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SOME REFLEXIONS ON THE LONGER TERM CONSEQUENCES
OF A MOUNTING PUBLIC DEBT 1)

by

Jesper Jespersen*

This paper was written while the author was a Jean Monnet Fellow at the European University Institute. The paper was presented at a workshop at the E.U.I. See also footnote 1).

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Summary:

The equivalence between public sector deficit and private sector excess savings is demonstrated. Figures for the Nordic countries concerning public deficit, debt and interest rates are presented.

The relationship between public deficit and public debt is discussed - stressing the importance of the size of the permanent deficit and of the real rate of interest.

The conditions for a stable/unstable development in the debt/GDP ratio are set up. Here the relative size between real growth rate and real interest rate is crucial. The possibilities of increasing the growth rate respectively reducing the interest rate is discussed and the mutual interrelationship is underlined.

The paper is concluded with a rather pessimistic view. Looking at the OECD-area the deficit has been reduced by restrictive fiscal policies at the cost of growing unemployment. Real rates of interest stay high and far higher than the likely growth rate of the world economy. That creates an unstable situation calling for continuous reductions in public expenses or tax increases both damaging the future economic performance.

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SOME REFLEXIONS ON THE LONGER TERM CONSEQUENCES OF A MOUNTING PUBLIC DEBT¹⁾

I.1 Introduction

1. The public concern over indebtedness in the Nordic countries was initiated by the first oil price hike back in 1973/1974. The culmination came in 1981/82, when rather long-lasting governments were overthrown by the voters, because the feeling that "something had to be done" was very present. This political change was to some extent motivated by the longer run consequences of a mounting public debt building up for seven years or even more.

2. The analysis of the public sector, the public deficit and stabilization policies in general is often interwoven to an extent that makes it rather diffuse and confused.

This essay will neither be about the reasons behind the intervention of the public sector into the national economy nor about the "optimal size" of the public sector. But let me recapitulate, that the intervention of the public sector alters the income distribution as compared to what would be produced by pure market forces. The size and aim of this redistribution is mainly, if not solely, a political task. Capital markets are not perfect; the public sector lending, borrowing and (net) taxing may overcome some of these deficiencies. On the other hand, when taxes and transfers are not of a lump sum type, they create suboptimal outcomes when evaluated by the market clearing model.

Since none of us know whether an equilibrium or disequilibrium approach to macroeconomic analysis is the

proper one, I will not pursue these aspects, nor the discussion of the appropriateness of stabilization policy (either in the short or longer run).

3. The scope of my presentation is more limited. I take the economic structure as given. It exhibits a considerable public sector, cfr. table 1, the size ranging from 23 per cent of GDP in Finland to 34 per cent in Sweden (1982). Taxation and transfers are related mainly to income and consumption; taxes amount to 38 per cent of GDP in Finland and 51 per cent in Sweden, cfr. table 1.

My discussion will mainly be devoted to the question: what determines the public sector deficit in the longer run, or what are the most important elements in the process of deficit dynamics?

4. Before going into that discussion, it might be useful to take a look at a few figures showing the development of the public debt in the Nordic context, together with a

few remarks concerning why the budget deficit has emerged as a general phenomenon in nearly all market economies. I will stress the link between the short run flow performance and the longer run stock consequences.

I.2 Nordic Perspectives

5. Although the Nordic countries are quite similar in many respects, their experiences concerning the development in the budget balance of the government sector are rather different.

Table 1 Some Economic facts about the Nordic Countries.

A: Macroeconomic development.

	Real Growth (GDP)		Balance of payments		Unemployment	
	1964-73	1973-82	1964-73	1973-82	1973	1982
	pct. p.a.		pct. of GDP		per cent	
Sweden	3.6	1.4	+0.2	-2.0	2.5	3.1
Denmark	3.9	1.7	-2.1	-3.2	1.1	9.8
Norway	4.2	3.7	-1.4	-4.3	1.5	2.6
Finland	5.1	2.7	-1.5	-2.4	2.3	5.8

B: Public sector development. (percentage of GDP)

	<u>Taxes:</u>		<u>Expendes:</u>				government		budget	
	1973	1982	Goods&Services		Transfers		interest		balance	
			1973	1982	1973	1982	1973	1982	1973	1982
Sweden	42.5	50.6	31.3	34.3	17.0	33.8	0.9	12.6	+4.1	-7.1
Denmark	42.4	44.1	26.9	30.5	14.3	28.2	0.2	5.0	+5.2	-9.2
Norway	47.4	48.7	22.0	24.9	21.7	25.6 ¹⁾	1.0	2.5	+9.7	+6.7
Finland	35.3	37.5	19.7	22.6	12.3	16.4	0.4	0.9	+6.0	-0.9

1) 1981

Source: Jespersen, 1984

Norway has gained from the oil and gas production, which has solved both the country's balance of payments and the public sector deficit problems.

Finland never really plunged into a significant deficit. Accordingly, the central government debt only amounts to 15 per cent of GNP.

As one can see from figure 1, it is Denmark and Sweden who have experienced a severe government sector deficit in recent years. Measured as a percentage of GNP, both countries passed the 10 per cent mark in 1982. The accumulating deficits in these two countries have caused a fast growing public debt which in 1984 comes close to 2/3 of GNP.

Although there are many similarities in the economic performance of Denmark and Sweden, the two countries have experienced a very different development in the long term bond rate during the last decade, cf. figure 2. In this paper it is argued that the considerably lower rate of interest in Sweden has been made possible by a much more administratively organized financial regime, which makes it far easier to handle the problems posed by the escalating public debt, cf. figure 3.

II. The deficit in the short run²⁾

II.1 A closed economy

6. In a closed society the public sector deficit mirrors excess saving in the private sector:

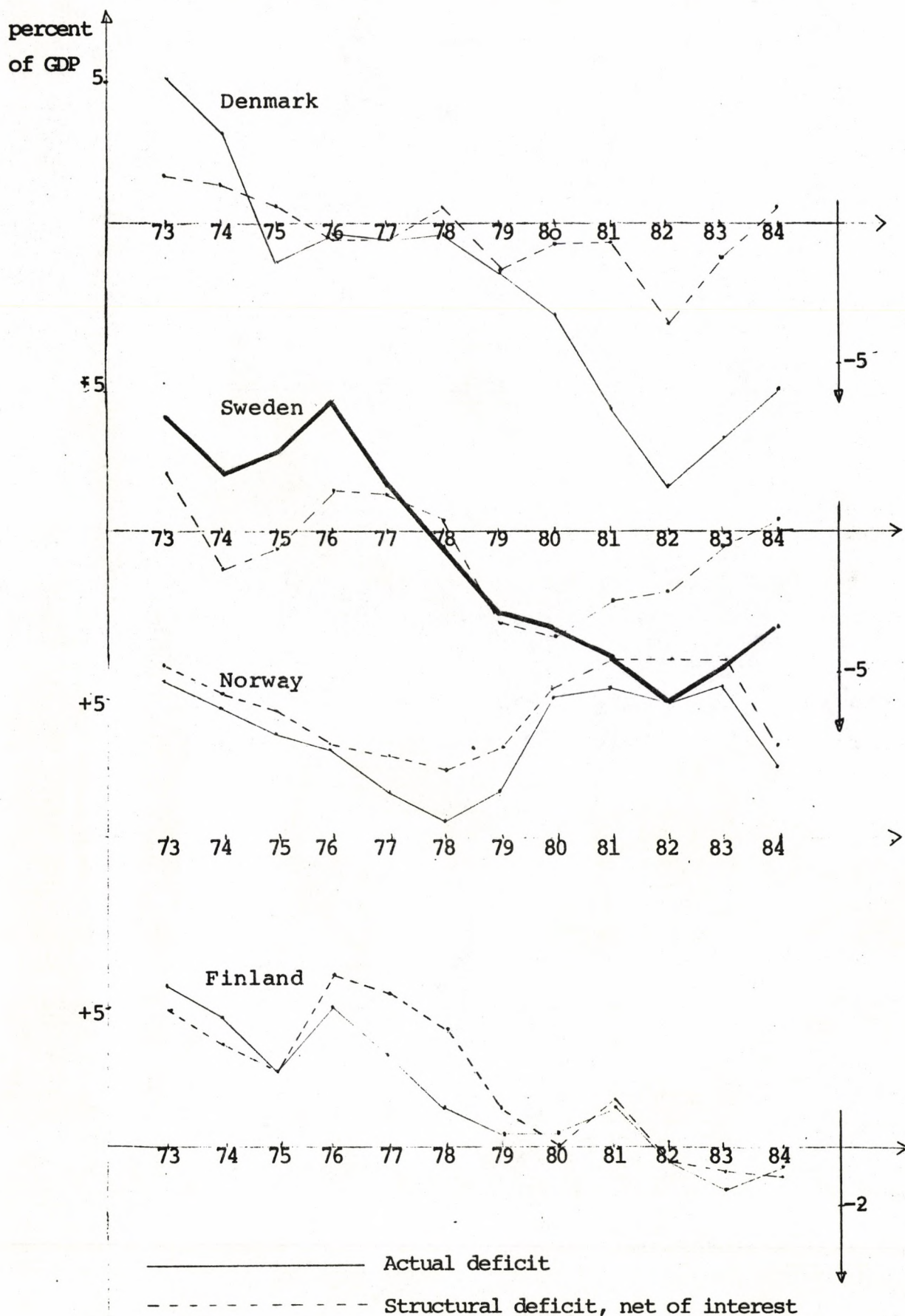
$$(1) \quad G - T(Y) + i B = Y - C(Y) - T(Y) + i \cdot B - I_p$$

Y - GDP, current prices

G - real public expenditures, current prices

Figure 1

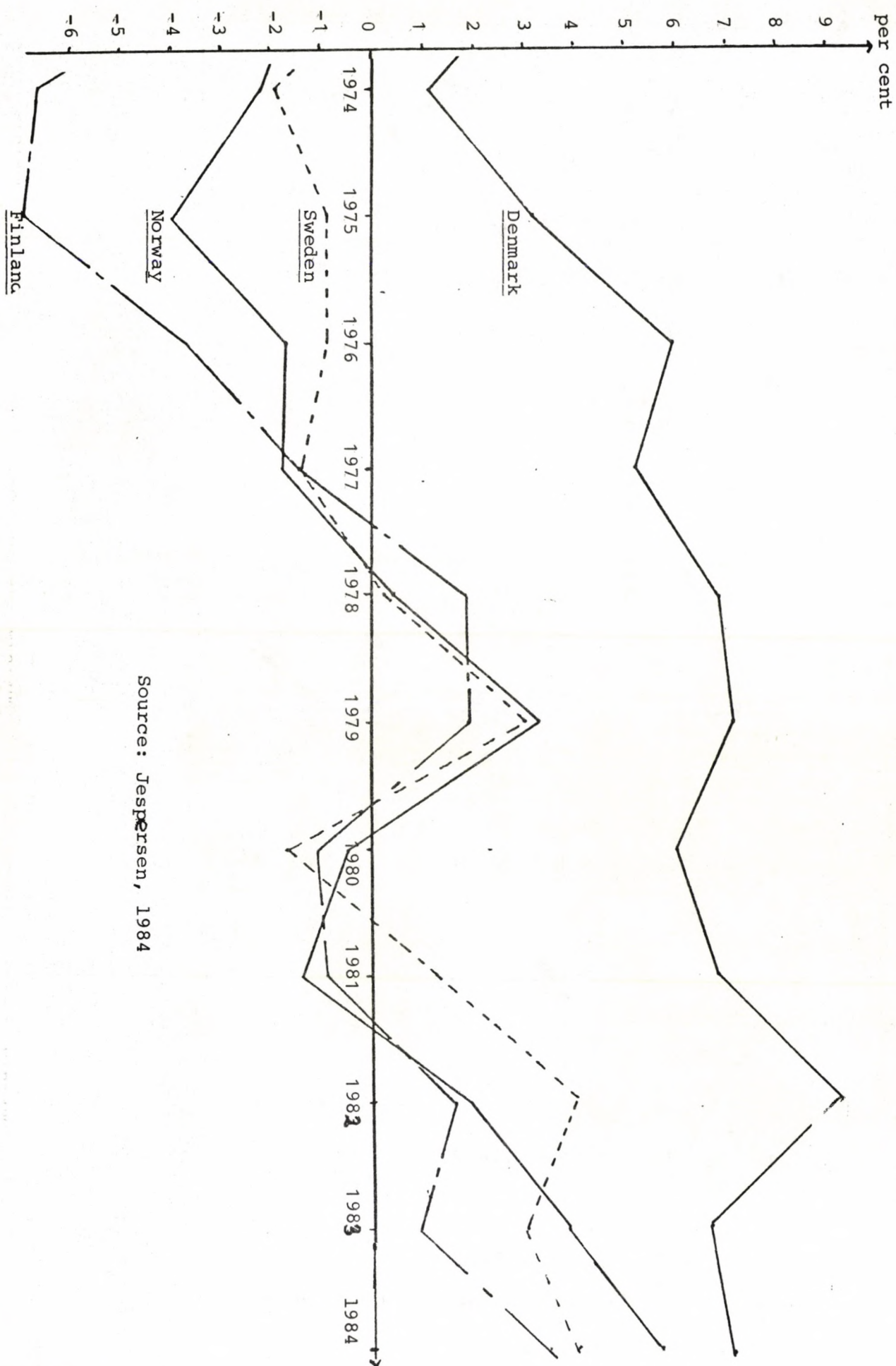
Public sector deficits in the Nordic Countries.



Source: OECD, 1984b, table 2,1 & 2,7

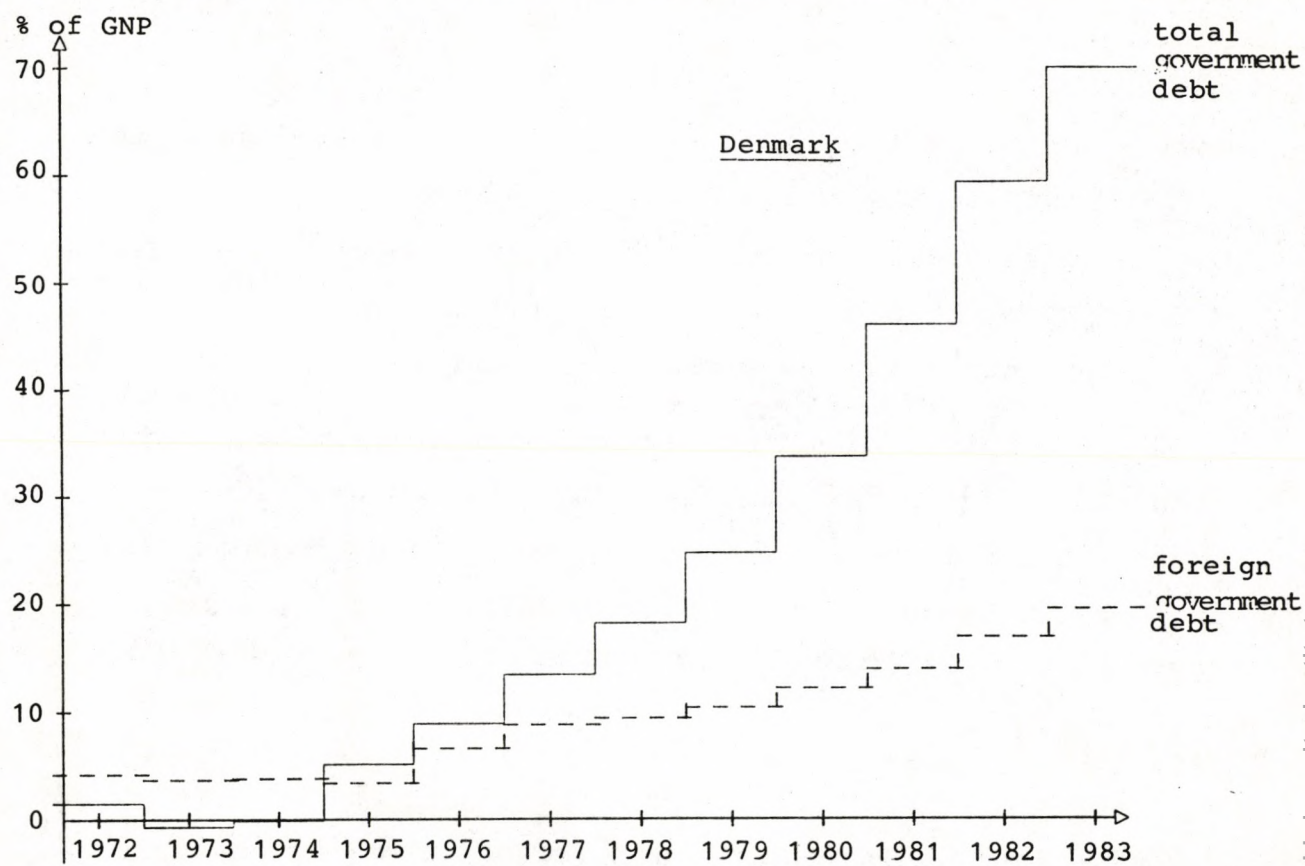
Note: The structural deficit is calculated by a 'peak-through-peak' method with beginning of 1970's and late 1980's as the two peaks allowing for overheating in 1972/73.

Figure 2: The development in the real rate of interest in the Nordic Countries 1974-1984

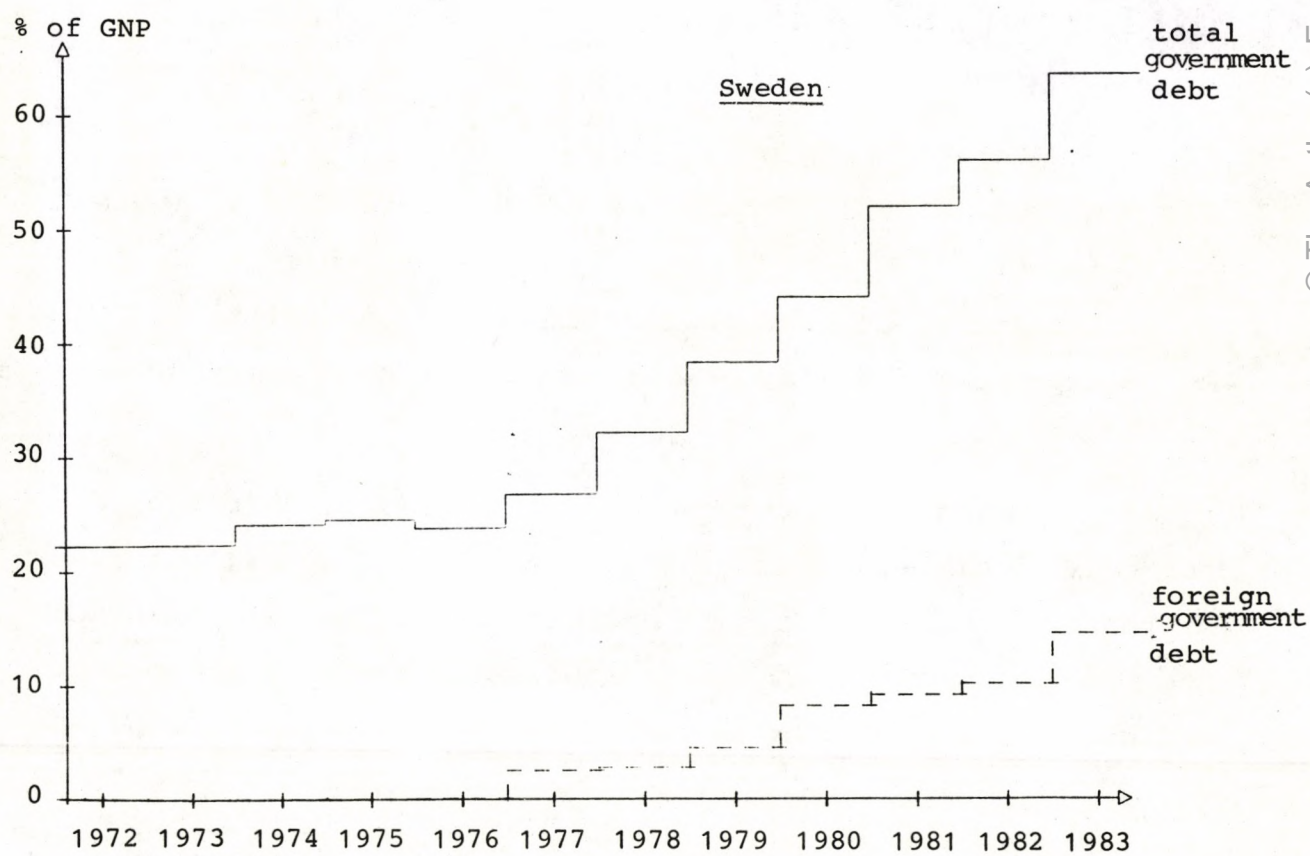


Source: Jespersen, 1984

Figure 3: The central government debt in Denmark and Sweden.



Source: Jespersen, 1984



Source: Jespersen, 1984

- $T(Y)$ - net taxes (excl. interest payments), dependent on GDP
 i - nominal rate of interest (net of tax)
 B - market value of the public debt
 $C(Y)$ - private consumption, current prices
 I_p - private real investment in current prices

By excess saving is meant financial savings larger than real private investments. One cannot a priori say whether the private sector will be in a state of excess savings or excess investments. Any morally based statements about what ought to be the situation are disregarded.

II.2 An open economy

7. Introducing the foreign sector makes the analysis less clear-cut:

$$(2) \quad G - T(Y) + i \cdot B = \underbrace{Y - C(Y) - T(Y) + i \cdot B - I_p + f \cdot F}_{\text{private sector}} + \underbrace{M(Y) - E(Y_f, P_d/P_f) - f \cdot F}_{\text{foreign sector}}$$

public sector

f ~ the foreign rate of interest

F ~ market value of foreign debt (an asset to the private sector)

$M(Y)$ ~ imports at current prices (dependent on GDP)

E ~ exports at current prices (dependent on foreign GDP (Y_f) and relative prices (P_d/P_f))

In this case the public sector deficit is mirrored not only by the excess saving of the private sector, but also by the excess saving of the foreign sector. Excess saving of the foreign sector is normally labeled as the current account deficit.³⁾

$$(2a) \quad S_o \equiv S_p + S_f$$

S_o, S_p, S_f ~ excess saving = financial surplus in the public, private, and foreign sectors

II.3 Cyclical changes in the deficit

8. The cause of a substantial short run public sector deficit--or even better, of a change in the deficit--can be found in any one of the three sectors.

If the public sector expenditures and receipts were entirely exogenous, a change in the deficit could only emerge from deliberate actions within the public sector (decided upon by politicians). A fall in effective demand would then, in a closed economy, have to be borne by the private sector. Income, and with it employment, are forced to decline until the private ex ante saving equilibrates investments. This is a vicious cycle, because investment is, among other things, directed by expected profit and production. When the actual demand and income are declining, then the expectations about future demand are revised downwards.

The foreign sector may act as an automatic stabilizer if the exogenous shock is an internal one. In that case the adjustment will be borne partly by higher domestic unemployment and partly by the foreign sector through improvement of the balance of payments (indicating increased unemployment abroad as well). The more open the country (or region) is, the more the balance of payments will adjust to an internal demand change in the tradeable goods sector. If the marginal propensity to import is 100 and the country is small, then any change in demand spills over entirely to the foreign sector, leaving domestic production and employment unchanged.

9. The analogy with the public sector is straightforward. If the public sector has committed itself to compen-

sate 100 per cent any fall in private sector income, then, of course, no change in employment occurs.

10. The cyclical change in the public sector deficit (psd) then becomes a function of the automatic stabilizers represented by the marginal net tax rate and the marginal propensity to import. These rates are calculated as marginal to changes in real demand. In addition the impact on private real investments of any exogenous shock is important for the development in the psd along with the nature of the shock.

Those countries with high marginal tax rates and relatively generous unemployment benefits and a small or medium-sized propensity to import, like the Nordic countries, will be rather exposed to drastic changes in the budget balance. Also the volatility of private investments is important. The fewer nationalized or subsidized industries, the greater fluctuations in investments.

Change in public sector deficit:

$$(3) \quad \Delta \text{psd} = f(\text{mt}, \text{mim}, I(y^e, (i - \dot{p}e)), x)$$

psd ~ public sector deficit

mt ~ marginal net tax rate

mim ~ marginal import rate

I(y) ~ private investment

y^e ~ expected production

x ~ exogenous shock

$\dot{p}e$ ~ expected inflation

i ~ nominal interest

II.4 Further Nordic Perspectives

11. As can be seen from figure 1, the public sector deficit reacted most dramatically in Denmark in the wake of the first oil price hike. Apart from the high marginal rates, this was due to the policy of not subsidizing uncompetitive firms. Such a policy leads--especially in the short run--to more registered unemployment and thus to higher unemployment **expenditure**.

In Norway and Sweden the immediate policy reaction was to keep the firms hit by the world slump going by government subsidies. In the short run one may save a firm through subsidies of, say, 10 per cent of the firm's value added, whereas the unemployment benefit may amount to 50 per cent or even more, if the firm is closed down. This partly explains why the public deficit reaction is somewhat lagging in Sweden.

Furthermore, in Denmark a very expansive tax policy was pursued in 1975, which of course added to the public deficit. This policy was motivated by the--at that time broadly held--view that the world recession was only transitory.

The second oil price hike in 1979/80 swept away any such idea. But at that time the prolonged period of substantial deficits had meant the accumulation of a considerable debt, cfr. figure 3.

II.5 Financial crowding out

12. Quite often one sees concern expressed about how the public sector deficit shall be financed, e.g. OECD, Occasional Study, 1983. That concern seems to disregard the above-stressed identity linking public dissaving with private (and

foreign) financial saving. In fact the real multiplier process will go on until enough financial saving has been created. Especially in cases where the change in the public sector deficit is derived from private sector real demand deficiency, there must be an ex ante excess demand for financial assets. In that case the supply of government bills, bonds (and money) may twist the term structure of the interest rate, but can hardly lever the interest rate level and by that cause financial crowding out. A dynamic process initiated by a rise in the ex ante saving will not in the short run--unless monetary policy is conducted in a peculiar way--result in a higher interest rate.

1131 In fact empirical studies support the theory that the rate of interest moves pro-cyclically, i.e. falls when the cyclical deficit goes up and vice versa, cf. OECD, 1984, and below.

13. A somewhat different situation arises when the change in public deficit originates from an expansive fiscal policy. Then the ex ante supply of financial assets exceeds the private sector ex ante demand. Some extra demand for financial assets will come out, somewhat delayed, from the real multiplier process within the private sector. As some of the fiscal stimulus goes abroad due to the marginal propensity to import, financial crowding out can in this case only be avoided if a part of the increased public deficit also is financed abroad.

Of course, a fiscal stimulus to an economy without vacant resources runs immediately into difficulties if it is financed through an increased deficit.

II.6 Real crowding out

14. As a public sector deficit does not necessarily raise the rate of interest, there does not have to be any crowding out of private investment through this channel.

But three other crowding out mechanisms can be detected due to different constraints imposed on the economy by the politicians:

- 1) Balance of payments constraint
- 2) Inflation constraint
- 3) Deficit constraint

Politicians may declare that for political reasons specific figures are aimed at. These declarations do not have to be founded strictly on economic reasoning. Restrictions 1) and 2) are not necessarily related to the public sector deficit. On the other hand, higher public expenses, increasing the public deficit, will at the same time place a further strain on the balance of payments and the inflation process, and by that call for higher taxes. In this respect one might say that public demand for goods and services crowds out private production due to political commitments.

The crowding out is even more direct if the political commitment is related to the public deficit itself. However, the real multiplier effects might be of quite different magnitude with regard to employment. From the literature the "balanced multiplier effect" is well known. This also counts for interest payments but probably with a reversed sign.

From this 'real' point of view interest payments do not have to be matched by higher taxes krone for krone.

III. Implication of a mounting public debt

III.1 Flow vs. Stock alias Short run vs. Longer run

15. A thorough analysis of a mounting public debt requires a distinction between the flow effects and the stock effects. The flow effect is derived from the impact of the current budget deficit, whereas the stock effect stems from the accumulated past deficits constituting the actual public debt.

Fiscal policy is traditionally related to the change in the deficit, whereas monetary policy is considered among other things to comprise the financing of the debt. These two policies are of course overlapping when the financial implications of the current deficit are considered.

A third aspect of this analysis is the development of the future public debt, given a continuation of the deficit at the current size. This has crucial implications for the amount of interest payments in the future. In this dynamic aspect, fiscal and monetary policy are highly interdependent.

One ought not to discuss the flow aspect without taking the longer run stock perspective (and by that, wealth) into consideration.

III.2 Is public debt net wealth to the private sector?

16. This question has come up in the literature related to the New Classical Economics (see, e.g., Barro, 1974, Tobin 81). The question is well-motivated and has a long history, at least back to Stuart Mill and Ricardo.

The society does not get any richer by increasing the amount of financial assets, and that is in fact what lies

behind the public debt.

17. Calculating the private wealth, one is not in doubt that the banking sector ought to be consolidated. It is the private (non-financial) sector that earns the interest payments on deposits with one hand and pays the interest on bank loans with the other. However, the hands belong to different households and firms, which implies a distributional effect.

The same arguments apply nearly as well to the public debt. It is the private sector that earns the interest payment, but it is also the private sector that pays the taxes. A pure example of this relationship would be a case where the holders of government bonds were imposed a tax exactly equivalent to the interest they received on the bonds. In that case the bonds would be worthless, because no future earnings could be expected.

In the real world it is, of course, far from the same persons who receive the interest and who pay the extra taxes.

18. Two aspects should be followed up. First, what difference does it make that the debtor(s) of the government bonds (contrary to the creditors) are not personified? Second, is the public debt a burden to future generations?

19. The holders of government bonds can expect virtually without any uncertainty that the bonds will be fulfilled. But the anonymous taxpayer does not directly observe the same obligation of future tax commitment, as opposed to an individual loan. However, in the new classical theory, where ra-

tional expectations are assumed (which is synonymous with perfect foresight), the taxpayer is fully aware of this future commitment. If households start to save contemporaneously with public deficit spending, then there will be no effect on real demand. This leads to the theorem of the superneutrality of public deficits, but the assumptions behind the theorem are quite remote from reality.

20. One could also ask whether the increasing public debt is a burden to future generations. If the public sector deficit mirrors the private sector's lack of ability to undertake real investments balancing the desire to save, then it becomes a burden due to the missing stock of real capital. The society could have been richer in the future, if the present generation had been able to employ vacant resources by building up real capital. This becomes an extra burden, if the present generation in addition awards itself a high rate of interest on financial long term savings, which is converted into purchasing power when it has retired from working age. In that case the present generation has mismanaged economic development and at the same time reserved the lion's share of the unduly small GDP for themselves. Thus the public sector deficit and the high rate of interest are symptoms of parents exploiting their children!

21. One may pose the question to what extent public debt implies higher taxes in the future. To answer this question we have to detect the determinants behind the level of taxation. At that point one should refer back to section II.6, where real crowding out through higher taxes was discussed. The close interrelationship between the binding constraints of

the economy and the tax pressure was stressed.

Whenever interest payments or repayment of the debt is making any of the constraints tighter, the future tax level will--ceteris paribus--be raised. The higher the real rate of interest, the more likely it is that this will happen.

If all public debt goes into increased savings for pensions, then there is only the wealth effect which might add to the actual demand, and taxes have only to be raised a little in accordance with that. On the other hand, sometime in the future, pensions will start contributing to the demand for real goods, and then presumably require higher taxes at that time. This is one aspect of the intergenerational problems related to the public debt.

22. Summing up the arguments, the public debt may be considered as private wealth, but not to the full amount. What really matters in this case is the degree of economic transparency unveiling the relationship between future interest payments and future taxes.

III.3 Does it matter how the budget deficit is financed?

23. Furthermore, the new classical economics postulate that deficit spending has no real effect independently of the way it is financed: taxes, bonds or money creation.

This statement relies upon very strict assumptions, among others: perfect foresight, perfect capital markets and continuous life (eventually substituted by intergenerational gifts and bequests), cfr. Buiter, 1983. In addition, one implicit assumption is that the public debt is expected to be paid back sometime in the future. For that purpose households start to save contemporaneously with the government's dissaving, exactly offsetting each other.

When the assumption that public debt will be paid back is removed, then the superneutrality proposition of public debt can be discarded, anyhow.

24. A more conventional assumption applied to the analysis is that the public debt may stay continuously as a constant proportion of GDP. That implies that the public debt is rolled over independently of the maturity structure of public bonds.

Accordingly, it is concluded that with regard to the saving behaviour of the private sector it really does matter whether the intended deficit is financed through taxes or by issuing debt instruments. To what extent the choice between money and bonds is important I will come back to when discussing the implications for monetary policy and the long run aspects of the deficit.

III.4 The true costs of servicing the public debt

25. It is well known that inflation erodes the real value of nominal financial assets. Interest paid to bond holders therefore contains a certain element of compensation for expected inflation. This is not a real cost for the government, because it does not have to raise tax rates to pay this part

of the debt service. The inflation component is in fact a kind of repayment when the debt is measured in real terms (as a ratio of GDP). Traditional bookkeeping procedures place the entire nominal interest payments on the current account, where at least the inflation-determined component belongs to the capital account.

26. If all future inflation were foreseen and no taxation of capital income existed, then the Fisher equation for interest determination would presumably hold:

$$(1) \quad i = r + \dot{p}$$

where i ~ nominal rate of interest

r ~ real rate of interest

\dot{p} ~ inflation

27. But what inflation? There are in the real world a number of indexes, each showing one aspect of the inflation process. More often than not, the relevant price index is different for the creditor and the debtor. The holders of public bonds are typically households and pension funds, for which the development in consumer prices is of main interest. On the contrary, the government's concern is about future tax rates, which makes the factor income deflator the most relevant index.

Just to take an example, households are nearly as vulnerable towards import prices as towards domestic prices, whereas it is only domestic factor income which forms the tax basis. Anyhow, the difference between the consumer price index and the GDP-deflator (at factor costs) is only of real importance in periods when the terms of foreign trade change considerably. In a longer perspective there seldom happens to be any great difference.

If all public debt were index-bonds, the problem of correcting the public budget would dissolve itself. Only in a few countries are such bonds sold more systematically (U.K., Italy and Denmark). Traditionally public debt consists of short and long term bonds with nominally fixed interest rates, which in fact is amazing considering the volatile and unpredictable rate of inflation.

28. When the actual rate of interest on fixed rate bonds deviates from the expected rate (perhaps due to changes in the expected rate of inflation), the market value changes and an unexpected capital gain/loss occurs. Following Eisner & Pieper, 1984, the real cost of servicing the public sector should include the unexpected capital gains/losses.

But adding or subtracting such unexpected capital gains more overestimates the effect on permanent income. Unexpected changes in the real value of public deficit do not add to permanent income (apart from the tiny effect on current permanent income coming from the capital changes when spread over the entire life period). Thus the unexpected changes have a different status from expected ones and therefore call for much smaller changes in the tax rates to be neutralized.

Working with the concrete data, it may be rather difficult to figure out what are expected and what are unexpected changes in the capital value of the outstanding debt. However, in countries where there are long term nominal and index-linked bonds the marginally expected rate of inflation is--under assumption of perfect capital markets--straightforward to calculate.

$$(2) \quad \dot{p}^e = \left(\frac{1+i}{1+r} - 1 \right) \times 100, \quad \text{where } \dot{p}^e \sim \text{expected inflation}$$

$r \sim \text{(real) rate of interest on indexed bonds}$
 $i \sim \text{nominal rate of interest}$

29. When calculating the burden of the actual budget deficit, one should deduct from the nominal deficit an item determined by the inflation rate times existing net public debt.

Furthermore, if there is any real growth in the economy, then the amount of money as a share of GDP falls not only because of inflation but also due to real growth.

There will normally be paid a positive real rate of interest on the public bond. In cases where the real interest rate is lower than the growth rate of the economy, the real burden of servicing the bond debt is negative. Accordingly, the nominal budget deficit should be corrected for inflation and growth in GDP/capita, which both reduce the real burden of servicing the public debt.

D_r ~ current real deficit

D_n ~ current nominal deficit

D_c ~ cyclical component

D_p ~ permanent deficit

M ~ outside money

B ~ public bonds, market value

n ~ growth rate of nominal GDP

i_b ~ average nominal interest rate on public bonds, net of tax

Current real deficit:

$$(III.3) \quad D_r = D_n - n \cdot M - p \cdot B - (n - i_b) \cdot B$$

30. One may ask, what are the permanent costs of the budget deficit? Here the calculation of the current real deficit D_r is convenient. Given a constant relationship between the stock of money and GDP, D_r has to be financed through bond issues (Masera, 1984). The extra real ex-

penses this adds to the deficit in coming years is the long-term real rate of interest (net of tax) times the growth of the real value of the public debt which in fact is D_r .

In a longer run perspective it is the permanent real deficit D_p which is of main concern. Calculating that, one has to correct the current deficit for the average cyclical component, cf. figure 4 and section 36 below.

Permanent real deficit

$$(III.4) \quad D_p = D_r - D_c$$

IV. The Medium Term Dynamics of the Deficit

IV.1 A little arithmetic

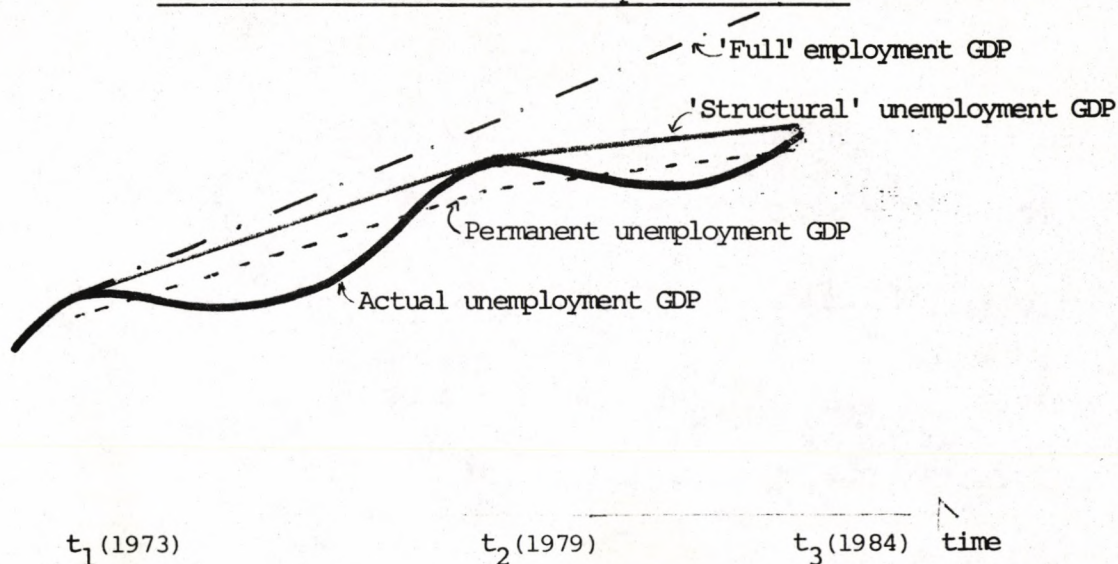
31. Looking into the future, then, the accumulated debt is a deadweight that cannot be avoided. One may therefore ask what is the longer run ratio between debt and GDP, given the actual situation. Or one could pose the question a little differently: "Will the debt/GDP ratio stabilize in the future?" This longer run ratio is of great importance because that also gives an indication of the size of the future interest payments. If the deficit is supposed to stay constant as a given proportion of GDP, then the growing debt implies higher and higher interest payments which call for ^{future} reductions in other public expenses and/or increased tax rates.

32. If the government deficit D inclusive of net interest payments is assumed to form a fixed ratio compared to GDP, the Debt/GDP ratio will grow until the deficit/Debt ratio is equal

Figure 4.

Different measurements of potential GDP.

GDP
(log scale)



Note: Full employment GDP is defined as the GDP which could have been reached, if the percentage of unemployed persons had stay at a level similar to that which was normal upto 1973.
Structural unemployment GDP is the GDP which lies on a straight line drawn from one peak of the business cycle to the next one. This is (in principle) the method behind OECD's Structural deficit.
Permanent unemployment GDP is the GDP that (in principle) makes the public debt grow paralel, hence the debt/GDP ratio stay constant over the business cycle.

to the growth rate of the economy (GDP).⁴⁾

$$(IV.1) \quad D_p = d \cdot GDP \sim \text{public deficit}$$

$$(IV.2) \quad \frac{GDP/dt}{GDP} = n \sim \text{nominal growth rate}$$

$$(IV.3) \quad B = B_o + \int D_p dt - \text{Public Debt}$$

$$(IV.4) \quad B = B_o + (d \cdot GDP_o / n) \cdot (e^{nt} - 1)$$

$$(IV.5) \quad B/GDP = \frac{B_o}{GDP_o \cdot e^{nt}} + d/n (1 - e^{-nt})$$

$$t \rightarrow \infty$$

$$(IV.6) \quad b = B/GDP = d/n$$

Table 2: DEBT/GDP ratios

		deficit/GDP					
		n d	2	4	6	8	10
G r o w t h r a t e	6		1/3	2/3	1	1 1/3	1 2/3
	8		1/4	1/2	3/4	1	1 1/4
	10		1/5	2/5	3/5	4/5	1

One can only guess what the longer run nominal growth rate might happen to be. Somewhere between 5 - 10 per cent p.a. equally shared between real growth and inflation, seems for the time being not too unrealistic. This does not make the long run debt/GDP ratios look really frightening.

The crucial point is: how much interest is supposed

to be paid on the debt? Three things become important: 1) how big a share of the public debt is interest free (i.e. money); 2) how high is the interest; 3) how much tax is paid on interest income. If all debts carry an interest obligation and are untaxed, then it is quite easy to calculate the size of the interest payments (I):

$$(IV.7) \quad I = \frac{i \cdot B}{GDP} = i \cdot d/n = \frac{i}{n} \cdot d$$

$$I = \frac{i}{n} \cdot D$$

The share of the deficit going to interest payments is determined by the interest level and the nominal growth rate. If the rate of interest is equal to the growth rate then the entire deficit will be used for interest payments. Taking into consideration that the initial deficit was attributed to some external event, then the interest payments have in this case entirely overridden the initial deficit spending. This is, of course, one of the difficult political tasks, if and whether it is desirable to cut other public expenditures or to raise taxes to make room for the interest payments. The most delicate question is how the income distribution is affected by the increased interest payments.

33. Due to difficulties in reducing the permanent deficit for the sake of increasing interest payments, one could ask under what condition will a constant deficit/GDP ratio, net of interest payment, be possible:⁶⁾

$$(IV.8) \quad B/GDP = \frac{d}{n - i_b}, \quad n \neq i_b$$

d ~ Deficit/GDP (exclusive of interest payments and assumed constant)

n ~ nominal growth rate of GDP

i_b ~ nominal interest rate

B ~ public debt (bonds and money)

Permanent deficit (excl. interest payments) 2 per cent of GDP:

Table 2b

Debt/GDP ratio

growth rate	interest rate			
	6	8	10	12
6	-	-	-	-
8	1	-	-	-
10	1/2	1	-	-

- unstable development

IV.2. Nordic Stability?

34. Given this arithmetic, one may look at the past to see if the public debt is exploding or converging.

The situation is quite relaxed in Norway, Finland, and Iceland with regard to the overall debt development. On the contrary, one may judge the likely development in Sweden as uncertain and in Denmark as unstable. Bygones are bygones --except for the accumulated debt. Whatever policy measures are taken to correct the development in the future, a debt/GDP ratio of approximately 2/3 and a real rate of interest of approximately 6 per cent mean that 4 per cent of GDP is continuously taken up by the holders of the public bonds. Even though the Debt/GDP ratio does not explode, there are considerable distributional aspects of a high debt/GDP ratio.

Table 3 Is the Public Debt Ratio Stable in the Nordic Countries?

Average Figures for 1974-84¹⁾

average yearly change, per cent	DK	S	N	F
n { real GDP/capital	1.8	1.4	3.2	2.4
n { inflation	9.5	9.9	9.5	10.9
n ~ nominal GDP/cap. ²⁾	11.3	11.3	12.7	13.3
i ~ nominal interest rate (long term)	16.5	10.8	9.7	10.2
(n - i) ~ stability? ²⁾	-5.2	+0.5	+3.0	+3.1
d ~ permanent public deficit ³⁾ (excl. in- terest)/GDP meas- ured, per cent	1.3	2.2	-4.2	-1.6
d/(n - i) ~ the "con- stant" Debt/GDP ³⁾ ratio	+∞	+4.4	-1.4	-0.5
Actual (1984) Debt/GDP, (per cent)	39.5	15.0	8.1	1.8
Actual (1984) permanent deficit/GDP (excl. in- terest), per cent ³⁾	0.2	0.8	-2.9	1.6

Sources: OECD, Historical Statistics, 1960-82, Paris 1984.
OECD, 1984b, chap. 2, tables 2, 5, 6, 7. Dansk
Økonomi, November 1984. Det økonomiske Råds
Formandskab, København, 1984. Statistisk
Månedsoversigt, Danmarks Statistik 1985/2.

Notes: 1) Definitions are in the text. Permanent deficit
is equivalent to what OECD calls "structural
budget balance measured at trend (mid-cycle)
output". There have been no attempts made to
correct for taxes paid out of public interest
payments.
2) Real growth rates and inflation rates have just
been added; multiplication will not change the
figures in any substantial way.
3) A minus sign means public surplus or public wealth!

IV.3 Possible policy conclusions.


When discussing the policy conclusions which one can derive from the analysis above, it might be useful to separate between cases where the debt-GDP ratio is unstable and those where the ratio seems to stabilise.

In the first cases some policy actions have to be undertaken, because waiting for improved external conditions may undermine the economic performance and the political efficiency of the future. Whereas in those cases where the debt ratio grows with a decelerating speed -- or perhaps even starts to fall -- the pressure for political initiatives is much smaller. Some of the implications of a high but not growing debt may look rather frightening from an immediate consideration, and the higher this ratio is the more vulnerable is the country towards external events -- especially higher rates of interest and a slow down of the growth of the world economy.

I will structure the following analysis in accordance with the elements determinating the debt ratio, cfr. equation(IV:8)

- 1) The permanent deficit (excl. interest payments) - 'd'
- 2) The nominal growth of the economy - 'n'
- 3) The nominal rate of interest (net of tax) - 'i'

ad 1) The permanent deficit is basically determined by the real performance of each sector, cfr. equation (II:2):

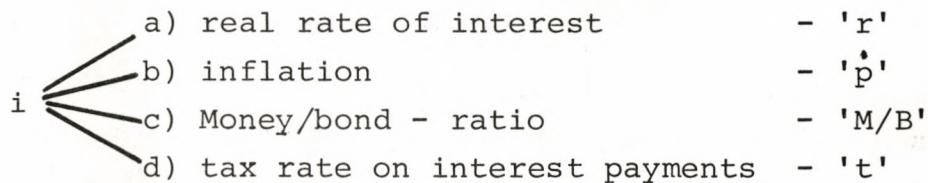
- | | | |
|---|---|---|
| d |  | <ul style="list-style-type: none"> a) public sector (raising taxes, cutting expences) (-g) b) foreign sector (international competitiveness) (+g) c) private sector (higher investments, lower savings) (+g) |
|---|---|---|

Changes in the permanent deficit has temporary, but quite far reaching implications for the real growth of the economy 'g'. When the defensive option in the form of contractive fiscal policy is favoured the economic growth is affected negatively. Contrary to that a reduction of the excess saving of the foreign sector through relative cost improvements or private sector through increased investment incentives will stimulate the growth perspective. It should be stressed that an improved medium term growth performance is important when the debt ratio shall be brought down. A higher investment ratio opens for higher productivity gains and by that improved international competitiveness -- reducing the balance of payments and

inflation constraints.

ad 2) The nominal growth rate consists, of course, of two components. One is the real growth 'g' which is unambiguously advantageous for reducing the debt ratio. Increased inflation might look as an easy way of getting rid of the debt problem, but only the fear of further inflation may raise instantaneously **the rate of interest** and the favourable effects will evaporate quite soon.

ad 3) This brings us to the determinants of the nominal interest rate on the public debt (bonds and money). One can at least detect 4 components:



IV.4 Reducing Public Deficit ('d')

a. Austerity Budget Policies

36. This is a politically touchy area. So I will try to tiptoe through this minefield.

First of all, the main concern in this longer perspective should be devoted to the permanent deficit. What is the size of the deficit when the effect of cyclical movements in unemployment within the coming 5-10 years is corrected for? I do not plea for a calculation of the high employment deficit, because high (or full) employment may not be reached in our time. Any calculation grounded on the assumption that the economy will reach full employment may be rather rash. Although 5-10 years is quite a considerable span of time, it is not foreseen by any forecasting institution that high employment will have been reached within this horizon. In fact, one has to be quite optimistic to see any considerable

improvement in the unemployment situation if no drastic change in economic policy is assumed to take place.⁷⁾

One may, of course, wonder why a scenario with substantial unemployment is the most likely. The answer will be found in the constraints on the economy discussed in section 14 above.

37. The size of the permanent deficit is a rough measure of the long run ^{average} income support generated from the public sector transactions. Different **expenditures** and receipts have different multiplier effects and by that different impacts on employment, balance of payments, inflation, etc. The interest payments have a significant and cumulative impact, especially when the public deficit is matched by long run savings for pension purposes. Accordingly, there might one day in the future be a need for increased taxation, when these accumulated pensions are paid out. Then the need for income support will have decreased and the permanent deficit may be lowered.

In fact, the changing demographic pattern of the society, where a larger proportion of the population becomes pensioners, implies a considerable obligation that ought to be added to the actual debt. From a social (and political) point of view it is very understandable that old-age pension schemes are improved; one could just argue that these future commitments ought to show up in the public sector accounts today.

At the macro level the need for autonomous income support diminishes *pari passu* with increased pension outlays. But at the micro level the distributional effect of higher taxes or reduced expenses is felt directly and creates political difficulties.

38. It is generally accepted that the higher the tax level the larger are the distortions in the functioning of the market economy. Again, it is a political question to choose the binding constraint(s) on the economy (expressed positively: the aims of the policy) and to decide upon the choice between taxes and/or public spending cuts when the deficit is planned to be reduced.

Even though it is basically a political decision in which way to cut the budget deficit, the distortionary and multiplier effects are quite different, so a little economic reasoning should be allowed. In the Nordic context with high automatic stabilizers in the form of high marginal tax rates, unemployment benefits, and (relatively high) marginal propensity to import, one more krone in tax revenue improves the public deficit much more strongly than one krone cut in real expenses (especially on public employment).^{8), 9), 10)}

Anyhow, when the private sector in fact needs further income support (i.e. a situation with unemployment), it may seem rather contradictory to reduce public expenses, and more efficient policies to reduce the budget deficit should be contemplated.

b. Incomes (and exchange rate) Policies

39. Increased international competitiveness has a much stronger effect on the deficit, because it at the same time reduces the excess saving in both the foreign and private sectors, reduces unemployment, and alleviates the balance of payments constraint.¹¹⁾ A lasting improvement in international competitiveness reduces the permanent public sector deficit. This strategy is mainly an option for small countries--and can, of course, never be an option for the entire world economy.

40. When the new Swedish government took office in autumn 1982, it carried through a cost improvement by devaluating the currency by 16 per cent. Doing so, it ran (and is still running) the risks of: 1) losing the cost-gains within a few years and 2) in the (transitory?) period putting more strain on other weak countries' external balances. To the extent that these two risks are avoided or at least limited, one would expect the economy to start going through a virtuous cycle containing: 1) balance of payments improvement, 2) reduction of the permanent budget deficit, and 3) a peaking up of private real investments. In this environment of improved competitiveness the government might even get through with further cuts in the permanent deficit without taking "the good mood from the business sector". For a thorough discussion see Lybeck, 1984.

c. Reducing private excess saving

41. Following the same line of argumentation, increased private investments reduce the public deficit. The most sustainable way of doing this is by improving the perspectives on future profit earnings. But if private investors are for one reason or another too gloomy about future prospects, the government can push them forward by some temporary investment subsidy. It is important that the support scheme be made time limited, otherwise investors continue their wait-and-see position. When the subsidies expire, the extra investments may have triggered off a multiplier-accelerator process which might improve the investors' expectations enough to make the process self-contained. If so, two favourable effects emerge. First, the excess saving in the private sector decreases. Second, the potential growth rate increases.

Looking at private investments then the rate of interest is also very important. So, the rate of interest has a dual role in determining the long run Debt/GDP. Lower rates of interest diminish the speed of the cumulative debt process and at the same time reduce the permanent deficit.

IV.5 Lowering the rate of interest

IV.5.a Administrative vs. market-oriented systems

42. If merely the rate of interest was always lower than the nominal growth rate,¹²⁾ the public debt/GDP would be a stable relationship when the permanent deficit as a ratio of GDP stays constant.

At this point it is important to stress that the interest term (i) in formula 8:

$$(IV.8) \quad DEBT/GDP = \frac{d}{n - i} \quad \begin{array}{l} d \sim \text{deficit/GDP} \\ n \sim \text{nominal growth of GDP} \end{array}$$

is the average after tax rate of interest on all public debt.

$$(IV.9) \quad i = \frac{I - I_t}{M + B}, \quad I = i_a \cdot B$$

I ~ interest payments on the public net debt

I_t ~ tax receipts from taxing public interest payments

m ~ monetized public debt (loan in the central bank)

B ~ interest bearing public debt (internal and external)

i_a ~ the average nominal interest on circulating public bonds

According to this formula there are several options for reducing 'i', so it becomes smaller than the nominal growth rate of the economy. The most obvious thing to do is to keep the nominal rate of interest well below the growth rate.

43. Keeping the rate of interest low might be difficult in a small, open economy. The national rate of interest is determined among other factors by the foreign rate of interest. This link may be cut through capital control isolating the domestic credit markets from the rest of the world. Then the national desired interest rate can be pursued by the monetary authorities to a larger extent.¹³⁾

Anyhow, for a country running a considerable balance of payments deficit the domestic interest rate can only be untightened from the international one, if the government is ready to take up the necessary loans abroad to finance the deficit. The more the government borrows abroad, the more widespread among citizens becomes the exchange risk of the

society. In addition, it facilitates the internal conduct of liquidity and interest rates when the private sector is shielded from international capital markets.¹⁴⁾

44. The domestic interest rate is more easily conducted in countries with administratively fixed rates. In this respect the Nordic countries seem very different. Up until quite recently only Denmark had a market-determined long term rate of interest. Even for the short term rate (certificates of deposit issued by banks and Treasury Bills) it was not before the very late 1970's that steps towards a market-determined interest rate were taken in the other Nordic countries.

Such an administratively conducted financial sector will have severe difficulties in digesting public bonds amounting to e.g. 10 per cent of GDP p.a. (which was the situation in Sweden in the beginning of the 1980's). Quite a number of enforcement rules on banks and other financial institutions are necessary to keep up the demand for public bonds.¹⁵⁾

45. To what extent such an administratively regulated financial sector distorts the allocation of financial resources is a matter of much dispute, see e.g. Jespersen, 1984 and below.

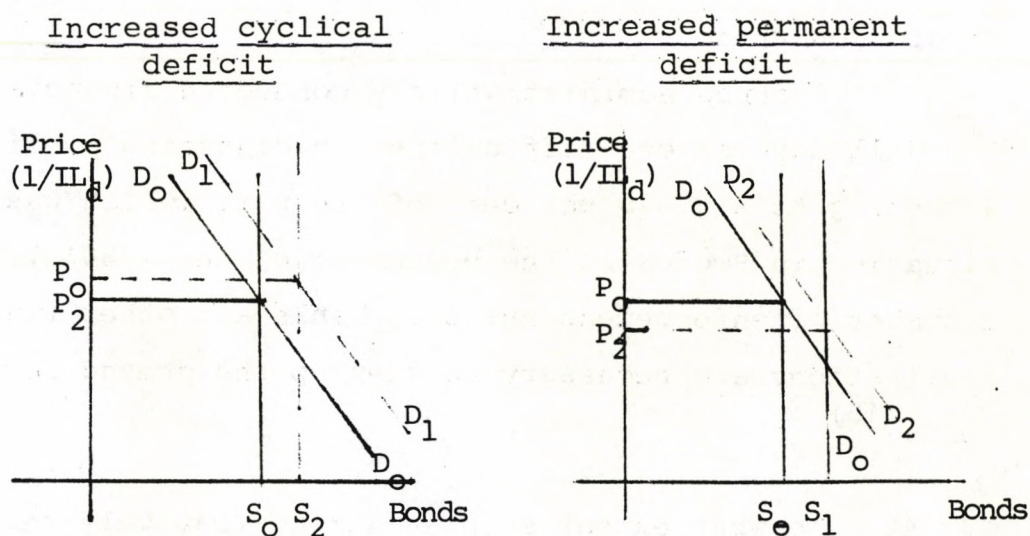
The alternative is a financial sector left to the market forces.¹⁶⁾ Of course, if the general equilibrium conditions were fulfilled, the market-oriented financial sector would clearly be preferable. But the sad thing is that the performance of the economy does not live up to the ideal assumptions of the general equilibrium model. Real

resources will be vacant for at least the next decade; actual output will grow more slowly than potential output due to, among other things, a low level of real investments.

IV.5.b The Market-Oriented Financial Regime

46. The crucial question is then, what kind of relationship can be detected within the market-oriented financial sector between the interest level and the development in the public sector deficit and/or debt.

Figure 5 The Bond Market



Note: The implicit dynamic process should be stressed. A change in the cyclical deficit is generated from the private sector. Accordingly the change in the demand for financial assets increases initially. The lagged response of the public sector is crucial for the dynamic development of the interest rate, contrary to when the government takes the lead.

If the disturbance originates from the private sector, for instance a decreased demand for real investment, then the (net) demand for bonds increases initially. Even if the change in public deficit is entirely financed by bond issues, it is not likely to create excess supply. When the private income falls, the transaction demand for money will also fall, which puts a downward pressure on the rate of interest.¹⁷⁾

Quite a few empirical results, see e.g. OECD, 1984, support this conclusion that in the short run a higher cyclical deficit tends to reduce the interest rate.

When changes in the permanent deficit are used as regressor in empirical analyses, the result is reversed. Higher permanent deficit¹⁸⁾ as a share of GDP increases the long term rate of interest. This situation emerges when the government makes a discretionary fiscal action or when the long run public debt increases as a share of GDP.¹⁹⁾

The last phenomenon happens when:

$$(IV.10a) \quad \frac{d_o}{n_o - i_o} < \frac{d^p}{n^p - i^p} \quad \text{and} \quad n \neq i$$

d_o, n_o, i_o ~ the present expectations about:
 permanent deficit (excl. interest payments)
 nominal growth of GDP
 nominal interest rate on public debt

d^p, n^p, i^p ~ the expected new values of these variables

$$(IV.10b) \quad i^p > n^p \quad \text{Instability is expected, cf. below}$$

IV.5.c Elaboration of the Interest Determination

$$(IV.11)^{20) \quad IL_d = f(g, n^p - n, n^p - \bar{m}, \bar{m} - m, d^p, \frac{d^p}{n^p - i^p}, p^{p*} t^p, B-o-p, Cap. Cont. * IL_f, ID)$$

- IL_d ~ long term nominal interest rate
- g ~ real GDP growth per capita (long run)
- $n^p - n$ ~ the difference between the expected nominal growth rate of GDP and the actual one
- $\bar{m} - m$ ~ divergence of the actual money growth rate (m) from the declared one (\bar{m})
- d^p ~ permanent public sector deficit (excl. interest payments) as a ratio of long run per capita GDP in nominal terms
- n^p ~ expected growth in nominal GDP
- i^p ~ expected public debt service net of tax
- $b^p = \frac{d^p}{n^p - i^p}$ ~ expected long run public debt as a ratio of GDP (when $n^p - i^p$ approaches zero or even becomes negative, b^p grows without limit and a "bankruptcy" is expected. In an empirical analysis this situation may be captured by 1) dummy-values, 2) using $(n^p - i^p + k)$, where k should be chosen appropriately)
- $p^{p*} t^p$ ~ expected inflation times the expected tax rate (in a nominalistic tax system a given after tax real rate of interest can only be obtained if the inflation is overcompensated in the nominal interest rate, cf. Feldstein)
- $B-o-p$ ~ the current account deficit as a proportion of exports of goods and services (perhaps GDP). Especially important for small countries relying on private capital imports
- $Cap. Control * IL_f$ ~ the foreign rate of interest corrected for the effect of capital control. The stricter capital control the smaller the impact from abroad (of course)
- ID ~ Alternative domestic interest rate (time deposits)

47. Elements of a vicious cycle are incapsuled in this equation. A higher long term rate of interest increases the expected public debt which raises the interest even further. Without knowing the exact values of the coefficients we do not know how vicious the interaction is between a mounting public sector deficit and the rate of interest.²¹⁾ But taking the negative effect on real investment and the international competitive position into consideration it is not surprising that the rate of interest becomes a hot issue, hearing the tic-tac from the debt-bomb.

IV.5.d Some political aspects of lowering the interest rate

48. However, the risk of a vicious cycle development may be reduced in a number of ways.

First, Europe could uncouple the link to the American rate of interest. The simplest and quickest way would be to introduce a kind of barrier towards the dollar zone. This barrier could take the form of old-fashioned capital restrictions, which the bureaucrats would love. A more flexible solution would be the introduction of VAT on trade in assets denominated in dollars (or other extra-European currencies). Then, if one wants to buy a dollar bond one is free to do so, one only has to pay the VAT on the transaction to the government or the Community. Such a tax will, of course, remove much of the demand for extra-European assets--and thus make the European rate of interest more independent. Even in that case there still exists a risk that the market-determined rate of interest will stay high due to the positive correlation between the debt-ratio and the interest rate.

49. Within the European countries which have not committed themselves to free capital movements, the possibility of a more administratively fixed rate of interest on the public debt is open. But the longer government bonds have been previously sold under free market conditions, the larger has the secondary market become. This might undermine any attempt to sell newly issued bonds at a price above the 'market clearing' price. Banks and other financial institutions (OFI) will object to any enforcement rule put on them to take these bonds. They will see it as a discriminatory tax, which in fact it is. However, banks and IFOs have quite good possibilities of passing the tax further on to their customers. If, in addition, the banks' (and IFOs') loan rate is fixed, they can only pass the tax on by lowering the deposit rates. This may weaken their competitive position, which on the other hand reduces the growth rates of M1 and M2. Furthermore, a lower deposit rate means a lower alternative interest rate for bonds. This will make the secondary market move in the same direction as the administratively fixed one. Firms could also be asked to take up government bonds in some proportion to their financial surplus.

Coming so far, one might wonder if such a restricted system really has any net merits compared to the free market. What about credit rationing? Here one must not forget that the cause of the public sector deficit was assumed to be excess financial surplus in the private sector! The *raison d'être* of the "artificially" low rate of interest is lack of private real investments--and should not be regarded as a cheap way for the public sector to squeeze the private sector when real resources are scarce. The temptation to keep the

rate of interest low even when the economy might boom is probably difficult to resist--especially when the accumulated debt is large.

One may judge for himself.

IV.5.e Concluding remarks on the conflict between deregulated capital markets and a mounting public debt

50. There seems to be a dangerous risk that periods with high permanent deficits go hand in hand with high real rates of interest. If that thread is not taken seriously, the vicious cycle generating higher and higher deficits due to the interest dynamics seems quite likely. As we are going--by accident--through that period of history in which the monetarists' ideas are tested on the real world, high real rates of interest are not a risk but a fact in a number of dominant countries.

51. One may therefore ask how smaller countries can protect themselves against this regrettable international development. Equation (IV.11) indicates that capital control may reduce the influence of the foreign rate of interest on the domestic one.

Raising the taxes on interest payments seems to involve the risk of being built into a higher level of interest. Of course, taxing previous tax-free interest payments is a rather obvious possibility, which has been pursued successfully in Denmark. In this case a principle of real interest taxation on earnings in pension funds has been introduced, unfor-

tunately letting as much as $3\frac{1}{2}$ per cent real interest be deductible. Anyhow, to me it seems quite unlikely that in the financial sectors governed by the market forces the real rate of interest will stay significantly below the real growth rate of the economy. One may therefore ask whether countries like Denmark (and Sweden), where the public debt is still mounting with a considerable speed and the permanent budget deficit has to be cut year by year due to the unstable constellation of a higher real interest than real growth, were not better helped by an administratively fixed interest rate combined with a set of obligations to buy public bonds.

52. This opens the way for discussion of who has the best information and intention to fix the long term rate of interest, given a high level of disequilibrium within the real sector of the economy--the market or the politicians. The hypothesis has been put forward by Boltho, 1983, that many of the deficit-plagued countries are trapped by adverse expectations. The financial sector is caught by monetarist thinking, that higher public deficit means risk of increased inflation which immediately raises the rate of interest. The real sector reacts according to the Keynesian way of thinking with effective demand as the prime mover of the economy. Here an increased public deficit will stimulate the performance of the real sector, which will be knocked down by the higher rate of interest. Quite a deadlocking constellation, if the rate of interest is solely determined by the market.

IV.6 The temptation of increased inflation

53. From a short term political point of view there will be a temptation to exploit the lag between the actual rate of inflation and the average interest payment on the existing public debt (inclusive of money), cf. equation (IV.10a), especially when the public debt is mainly financed through long term bonds (and money) with a fixed nominal rate of interest. Then the option of letting the inflation rate grow may seem too irresistible. The increasing inflation may not even be a result of conscious conspiracy but a not unpleasant by-product of financing too much of the deficit by printing money. One may argue about the links from the growth of money to the rate of inflation. In a depressed economy the relationship is probably rather diffuse and mainly working through expectations. The inflationary pressure builds up slowly and may be supported by currency devaluations and institutional arrangements like automatic price clauses in the wage regulation.

54. An example is given below, illustrating 'the present pressure for more inflation' in the US:

The permanent deficit (exclusive of interest payments) is assumed to be 2 per cent of GDP.

The stock of money is $1/15$ of GDP.²²⁾

The stock of public bonds is $1/3$ of GDP.

Miller, 1983, asks the question: if these ratios are supposed to stay constant, how much inflation is needed to finance the deficit under different assumptions about real growth and real interest rate? The result is quite striking, cfr. table 4.

Table 4 The "Needed" Inflation

	r g	Real interest rate				
		0	1	2	3	4
R e a l g r o w t h r a t e		---yearly inflation---				
	0	30	35	40	45	50
	1	24	29	34	39	44
	2	18	23	28	33	38
	3	12	17	22	27	32
	4	6	11	16	21	26

Source: Miller, 1983, p. 7 (table 2).

Table 4 shows why a big deficit may add to the expectation of high future inflation. These expectations build into the present interest level, raising the actual real rate of interest. The needed inflation could be somewhat reduced by allowing the ratio of bonds to GDP to go up. According to equation (IV:11) this will put further pressure on the capital markets also leading to higher actual interest rates.

55. Sargent & Wallace, 1981 and 1984, discuss with Darby, 1984, in what cases financing the budget deficit necessarily leads to higher inflation. The conclusion of this discussion seems to be the one, which is also stressed in the present paper, that the ratio between real after-tax interest rate and the real growth of the economy is the pivotal element of the analysis.

V. The 'Real World' Adjustment

V.1 A Pessimistic View

56. Each year the public indebtedness grows, the government's freedom to act is reduced. A mounting debt as a ratio of GDP means that relatively more and more resources go into interest payments. A foreign debt requires foreign exchange to be serviced, which immediately brings the balance of payments to the fore. The foreign debt cannot be serviced through higher taxes, but only through higher (net) export earnings. On the contrary, the domestic debt can be handled by higher (net) taxes. Here the main disadvantage is the distortion of the functioning of the market which puts a ceiling on the possible tax rates.

As long as the real rate of interest is lower than the real growth of the economy (and of (net) exports), the increasing debt may be financed through further indebtedness, because the debt/GDP ratio will ultimately stabilize. However, the higher this long run ratio is, the more vulnerable the government will be to any external event.

Anyhow, in countries with a market-oriented financial sector and no (or little) capital control, the real rate

of interest in the US plays a dominant role for the domestic rate. As has been stressed in the text above, it seems more unlikely than ever that the real rate of interest in the US will fall from its 1984 peak of 7 1/2 per cent to any extent that might equilibrate the modest growth perspectives in Europe, of 2-3 per cent p.a. Accordingly, as any more fundamental change in the functioning of the financial sectors in Europe seems unlikely, the situation is rather deadlocked.

V.2 What has happened?

57. In many countries the real rate of interest is now at a level which makes a situation with a permanent deficit unstable. From table 5 one can see that although the actual budget deficit has risen by approximately 1.8 per cent of GDP in the OECD area in both the first and second oil price shocks, the underlying figures are quite different. Excluding (net) interest payments from the budgets shows that the extra fiscal impulse to the economies was nearly nil in the first period (rising from -1.0 (1973) to -1.2 (1979)), but was negative in the second period (-1.2 (1979), -0.4 (1984)).

This development implies that fiscal policy for the OECD area as a whole has contributed to the steep rise in unemployment and the slowdown of economic growth. A reduced growth rate in GDP over a period of 5 years or more increases the debt/GDP ratio by widening the gap between real growth and real interest. Even if the interest payments are assumed to add to the level of final demand, one can see from the 2nd row in table 5 that, even including interest payments, the permanent deficit has been reduced from 1979 to 1984.

Table 5 The Development in Budget Deficit during the Crisis¹

Average of OECD-countries	1973	1979	1984
	----	per cent of GDP	-----
1. Actual budget balance	0.1	-1.8	-3.6
2. Permanent budget balance	-1.9	-2.7	-2.4
3. Inflation adjusted permanent budget balance	-0.7	-0.8	-1.1
4. Permanent budget balance net of (net) interest payments	-1.0	-1.2	0.4

notes: 1) General government
 2) Concerning definitions; see text

Source: OECD, 1984b, chap. II, table 1,6,7,8.

The OECD area can be regarded as a closed economy (except for oil and some other raw materials). Although marginal tax rates look high in many of the countries, the fact is that those with the highest risk of going unemployed (young people, women, and part-time workers) are those in the lower income brackets where tax rates are relatively low. For that reason the 'OECD-multiplier' of fiscal policy will be quite strong, as one may also read from the dramatic rise in the number of unemployed persons in the second oil price period.

58. One may dig a little deeper into the changed development of the role of the public sector to detect where the cuts in the permanent deficit have hit hardest. Table 6 gives some hints:

Table 6 Contributions of budget components to changes in the permanent deficit of the OECD-countries from 1978 to 1984

(minus sign = move to higher permanent deficit)

A. Expenditures on goods and services:	----- per cent of GDP -----
1) Consumption	-0.2
2) Taxes	+1.3
3) Real investments	+0.2
B. Social security	+0.6
C. Debt interest (net)	-1.4
D. Total	+0.5

Source: OECD, 1984b, chap. 2, table 3

The change towards lower permanent deficit has been carried out mainly through tax increases. The public's demand for goods and services has been unchanged as a percentage of GDP.

Also (net) contributions to social security have gone up. They are more of a lump-sum character than are taxes, this implying that the distortionary consequences are (probably) smaller, but on the other hand add more strongly to the development of increased income inequality.

At the bottom of the table we find the effect of the higher debt-ratio and higher real interest rate. The interest burden has gone up by 1.4 per cent of GDP, exactly equilibrating the effect of higher taxes, from a bookkeeping point of view. Looking at how income distribution is affected, it is likely that the increased tax burden is more equally shared than the interest receipts. This, together with the increased social security contributions and unemployment, contributes to aggravating the screwiness of the personal income distribution.

59. What might be even more troublesome in the medium-term perspective is the decreased level of capital accumulation. Lowering the demand for goods and services through budget cuts and tax increases reduces private real investments. Hereby the potential (and actual) growth is diminished, worsening the economic prospects as compared with a situation where either monetary or fiscal policy was less restrictive--preferably both.

V.3 What might come?

60. Let me conclude this essay by stressing that what really matters in the medium and longer run perspective with regard to the public debt is the size of: 1) the permanent deficit, 2) real growth of GDP, and 3) the real rate of interest.

From an immediate point of view one might think that the appropriate medicine then would be: 1) fiscal policy, 2) incomes (and exchange rate) policy, and 3) monetary policy, depending on which 'debt-element' had the worst performance, and on what had caused the initial deterioration.

But public debt problems are only one aspect of a much broader menu of political targets, where unemployment, inflation, balance of payments, and income distribution go in as well. Accordingly, one cannot say what the correct remedies for a mounting public debt are--at least not without knowing the entire structure of political preferences.

One can only say that as long as the real rate of interest on the public debt exceeds the growth rate of the real economy, the debt problem will become more and more

like a strait jacket on the pursuit of other targets.

To stem the growing debt, a coordinated fiscal, incomes, and monetary policy is preferable. Even institutional changes within the financial sector have been contemplated.

Anyhow, as the freedom to act is rather limited for a single country, one cannot stress too strongly that what is really needed is an international coordinated policy to take in hand the low growth performance and high interest rates. Not before that has been established will the risk of mounting public debt be lifted from the Western economies.

NOTES:

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- 1) This paper shall be presented and discussed at Nordisk Økonomisk Forskningsråds conference on 'Longer Term Aspects of a mounting public Debt'. As it is planned to publish the paper in the year-book any comments and critique will be highly appreciated.

The topic is rather political, so no unanimous conclusions can be achieved. However, I have aimed at a presentation of the main-stream ideas - running the risk of underestimating some new but still unsettled contributions.

I have benefitted from presenting the paper at a workshop at the European University Institute in Firenze. Especially I want to thank my colleague Palle Svensson for our never ending discussion on these topics.

- 2) Short run is defined as the time period where the adjustments to quantity changes are mainly of quantitative character.
- 3) Of course, a public sector deficit does not necessarily imply a surplus of both the private and the foreign sectors. If the surplus of the foreign sector exceeds the public sector deficit then by definition the private sector is in deficit as well.
- 4) When the deficit measured as a share of the total public debt equals the growth rate of GDP, then the Debt/GDP ratio will stabilize, cf. Johansen, 1965.
- 5) When a part of the deficit is financed by issuing money, the interest burden is somewhat reduced. Money financing is a temptation for a number of reasons, which I will come back to. This calculation should be made net of tax paid out of interest income.
- 6) OECD, 1984, p. 22. Also here the nominal rate of interest should be interpreted as the average (net of tax) interest paid on all debt (inclusive of money).

- 7) Here I mainly think of coordination of the economic policy among the bigger countries. Single country initiative is most likely to be short lasting, but a few opportunities are left open for smaller countries--I come to that.
- 8) On the other hand, lower taxes and a smaller public sector reduce the distortions of the market signals.
- 9) Higher taxes also have a lasting distortion effect on the nominal rate of interest, cfr. below.
- 10) Higher taxes or lower public demand will probably only lower the growth of GDP temporarily, but as mentioned in the text, will increase unemployment permanently.
Hence the ^(net) effect on the permanent deficit is diminished.
- 11) I will not dwell on the discussion of pro et con related to a currency devaluation. That was in fact the topic for Nordisk økonomisk Forskningsråd's conference last year.
- 12) Should I ever make a proposal for an amendment to the constitution, I would recommend this.
- 13) Due to trade credit as an unavoidable link between national and international capital markets, one cannot expect total/^{financial} isolation. Furthermore, Denmark as a member of EEC has committed itself to reducing capital control--at least as a long term goal.

- 14) Quite often the argument is put forward that the government cannot take up enough loans abroad to finance a substantial current deficit. If so, this is a further argument for getting rid of the balance of payments deficit.
- 15) For a certain period the requisite share of bank deposits backed by government bonds was as high as 55 per cent in Sweden. This of course made the figure for the money supply--measured by M1--grow quite substantially, and in 1982 a market for treasury bills and in 1983 a market for longer term government bonds were established. But still a number of administrative regulations are kept in Sweden --not to speak of the other Nordic countries--together with some capital control. This means that the ^{official} /alternative rates of interest (to the bond rate) are held firmly by the ministry of finance, and the credit ceiling on bank loans is still maintained.
- 16) Here Keynes, 1936, chap. 12.5 could be cited, but I avoided the temptation.
- 17) This statement does only hold unconditionally in a well-behaved 3-asset model (money, bond and real capital), cf. Friedman, 1978.
- 18) Here one has to distinguish between current expenditures and capital expenditures (public investments). Capital expenditures raise the future public income either through a social rent and/or through pay-as-you-go taxes. But--and this is a big but--more often than not capital expenditures today add to current expenditures tomorrow when the schools, hospitals, and old-people's homes are operated by teachers, doctors, and nurses.

- 19) When the expected long run ratio between public bond debt and GDP increases, the future interest burden goes up and this increases the permanent deficit (incl. interest payments).
- 20) The sign of the derivatives is indicated above each variable.
- 21) One should not overestimate the possibilities of getting these numbers from empirical calculation. As can be seen from equation (11) a great number of expected values go into the equation--and no appropriate method has yet come out to measure such figures. I leave the discussion of rational expectations for another time.
- 22) If the money growth rate were allowed to be accelerated, the "needed" inflation could be lower, but the expected inflation could easily increase even further.

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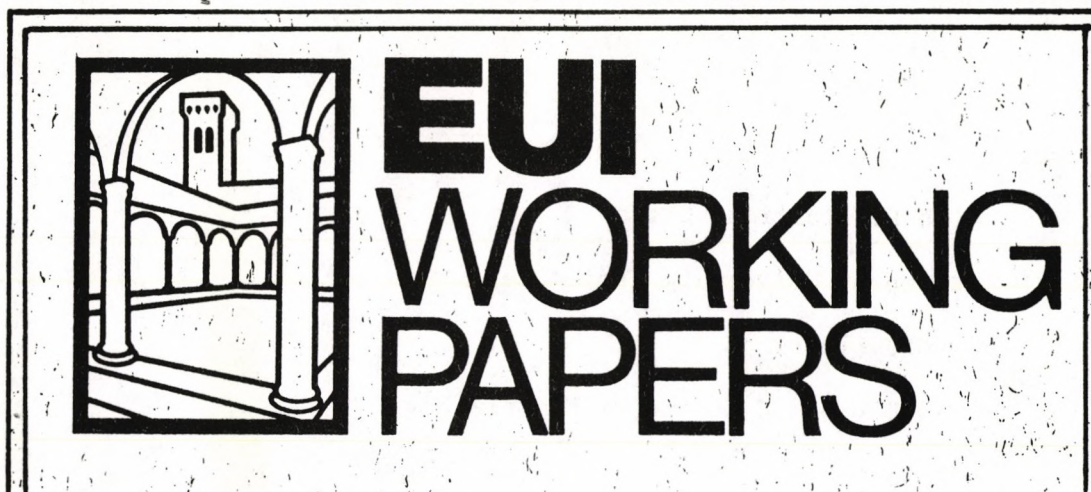
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