the *hours-of-work effect*. Second, the IA reform will also reduce the *average* tax rate on labour income - that is, the total tax bill relative to total pre-tax income. This will strengthen the incentive for those who are not currently employed to seek employment, thus increasing the number of people employed. This could be described as a labour force *participation effect*. Third, in the transfer programmes included in the IA system *the effective benefit rate will drop to zero*, since people will finance the benefits themselves in the form of a reduction in their IA balance. Because most of the benefits included in the system are paid out only when the recipient is not working, this cut in the effective benefit rates will also encourage people to reduce the length of the periods during which they are not working. Again, this will create a positive labour force participation effect.

Through these three channels the IA reform will stimulate total employment, thereby boosting the tax base. The reform may also strengthen the tax base in other ways - for example, the lower tax rate on labour income may reduce the fraction of total compensation taking the form of untaxed fringe benefits rather than ordinary taxable income, although such effects are not included in the calculations reported below.

The magnitude of these changes in labour supply, and the impact on the public budget, if the IA system proposed by the DEC were implemented in Denmark, have been estimated in a recent research paper by Bovenberg, Hansen and Sørensen

(2007b). The effects depend on the sensitivity of hours worked to a change in the marginal after-tax wage rate and on the sensitivity of labour force participation to a change in the net income gain from employment (measured as the difference between a person's net income when employed and his net income when he is not employed). A large body of empirical economic research has tried to estimate the size of these labour supply elasticities. In their evaluation of the employment effects of the proposed IA reform, Bovenberg, Hansen and Sørensen (op. cit.) chose conservative estimates from the low end of the spectrum of estimated labour supply elasticities in the academic literature. On this basis they arrived at the results summarised in Table 5 which shows the estimated impact of the IA reform on the public budget.¹¹

All figures in the table are measured as a percentage of the total labour income tax base for individuals with an IA surplus which amounts to about 60 per cent of the aggregate labour income tax base in the economy. The table shows separate revenue effects for each of the six transfer programmes included in the DEC proposal for an IA system. The first column in Table 5 indicates the 'static' effects on the budget that would occur if there were no changes in behaviour. These static effects reflect the additional expense the government incurs when it pays out the positive IA balances; they are identical to the DEC estimates of the size of the positive IA balances that would materialise in case of unchanged behaviour.¹² The second column in Table 5 shows the additional direct and indirect tax revenue generated when taxpayers increase their working hours in response to the fall in the marginal tax rate, and the third column shows the additional net revenue produced by the rise in labour force participation that results from the fall in the average tax rate on labour income. For those transfer programmes where benefits are paid out only when the recipient is out of work, there is a further positive participation effect on public revenue, as the IA system induces people to reduce their reliance on such benefits by reducing the time spent outside the labour market. This revenue effect appears in the fourth column of Table 5.

¹¹ Apart from depending on labour supply elasticities, the budgetary effects of the IA reform are also determined by the initial tax and benefit rates and the degree to which entitlement to benefits depends on previous employment and previous taxes paid. Bovenberg, Hansen and Sørensen (2007b) explain in detail how all these parameters were estimated for Denmark.

¹² The data underlying the first column in Table 5 are thus identical to the data underlying Table 4.

Table 5. Estimated effects on net public revenue of including various transfer programs in the system of individual accounts¹

Benefit	1. Static effect	2. Hours effect of lower taxes	3. Participation effect of lower taxes	4. Participation effect of lower benefits	5. Total effect on net revenue (1. + 5.)	6. Total effect on net revenue
Unemployment ²	-1.19	0.18	0.57	1.00	1.75	0.56
Early retirement	-0.83	0.24	0.79	2.26	3.29	2.46
Sickness	-0.50	0.07	0.22	0.33	0.62	0.12
Parental leave	-0.06	0.01	0.04	0.10	0.15	0.09
All 4 programs above	-2.58	0.50	1.62	3.69	5.81	3.23
Education ³	-0.35	0.07	0.24	-	-	-
Child	-0.41	0.11	0.34	-	-	-

Notes:

1. Measured in percent of the total labour income tax base for individuals with an IA surplus.
2. Only short-term unemployment benefits.
3. Only benefits to students in higher education.

The calculations assume the the average elasticity of hours worked with respect to the marginal after-tax wage rate is 0.05 and that the average elasticity of labour force participation with respect to the net income gain from employment is 0.10.

Source: Bovenberg, Hansen and Sorensen (2007b, Table 3).

The hours-of-work effect and the participation effects add up to the total 'dynamic' revenue effect shown in the fifth column of the table. This is the overall improvement of the budget generated by the positive labour supply effects of the IA reform. When the static budgetary loss in the first column is subtracted from the dynamic revenue gain, we obtain the total effect on net revenue given in the sixth column. For the programmes in the four upper rows where benefits are conditional on non-employment, it can be seen that the total net revenue gain amounts to about 3.2 per cent of the labour income tax base for those with positive IA balances, or almost 2 per cent of the labour income tax base for all taxpayers.

Education grants and child benefits are not conditional on the recipient being out of work, so the labour force participation effect of reducing the effective benefit rates in these programmes is uncertain. If lower effective education grants induce fewer people to go on to higher education or to complete their studies more quickly, they may enter the labour market at an earlier age. On the other hand, there may be an offsetting negative effect on labour force participation since individuals with less education tend to retire earlier or may face greater risks

of non-employment. A cut in effective child benefits could conceivably reduce fertility a bit, thus causing less absence from the labour market as a result of child bearing and child rearing. However, these indirect participation effects on labour supply are highly uncertain. This is why no estimates for the participation effects of lower benefits are included in the two bottom rows of column 4 in Table 5. Still, including education grants (to students in higher education) and the universal child benefit in the IA system will allow a further cut in the labour income tax rate which will stimulate labour supply. The resulting positive effects on the public budget are estimated in columns 2 and 3 in the two bottom rows of Table 4. It can be seen that the 'dynamic' revenue gains from additional labour supply roughly offset the initial 'static' deterioration of the budget caused by the need to pay out positive IA balances.

Overall these estimates indicate that the positive labour market effects of the proposed IA reform would be more than sufficient to ensure that the reform would be self-financing. Indeed, according to Table 4 there would even be a net revenue gain that the government could use to increase public goods provision, to lower taxes further, or to subsidise the individual accounts of low-income earners to increase their chance of accumulating an IA surplus (see Chapter IV, p.33-34).

It may sound too good to be true that the IA reform would be self-financing. While it is widely recognised that a tax cut will partly pay for itself by strengthening the tax base, most economists agree that a tax cut will not normally be fully self-financing, given a realistic magnitude of the positive labour supply response. However, the IA system proposed here *combines* a tax cut with a 100 per cent cut in the effective benefit rates in the relevant transfer programmes: since people pay for their own benefits through a cut in their old age pension of the same present value, the replacement rates in the transfer programmes included in the IA system effectively drop to zero. As indicated in the fourth column of Table 5, this generates a strong positive participation effect on labour supply, despite the rather conservative labour supply elasticities assumed.

(iii) Economic Efficiency. The IA reform would, at least in the Danish context, make a lot of people better off without making anybody worse off.¹³ Under the proposed IA system, individuals with a negative IA balance will still have access to exactly the same benefits on exactly the same conditions as those prevailing today, so none of them can be worse off under the IA system. Moreover, all those ending up with a positive IA balance – roughly 60 per cent of Danish taxpayers once behavioural changes are accounted for – will experience an income gain in the form of a higher total retirement benefit.

¹³ In the jargon of economists, the reform would create a 'Pareto improvement'. Italian economist Vilfredo Pareto (1848-1923) argued that if a policy reform makes some people better off at the expense of others, the scientist has no objective way of judging whether the reform improves social welfare. But if a reform increases the welfare of some citizens without reducing that of any other citizen, then social welfare unambiguously improves, according to the criterion suggested by Pareto.

Society's economic gain from the reform results from improved work incentives. The size of this overall gain in economic efficiency can be estimated as follows. The value of the extra output generated by one more hour of work may be approximated by the *pre-tax* wage rate paid to the worker. If the worker has adjusted his labour supply to the point where he is indifferent as between working a little more or a little less, his *after-tax* wage rate will measure the extra income needed to compensate him for the loss of an hour of leisure. The wedge between the pre-tax and the after-tax wage rate therefore measures the social gain from an extra hour of work, since this tax wedge equals the difference between the value of the extra output produced and the value of the leisure given up. Hence the total economic gain from the IA reform may be calculated as the tax wedge times the total increase in employment generated by the reform. But this is exactly the total 'dynamic' revenue gain stated in the fifth column of Table 5. Thus we may use the dynamic revenue gain as an indicator of the economic efficiency gain created by the reform. According to the fifth row and fifth column of Table 5, the total gain from an IA system encompassing short-term unemployment benefits, early retirement benefits, sickness benefits and parental leave benefits would be roughly 5.8 per cent of the labour income tax base for those with positive IA balances, corresponding to about 3.5 per cent of the total labour income tax base. This is a sizeable gain in economic efficiency.

Looking at the gain another way, the public revenue increase will, indirectly, also benefit society. If people had optimised their labour supply prior to the reform, and are indifferent to whether they work a little more or a little less before the IAs are introduced, the rise in employment induced by the reform will not have any noticeable *direct* impact on their welfare. However, the increase in employment does generate additional public revenue which the government may use to offer improved public services or to cut tax rates further. Through this public revenue gain (the 'fiscal external effect' in the jargon of economists) citizens will thus indirectly gain from the reform.

It should be stressed that the dynamic revenue effect only captures the *fiscal* gain from the IA reform; there may be other non-fiscal effects which are important for social welfare from a broader perspective. For example, a parental leave scheme allowing parents to spend more time with their children may have beneficial effects for society if more intensive parental care helps to improve the social and cognitive skills of the children. In that case the number in the fourth row and fifth column of Table 5 will overestimate the positive overall welfare effect of including the parental leave scheme in the IA system. Similarly, there may be positive non-fiscal benefits to the rest of society when a person decides to take higher education or when a couple decides to have a child. If the inclusion of education grants and child benefits in the IA system reduces education activity and fertility, the resulting negative 'external effect' on society must then be offset against the fiscal gains recorded in Table 5.

When choosing which transfer programmes to include in the IA system, the government must therefore carefully consider the objectives of each programme. The IA proposal set out in Chapter III assumes that, whereas an individual's basic education may have significant positive effects on the rest of society – e.g. by facilitating communication with other people - the positive 'external' effects of higher education are generally not very important - that is, the benefit of higher education is mainly reaped by the student himself in the form of a higher lifetime income and the enjoyment of learning. Moreover, most recipients of higher education grants tend to come from well-to-do middle class and upper class families and tend to end up with a relatively high lifetime income. While (some of) these students may still be in need of the liquidity insurance provided by the IA system, it is not obvious that this insurance should be provided through a direct subsidy. Moreover, in the specific Danish context considered here, higher education is already heavily subsidised, since students generally do not pay any tuition fees. By including higher education grants in the IA system, these grants effectively become targeted at those individuals who end up with negative IA balances because of bad luck during their careers, whereas the rest of the recipients self-finance their grants over the course of their lives.

Similarly, the proposal to include universal child benefits and parental leave benefits in the IA system assumes that fertility is not very sensitive to these benefits or that the effect of an extra child on society is small. It also assumes that the main purpose of these benefits is to provide liquidity insurance to families whose incomes are temporarily low or whose expenditure needs are temporarily high, and to redistribute resources towards families with a low earnings potential to reduce the risk that children raised in these families become disadvantaged by their background.

However, if policy-makers give high priority to boosting higher education, and if they want to redistribute towards families with children in general, and not just towards poor families with children, they may not want to include higher education benefits, parental leave benefits and universal child benefits in the IA system.

There could also be other important non-fiscal benefits for society as a whole from reducing unemployment, which would give the IA scheme wider appeal. For example, economic research strongly suggests that the cut in the effective rate of unemployment benefits implied by the IA system will reduce union wage pressure, thereby reducing involuntary unemployment. This in turn may help to reduce social exclusion and crime. More generally, if non-employment is associated with a loss of self-respect and social skills for some people, the increased rate of employment obtained through the IA system would have positive welfare effects that are not included in Table 5.

IV

Individual Accounts for Social Insurance: The Gains

So far this study has focused on the economic case for social insurance based on mandatory individual savings accounts. It will now consider in a broader way the proposed system of individual accounts from an economic viewpoint and from a social and political perspective.

First, it will compare the IA system to other forms of social insurance and self-insurance against income risks. Second, it will consider whether the expectations are realistic: can the beneficial incentive effects of the IA system really be expected to materialise? Finally, it will address the long-term political implications of social insurance based on individual accounts; how can the economic benefits expected from the IA system be distributed as evenly as possible?

Individual Accounts V Other Insurance Mechanisms

How do individual accounts compare with other forms of social insurance? In Table 6 a system of mandatory individual accounts with a lifetime income guarantee (a 'bail-out' clause) is compared to three other ways of providing insurance against unexpected income losses: voluntary precautionary saving, a 'Bismarckian' system of social insurance, and a 'Beveridgean' social insurance system. In this terminology a Bismarckian insurance system provides a clear actuarial link at the individual level between insurance premiums paid and the value of the insurance provided, whereas the Beveridgean social insurance system is assumed to be redistributive, involving flat social benefits financed by general tax revenues.¹⁴

Under a system based on voluntary private saving, people are left to self-insure against social events. Obviously this limits the problem of 'moral hazard' discussed earlier, and it also implies a strict actuarial

link between benefits and contributions, since people finance their 'benefits' out of their own saving. For these reasons a system based on voluntary saving avoids the disincentives to work and preventive action that are associated with a redistributive public social insurance system. However, a significant problem with voluntary saving is that it does not provide liquidity insurance for those who have not managed to save enough on their own account and cannot borrow against their expected future income. Nor does reliance on voluntary saving

¹⁴ While it is common to label such a system as 'Beveridgean', Sir William Beveridge himself actually stressed that social insurance benefits ought to be financed by separate (flat) social security contributions rather than through general tax revenue (see Beveridge (1942)). However, as an important difference compared to 'pure' Bismarckian social insurance, the system envisioned by Beveridge was redistributive since it did not involve an actuarial link between contributions and benefits. For a more detailed discussion of the distinguishing features of Beveridgean social insurance, see Lawlor (1998).

Table 6. Comparison of individual accounts with alternatives

	Voluntary saving	Bismarckian insurance	Beveridgean redistribution	Individual accounts
Liquidity insurance	-	+	+	+
Lifetime redistribution	-	-	+	+
Paternalism protecting myopic individuals	-	+	+	+
Actuarial link between benefits and contributions	+	+	-	+/- ¹⁾
Self-insurance limiting moral hazard	+	-	-	+/- ¹⁾

1) + for those who end up with positive account balance; - for those who do not

address the problem that some individuals may lack the necessary foresight to save enough, or the problem that some people may strategically undersave in the expectation that the government will bail them out. Finally, a system based on voluntary private saving obviously does not provide any redistribution of lifetime income from rich to poor.

Compared to voluntary saving, mandatory individual accounts redistribute, offer liquidity insurance and protect individuals lacking foresight or self control (the latter feature is referred to as ‘paternalism’ in the third row of Table 6). Just like voluntary saving, individual accounts combat moral hazard and limit the disincentives to work for those who can look forward to a surplus on their IAs.

The accounts share with Bismarckian insurance the benefits of liquidity insurance and protection of myopic individuals. They differ from Bismarckian insurance in two important respects. First, the accounts redistribute between the lifetime poor and the lifetime rich by bailing out persons who end up with a negative balance at retirement. The price of this redistribution is that the accounts do not provide an actuarial link for the lifetime poor and therefore do not improve incentives for this group. The second difference from Bismarckian insurance is that the accounts combat moral hazard because insurance benefits are taken out of the individual accounts. The other side of this coin is that, compared to Bismarckian insurance where people receive the full insurance benefit without having to face a cut in their pension, the accounts provide less insurance for people who end up with a positive account balance.

Thus all the different insurance mechanisms have their pros and cons, and an optimal overall system of social insurance is likely to involve some mix of the different mechanisms. The optimal mix will depend on country-specific circumstances (a theme considered in the next section) and on the specific type of

risk against which protection is needed. The analysis in Chapter III indicates that mandatory individual savings accounts are a good way of providing insurance in cases where the moral hazard problem associated with Beveridgean or Bismarckian insurance is likely to be important, and where the income risks insured tend to be evenly spread across the population rather than being concentrated among the lifetime poor. However, no claim is made that the IA system represents the ideal system of insurance against all types of social risks.

Would the Incentives Actually Work?

The positive incentive effects of the IA system arise from the stimulus to people to look forward and realise that their contributions to the IA will be returned to them with interest and that any benefit they withdraw will lead to a corresponding reduction of their pension. The evidence is that in practice many people are not very forward-looking in their behaviour. For example, in a study of consumption behaviour in five OECD countries including the UK, Campbell and Mankiw (1991) found that between 20 and 40 per cent of all income is earned by consumers who tend to live 'from hand to mouth', essentially consuming all of their current disposable income immediately without providing for the future through voluntary saving, whereas the remaining 60-80 per cent of income accrues to consumers who do in fact seem to look forward and try to smooth their consumption over time by saving and borrowing at appropriate stages of their life cycle.¹⁵

The fact that a substantial minority of consumers appears not to be forward-looking was the main reason why the estimated effects of the IA reform presented in Table 5 were based on conservative assumptions about the reaction of labour supply to the IAs. Indeed, the labour supply elasticities assumed in Table 5 are only about half as large as the typical elasticity estimates obtained in the academic literature on taxation and labour supply. In other words, even if myopia prevented half of all taxpayers from responding to the incentives embodied in the IA system, the system would still have the positive effects reported in Table 5 if the remaining half of taxpayers respond in a 'normal' way to the changes in tax and benefit rates implied by the IA reform. Moreover, under the IA system each taxpayer would receive a statement of his or her current individual account balance every year. This reminder might help to raise taxpayer awareness about the incentives embodied in the system, thereby increasing the positive behavioural responses. Since people can draw on their individual accounts even when the balance is negative, the IA system combines liquidity insurance in each individual year with self-insurance over the life cycle. Such a system is attractive when the income risks to which people are exposed are not strongly correlated over time - that is, when a single 'bad year' does not tend to be followed by a lot of future bad years. To illustrate, two unemployment spells of half a year spread out over a full-time working career of 35 years will reduce a person's lifetime income by less

¹⁵ In the United Kingdom, the study by Campbell and Mankiw (1991) found that about two thirds of all incomes are earned by consumers who behave in a forward-looking manner.

than 3 per cent. Seen in a lifetime perspective, this is a small risk against which the individual can easily insure himself via the IA system, since the liquidity insurance provided by the system allows him to maintain a decent living standard during the periods of unemployment. However, if unemployment has serious 'scarring' effects so that one period of unemployment significantly increases the risk of future unemployment, an IA system involving life-time self-insurance against unemployment can be quite burdensome for those who are unlucky to become unemployed due to a recession or some other event beyond their control. Economic research suggests that relatively short spells of unemployment usually do not increase a person's future risk of unemployment significantly, whereas a long unemployment spell may seriously harm a person's future chances of finding a job. This is why the IA system proposed in Chapter III only included short-term unemployment benefits.

The above observations suggest that an IA system will work better in countries with relatively flexible labour markets where unemployment spells are fairly short but spread out over a large number of people, whereas the IA system will be less attractive in countries with regulated labour markets and a sharp distinction between 'insiders' with a high degree of job protection and unprotected 'outsiders' who bear the bulk of the burden of unemployment through long unemployment spells. More broadly, if some individuals are always unlucky and therefore remain poor while others continuously 'strike it rich', the IA system becomes less attractive.

Differences in labour market structures are one reason why social insurance via individual accounts may not work equally well in all countries. Other differences in initial conditions may also affect the magnitude of the economic gains from individual accounts in different countries. For example, the higher the initial tax and benefit rates, and the weaker the link between social security taxes paid and benefits received, the greater are the initial distortions to work incentives, and the greater the economic efficiency gain emerging as effective tax and benefit rates are cut via the IA system. Furthermore, in a country that offers many universal benefits to all taxpayers regardless of their means, the redistribution achieved through the tax-transfer system is likely to involve a high degree of intra-personal redistribution over the life cycle of individuals. As we have seen, in such a setting there is considerable scope for economic efficiency gains through the introduction of IAs. By contrast, in a country relying mostly on means-tested benefits to specific targeted groups, the interpersonal redistribution of lifetime incomes is likely to be greater, leaving less scope for gains through an IA system.

But while the attractiveness of an individual account system may depend on the circumstances of the country, and while the optimal design of the details of the system would undoubtedly differ across countries, several trends tend to strengthen the case for the IA system as time goes by. One of these trends is the changing nature of social risks discussed in Chapter I. Second, the liberalisation and growing sophistication of capital markets in recent decades have improved

the ability of many people to smooth their consumption over time through saving and borrowing. By allowing individuals to decouple annual consumption from annual disposable income, well-functioning capital markets make lifetime-, rather than annual, incomes better indicators of individual welfare. This increases the relevance of the IA system where redistribution focuses on lifetime incomes.

A third reason for the increased attractiveness of individual accounts is that they are fully portable between jobs. Hence, this type of social insurance does not tie workers to their initial employer. This facilitates labour mobility and the flexibility of the labour market. It is also consistent with the emancipation of the worker, who becomes more independent of specific employers.

Finally, many social insurance programmes suffer from the problem that it is hard to separate the truly needy from other individuals who do not really need help from the government. Lindbeck (2006) has argued that social constraints on the take-up of benefits are weakened in an environment where many people rely on benefits, so that the take-up rate depends positively on how many people already receive benefits. If this is the case, individual accounts may improve the sustainability of the welfare state by inducing people not to take up social benefits unless they really need them. This helps to support a culture emphasizing personal responsibility.

Distributional Aspects: How Can the Gains from the Reform Be Evenly Shared?

Chapter III (p.25) showed that even on conservative assumptions about the sensitivity of labour supply to economic incentives, an individual account system has the potential to make a lot of people better off without making anybody worse off. But it also showed that the gains from the reform would tend to be concentrated in the middle-income and higher-income groups. Although we saw that the resulting increase in inequality would be small, any increase in the inequality of income distribution might be seen as politically undesirable in itself, even though nobody loses in an absolute sense.

It could be argued that the worsening of the equity-efficiency trade-off described in chapter I forces governments to accept more inequality even if their political preference for equality is unchanged. The pressures on the welfare state arising from globalisation, technological change, demographics, and the changing nature of social risks all increase the economic cost of redistribution, as chapter I explained. Faced with such pressures, a rational government will choose to pursue less ambitious redistribution policies, because the 'price' of redistributing income has gone up. In other words, when the size of the 'pie' shrinks by more as the government tries to redistribute it, less redistribution is warranted. A conventional reaction to such a situation is to simply cut tax and benefit rates within the existing fiscal framework, but this tends to hurt the poor, not only in a relative but also in

an absolute sense. Under an IA system, the lifetime income insurance built into the system protects those with low lifetime incomes from further cuts in their living standards while significantly cutting tax and benefit rates for those who can afford to insure themselves over the life cycle. To put it another way, if economic and social trends tend to worsen the equity-efficiency trade-off, governments should look for policy innovations that may improve the terms of this trade-off. The IA system is such an innovation, allowing an improvement of economic incentives in a manner that does not hurt the lifetime poor.

Despite these advantages of the IA system, there may be understandable reasons why a government might object to the (slight) increase in inequality implied by the IA reform proposal outlined in Chapter III. In many OECD countries the degree of income inequality has increased significantly in recent decades, in part due to the forces of globalisation and technological change biased against low-skilled workers. In such circumstances any further increase in inequality may be unwelcome. Moreover, there is evidence that people care not only about their absolute standard of living, but also about their living standard compared to the standard enjoyed by others, so those who end up with negative IA balances may feel left behind as they observe many of their fellow citizens accumulate positive balances.

Thus, although inevitable if the IA system is to provide lifetime income insurance, it may be seen as problematic that the system splits the population into those who end up with positive account balances and those who do not. Through this separation individual accounts increase the transparency of lifetime redistribution. This might weaken the political support for such redistribution. A related factor that may work in the same direction is that the middle class no longer benefits from redistribution, which is now more closely targeted at the lifetime poor.

At the same time, however, individual accounts give people a stronger sense of ownership and personal responsibility. This may strengthen popular support for the welfare state and the liquidity and lifetime income insurance it provides. Stronger personal ownership may also make it more difficult for the government to change benefit rules, thereby reducing political risks, including the risk that the government may be tempted to default on its promise to pay out the IA balances, once they have been accumulated after the end of a long working career.

In any case, extending the reach of the IA system to the great majority of the population and minimising the rise in inequality generated by the system are worthy goals of public policy. A step in this direction could be taken by moving the 'default line' in the IA system below zero. This would imply that, instead of only paying out an addition to the public pension when the final account balance is positive, the additional pension would be equal to the amount by which the IA balance exceeds a certain negative threshold. For example, if this threshold were minus £20,000 and the account balance at retirement were minus £15,000,

the account-holder would receive an addition to his public pension worth £5,000 pounds. Thus only people with negative IA balances falling below minus £20,000 would be affected by the bail-out clause, so lowering the 'default line' below zero would increase the number of people who would benefit from the IA system.

Of course the government would have to find ways of financing the additional pensions that would be paid out from the IAs. One obvious source of finance would be the dynamic revenue gain from the IA reform which may be substantial (see p.24). If the government wants to go further, it can choose to finance (a part of) the lowering of the 'default line' in the IA system by imposing a modest tax (say, 5 per cent) on positive account balances. In this way the government could redistribute the gains from the IA system away from people with high lifetime incomes (and hence large positive IA balances) towards individuals with low lifetime incomes (reflected in negative IA balances). While the tax on positive IA balances would weaken the positive incentive effects of the IA reform for those subject to this tax, it would help to finance the lowering of the 'default line', thus improving the incentives for low-income earners by increasing their chance of raising their pension through additional work and reduced benefit dependency.

Through such a redistribution of the gains from the IA reform, the government could ensure that only a relatively small minority of the population would have to rely on the lifetime income guarantee built into the system (the bail-out clause). The lifetime income guarantee implies that, while marginal tax and benefit rates are cut for others, they will remain high for the lifetime poor. This is the inescapable price of redistribution. The IA system can alleviate the trade-off between equity and economic efficiency, but it cannot eliminate it. To offset the relatively weak work incentives of those with the lowest lifetime incomes, the government should focus its active labour-market policies on the bottom of the labour market and use instruments other than financial incentives to activate the lifetime poor. Improving the skills of this group through education and training would be an important part of such a strategy.

In summary, financing some of the current welfare state programmes through mandatory contributions to individual accounts could be a valuable component of an overall social policy package designed to protect the disadvantaged without doing unnecessary harm to the work incentives and the norms of personal responsibility needed to sustain a well-functioning market economy and a cohesive society.

V

Conclusion

Western countries face a future of demographic and social change. Demands for social protection are rising and with them costs. As populations age, more resources must be spent on income support and health care for the elderly. But the cost of providing social insurance for the working population is also set to rise: globalisation changes work patterns and exposes many workers to new risks.

The upshot is that social insurance schemes, which are aimed at tiding people over periods with income losses, are facing hard times. Their central aim of providing social protection remains irrespective of how they are financed (through taxes, contributions or both). They provide liquidity insurance (cash benefits) when income dries up, and they transfer resources from lucky to unlucky individuals over the life cycle. Even now, however, they suffer from downsides: they can push dependency up by reducing the incentive to find a job (or work to capacity), and the taxes levied to finance benefits tend to discourage work efforts. The problem is that, even though a large proportion of the taxes currently levied to finance social insurance benefits is essentially money that the taxpayer transfers to himself over the life cycle, the taxpayer does not perceive a link between taxes paid and benefits received.

This study proposes an answer to the dilemma. A new Individual Social Account (ISA) would replace part of the present system of benefits to people of working age. It would work like a personal savings account owned by each employee. Each year, taxpayers would contribute a percentage of (untaxed) income; their income tax would be cut by a similar amount. Entitlement would remain as it is now. Though benefits received would be debited from the account, a surplus would be carried forward each year. At retirement, any surplus would be added to the official pension. Those with a negative balance would continue to collect the standard official pension.

The system could be run as a government-administered scheme of 'notional' accounts. Alternatively, individual account holders could be given the option of putting their accounts in the hands of registered financial institutions. The scheme could either be phased in (for different cohorts), or be introduced on the same day for all.

What would the gains be? A calculation of the impact on hours worked and participation rates suggests a fiscal gain due to increased labour supply. The non-fiscal gains would be equally impressive. Unemployment would fall because individual workers as well as their trade union representatives would be motivated to minimise spells of unemployment. The fall in unemployment would give the scheme wider appeal. The scheme would work best where labour markets are flexible and unemployment spells are short but spread over a large number of people.

Overall, the Individual Social Account would continue to protect the disadvantaged. But it would do so with much less damage to work incentives or the personal responsibility needed to sustain both the market economy and a cohesive society.

Bibliography

W. Beveridge (1942), *Social Insurance and Allied Services*, Report by Sir William Beveridge presented to Parliament, November 1942, reprinted London, HMSO, Cmd. 6404, 1995.

A.L. Bovenberg and P. B. Sørensen (2004), "Improving the Equity-Efficiency Trade-Off: Mandatory Savings Accounts for Social Insurance" in *International Tax and Public Finance*, 11, pp. 507-529.

A.L. Bovenberg, M.I. Hansen and P.B. Sørensen (2007a), "Individual Savings Accounts for Social Insurance: Rationale and Alternative Designs", forthcoming in *International Tax and Public Finance*, 2007.

A.L. Bovenberg, M.I. Hansen and P.B. Sørensen (2007b), "Individual Accounts and the Life Cycle Approach to Social Insurance", Mimeo downloadable at www.econ.ku.dk/pbs/default.htm#Recent%20working%20papers, 2007

J.Y. Campbell and N.G. Mankiw (1991), "The Response of Consumption to Income: A Cross-Country Investigation" in *European Economic Review*, 35, 1991, pp. 723-756.

Danish Economic Council (2005), *Dansk Økonomi*, Forår 2005 (The Danish Economy, Spring 2005), Copenhagen, 2005.

J. Falkingham and A. Harding (1996), *Poverty Alleviation versus Social Insurance Systems: A Comparison of Lifetime Redistribution in Contributions to Economic Analysis*, vol. 232, North Holland, Amsterdam, 1996.

J. Hussénius and J. Selé (1994), *Skatter och Socialförsäkringar över Livscykeln – En Simuleringsmodell* (Taxes and Transfers over the Life Cycle – A Simulation Model). Ds 1994: 86 (ESO), Swedish Ministry of Finance, Stockholm, 1994.

S. Lawlor (1998), *Beveridge or Brown? Contribution and Redistribution: The Real Social Security Debate*, Politeia, London, 1998.

C. O'Donoghue (2001), *Redistribution in the Irish Tax-Benefit System*, Ph.D. thesis, London School of Economics, London, 2001.

P. B. Sørensen (2003), "Social Insurance Based on Private Savings Accounts" in S. Cnossen and H.W. Sinn (ed.), *Public Finances and Public Policy in the New Millennium*, MIT Press, 2003.