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MONETARY INTEGRATION AND THE NATIONAL ADJUSTMENT PROCESS
MACROECONOMIC POLICIES OF DEFLATION IN A SMALL OPEN ECONOMY
The Case of Denmark

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PREFACE AND ACKNOWLEDGEMENTS

Admittedly, this rather bulky study of the adjustment process of a small open economy participating in a currency area makes at times both tedious and burdensome reading.

This was never explicitly the aim for the author, but in a way this was an outcome to be expected, when I first set out to analyze the monetary unification process seen from the angle of a small open economy, because one of the aims for the study was to show that the monetary integration process was far more complex than established theory on monetary integration purports to show.

Monetary integration theory, of mainly a monetarist orientation, from the last decade, tends to show the adjustment process to uniform rates of domestic inflation as a mechanistic outcome of a harmonization of national supplies of credits.

This belief that credit restraint is the panacea for balance of payments disequilibria is based on the dictum that the exchange rate is the relative price of two monies, hence the adjustment process is mainly a question of having national money supplies converging.

Indeed the present study shows that the adjustment process for a small inflation prone open economy is far more complicated. The process is burdensome and tedious, and by interpreting external disequilibria as a fiscal phenomenon, this study suggests that a broader range of instruments be used.

The previous over reliance on restrictive monetary policies combined with a high degree of short to medium term autonomy for fiscal policy have had serious structural repercussions by changing the pattern of production and consumption for the economy.

The resulting squeeze on the tradeables sector as a direct result of restrictive monetary policies, shifts the adjustment burden from the nontradeables sector to the tradeables sector. The result, as demonstrated in the present study, is a chronic expansion of the public sector, which in turn makes future adjustment yet more difficult.

The chances are now that the economy will experience a new variety of a "vicious circle", from overvaluation of the currency to a permanent expansion of the public sector.

The study is laid out in the following way: chapters 1 and 2 focus on monetary integration from an individualistic point of view, opposed to the more common collective approach of traditional integration theory. The apparent lack of fiscal integration theory in literature is noted.

The theme in chapters 3 and 4 is the impact of smallness and especially openness on domestic economic policy-making, and the necessary preconditions for monetary integration.

Chapters 5 and 6 present an analysis of adjustment strategies and a framework for international economic coordination, respectively. A formal model of the present

policy-mix dilemma is presented in chapter 7. The stress is on changing relative prices. Chapter 8 is a comparative empirical analysis of movements in nominal and real effective exchange rates for the EMS countries, minus Ireland, economic performance and public sector growth. Chapter 9 is an analysis of the Danish experience, and by interpreting the balance of payments deficit as an essentially fiscal phenomenon, we see the real constraints on domestic financial policies in a small open economy.

Chapter 10 contains the more important conclusions to draw from the study.

I am indebted to several persons and institutions for valuable advice: Prof. M. De Cecco, my dissertation supervisor, proved indispensable during the long process of writing this study. Prof. N. Thygesen read parts of the study at various stages, and has made constructive comments. Dr. H. Lehment made me interested in the link between stabilization policies and public sector growth. I am also very indebted to the kind assistance which at various stages came from Mr. P. Schelde-Andersen of the OECD, Mr. V. Puggard of the Danish confederation of industries, the Danish delegation at the OECD, and last, but certainly not least, the staff at the Institut für Weltwirtschaft, Kiel, and the staff at the European University Institute, Florence, for kind assistance.

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Chapter 1

Introduction

> "Mr. Micawber solemnly conjured me to observe that if a man had twenty pounds a year for his income, and spent nineteen pounds nineteen shillings and sixpence, he would be happy. But that if he spent twenty pounds one he would be miserable. After which he borrowed a shilling of me for porter and cheered up."[1]

It is this dilemma of Mr. Micawber imposed on international monetary integration the following study attempts to analyze. An externally given exchange rate target, which produces an external disequilibrium, the strong currency option, is chosen by a small open economy as the main instrument for checking domestic inflation for mainly two reasons:

i. The emergence of a feeling of economic interdependence and

ii. The importance of the open sector as a transmitter of inflation, as devised in the Scandinavian inflation model.

In the present chapter the repercussion of this on domestic parameters is discussed. The question of why and how monetary integration can benefit a small open economy is further elaborated upon in chapter 2.

So the following study intends to analyze adjustment policies of a small open economy in the context of monetary integration. As an example of the small open economy, Den-

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1) Charles Dickens, David Copperfield, var. editions.

mark is chosen, both because of the author's familiarity with the subject and because Denmark has participated both in the European "Snake" and now participates in the European Monetary System (EMS). Hence it is the aim to see how an external given exchange rate target influences the conduct of monetary, and especially, fiscal policies, and what longer term effects such policies will have for domestic economic structure.

A considerable amount of research has been done on costs and benefits of joining a monetary union. Most of these studies have been solely concerned about the global advantages or disadvantages of monetary integration. Analyses from the angle of the national state have been more rare.

An explanation of this bias towards globality instead of individuality is according to Hamada[1] that "economists, if potentially representative of the interest of a particular country or group, sound more persuasive when they advocate a programme that appears general, rather than one that speaks to the national interest". However as we shall see, national interest in the present context does not necessarily have a negative connotation.

Looking at the distribution of costs and benefits for the individual nation, Hamada[2] shows that the benefits of

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1) K. Hamada, "On the Political Economy of Monetary Integration", in R.Z. Aliber, The Political Economy of Monetary Reform, New York 1976.

2) K. Hamada, op. cit.

monetary integration have the qualities of a public, or collective, good, whereas the costs of monetary integration are highly individual. The costs and benefits of monetary integration in turn, are distributed so that costs precede benefits. Individual costs precede collective benefits. With this in mind, the logical subject for research, when focusing on the adjustment process to new inflation standards of a potential monetary union, is the national state.

The chances of survival of any system increase with the amount of confidence the participants have in the system.

If the initial costs by joining an exchange rate union[1] suddenly seem excessive, by the way of an overvalued exchange rate for instance, in comparison with the perceived later benefits, the chances are that some members will "cheat", i.e. not play according to the agreed rules, however vaguely defined they may be.

This reminds very much of the zero-sum game, stressing the importance of a real coordination of policies amongst the contracting parties.

The degree of confidence is the central issue whenever an international system is going to work as a result of cooperative efforts.

Confidence in the system and support for the system are determined by the attractiveness of the ultimate

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1) Cf. W.M. Corden's distinction between monetary union and exchange-rate union in his Monetary Integration, Princeton 1974.

goal, or in the context of monetary unions, by the increasing awareness that the growing interdependence among industrialized nations narrows down the range of other options.

1.1. Monetary integration and interdependence.

As the typical treatment of the term interdependence, as encountered in most literature, leaves one with the impression that the analytical contents of this term should be self-evident,[1] a brief digression of the term is needed here in the introduction in order to show that the acknowledgement of interdependence is a necessary precondition for the monetary integration process. Although several points of disagreement exist between scholars about the true features of interdependence, we shall try to divide the arguments into two schools of thought. One which is on the descriptive level, and another which focuses on the prescriptive aspect of interdependence.

1.1.2. Definitions of interdependence.

Keohane & Nye[2] use the costs of the constraints which are imposed on one government by the action of another government as a measure. Furthermore the authors divide the term into two slightly different effects, sensitivity and vulnerability.

Sensitivity involves degrees of responsiveness within a policy framework. That is, how quickly do changes in one

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1) As rightly pointed out by R.C. Bryant, Money and Monetary Policy in Interdependent Economies, Brookings 1980, p. 159.

2) See R.O. Keohane and J.S. Nye, Power and Interdependence, New York 1977.

country bring costly changes in another country?

Vulnerability on the other hand is a measure of exposure, and it decreases when one actor can alter its policies by finding substitutional policies for the transactions initially lost.

Rosecrance et al.[1] argue that by interdependence is meant "the direct and positive linkage of the interests of states such that when the position of one state is changed, the position of other states are affected in the same direction".[2]

More formally, Rosecrance et al. argue that two economies are highly interdependent when there is an equalization of factor prices between them. This definition is identical to the definition of market integration, and thus stresses the point that interdependence should be seen as part of the integration process.

A more fruitful approach in the present context is the one developed by Richard Cooper, which here will be coined the prescriptive approach.[3]

Where Keohane and Nye, and to a lesser extent Rosecrance et al. stress the ability of national states to exert power against each other, Cooper's approach focuses on the high degree of interconnectedness which should lead

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1) R. Rosecrance et al., Whither Interdependence, International Organization, Summer 1977.

2) Ibid.

3) R.S. Cooper, The Economics of Interdependence, New York 1968, and R.S. Cooper, "Economic Interdependence and Foreign Policy", World Politics, January 1977.

governments to recognize their common interests, which is the necessary basis for a shared ability to tackle common problems.

Where Rosecrance et al. use the equalization of factor prices as a measure, Cooper goes one step further and focuses on the international repercussions of variations in factor prices brought about by policy actions of national governments trying to pursue strict national objectives.

> "As nations become increasingly interdependent, as capital and skilled labour become less exclusively national in their orientation, countries desiring to pursue tax or regulatory policies that deviate widely from those in other countries will find themselves stimulating large inflows or outflows of funds, firms or persons: These induced movements will in turn weaken the intended effects of the policies, or make them more costly."[1]

A consequence of this state of affairs is that

> "a second kind of growing economic interdependence, institutional rather than structural, can be discerned among industrial nations. This institutional interdependence occurs when these countries must, by prior agreement confer, and even reach joint decisions, on matters of economic policy."[2]

As has been amply demonstrated[3] in the literature

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1) Cooper (1977), op. cit., p. 166.

2) Ibid., p. 163.

3) The feeling of interdependence and pressures from third currencies notably the US$, as integrative forces are shown in i.e. M. Fratianni & T. Peters, One Money for Europe, London 1978, N. Thygesen, The Emerging European Monetary System, Precursors, First Steps and Policy Options, memo, København 1979, P.H. Trezise, The European Monetary System: Its Promise and Prospects, Brookings 1979, J. Statler, "The European Monetary System, From Conception to Birth", International Affairs, April 1979, and T. DeVries, On the Meaning and the Future of the European Monetary System, Princeton 1980.

about monetary integration, considerations of the above-mentioned nature were driving forces behind the creation of schemes like the "Snake" and the EMS.

However, conditions of interdependence, which in the context of stabilization policies, tends to decrease the multiplier effect of any expansive policy action, cannot be used in the domestic political debate because of the isoteric nature of the term, and the more narrow time horizon of policy makers.

> "Governments wish to be reelected. So governments tend to have a high rate of time preference since their time horizon is relatively short. As a result, in cases of conflict between internal and external targets, elected governments typically choose to achieve the former and sacrifice the latter by renouncing previous commitments on international rules of the game."[1]

1.1.3. Denmark and the adjustment process. Macroeconomic policies of deflation in a small open economy.

As a case study for the national adjustment process inside a proposed currency area Denmark is selected. There are many reasons for choosing Denmark. Firstly, Denmark is one of the "core" countries, from a European integrational point of view, as the country was one of the original members of the "Snake". Another reason is that Denmark, according to Thygesen,[2] showed "signs of structural deficits and currency overvaluation from the

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1) See J.A. Frenkel, "Reflections on European Monetary Integration", in Weltwirtschaftliches Archiv, Band 111, 1975, p. 217.

2) N. Thygesen, "Are Monetary Policies and Performances Converging?", in Banca Nazionale del Lavoro Quarterly Review, Sept. 1981, p. 310.

start of the EMS. Structural deficits and overvaluation of a currency will, as is shown later, tend to prolong the adjustment process, and make it more costly, both in terms of lost utilization of production factors, but also in terms of an increase in foreign indebtedness, resulting from the need to replenish domestic international reserves, while maintaining an overvalued currency.

A third reason for choosing Denmark as a case study is the more curious one, that Denmark, according to Zis,[1] is the only country of all the participants in European monetary integrative efforts, which has not experienced smaller fluctuations in the exchange rate vis-à-vis the ECU, since the ECU was first "invented" in 1972.

A reason for this divergence of the Danish krone is underlined by Thygesen:[2] "even more important in the long run is the need for national authorities in the weaker economies to perceive more clearly the dangers to their currencies in getting their fiscal policies as far out of line as present trends suggest". Accordingly, the role of fiscal and budgetary policies will, as is demonstrated in chapter 2, be on top of the research agenda.

1.1.4. Danish monetary policy in the past decade.

The main feature of Danish monetary policy during the

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1) George Zis, "EMS, A Framework for International Monetary Reform", Intereconomics, March/April 1982, p. 69.

2) N. Thygesen (Sept. 1981), op. cit., p. 321.

last decade has been the attempt to peg the Dkr to an external currency, the Dm, which faces prospects of higher stability than the Dkr in terms of future purchasing power. This is the so-called strong currency option.

The doctrine that holding the Dkr/Dm rate steady in order to break domestic inflation has the intellectual parentage in the Scandinavian inflation model,[1] which stresses the role of the external sector as link for wage-inflation.

The model, briefly presented, states that small open economies are subject to the law of one price. Danish exporters must observe world prices for their products, as they are price-takers. This implies that employers in the export and import substitution sectors are forced to keep down the rise in labour costs in order to keep these at the level ruling in the rest of the world.

The only room for wage increase is exogenous increases in the world price level, or increases in domestic productivity. This wage moderation is then expected to be transmitted to the sheltered sectors of the economy.

The historical background for the model was the relatively high productivity in the export sectors and a degree

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1) The model is originally developed by Aukrust in "Instilling II fra utredningsutvalget" for Inntektsoppgjørene 1966, Oslo. Some English versions are: L. Calmfors, Swedish Inflation and International Price Influence, IIES paper no. 45, Stockholm, and A. Lindbeck, Imported and Structural Inflation and Aggregate Demand, IIES paper 95, Stockholm.

of undervaluation of the Scandinavian currencies in the 60's. The manufacturing sectors charging world prices for the exports had substantial profits, which led to wage drifts into other sectors where productivity traditionally was lower. This had clear inflationary consequences.

So in a fixed exchange rate system like the Snake and now the EMS the strong currency option of pegging a weak currency to a strong currency is an instrument to check domestic inflation, in order to make national inflation rates converge at the lowest possible level,[1] which in turn is a prerequisite for stable exchange markets in EMS currencies.

Another more obvious reason for the strong currency option is the belief that an externally strong currency can stabilize inflationary pressures coming from the outside, and a related issue is the straightforward one that current account deficits are financed more easily with a strong currency.

The trade-off to the strong currency option is higher unemployment and seemingly persistent deficits on the current account as part of the deflation.

Periods of deflation are, according to Blackaby,[2] periods where politicians, in order to defend themselves,

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1) It is not here the issue of questioning the relevance of trying to obtain a lower inflation rate as is done in F. Hahn, Memoranda on Monetary Policy, 17 July 1980, HMSO, no. 720.

2) Frank Blackaby, "Exchange Rate Policy and Economic Strategy", Three Banks Review, No. 126, 1980.

turn to medical metaphors:

> "We have to accept that the surgery will be painful and the treatment distasteful, but there is no other way of returning to general good health",

or more appropriately the old analogy of cupping and bleeding:

> "it may have reduced the patient's fever, but it certainly left him weakened rather than strengthened."

Looking at the rather modest changes in the real exchange rate after nearly a decade with the strong currency option, despite many changes in the nominal rates, the question easily arises whether the whole exercise was worthwhile. Could perhaps domestic macroeconomic policies have achieved the required adjustment?[1] And this without the bias against the foreign trade sector, which primarily has been affected by the strong exchange rate.

Another Blackaby quote[2] fits nicely into this pattern:

> "Once the government accepts the proposition that it is simply deflating the economy, then it can at least take the first, limited steps towards a more sensible strategy. There is no law which says that a deflationary policy has to fall particularly heavily on the foreign trade sector, which is what has been happening . . . It is perfectly possible to devise a deflationary strategy which raises unemployment by the same amount as present policies, and therefore has just as big an effect on prices and earnings (whatever that may be), but is not biased against industries which compete with foreign suppliers."

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1) Cf. N. Thygesen, Exchange Rate Policies and Experiences of Small Countries, Princeton 1980, p.

2) F. Blackaby (ed.), The Future of Pay Bargaining, NIESR, London 1980, p. 14.

The primary objective by deflating the economy is to prevent price increases.

The traditional tool for this was in the past incomes policies. Why incomes policies seem to have lost their effect, and hence attraction, is not the subject for discussion here, but it is clear that governments in most Western countries, conservatives or social democrats, increasingly rely on monetary policies in order to control aggregate demand.

With the advent of regional currency areas, especially the "Snake" and the EMS, this reliance on monetary policies has understandably been aggravated.

This because the mainstream theory of monetary integration relies heavily on the new monetarism, as discussed in chapter 2, and also, which in reality comes to the same thing, because priorities of macroeconomic policies seem to have shifted away from output stability to price stability and external balance. For weak currencies such a shift in priorities implies a deflation in order to reach a lower average inflation rate.

Whether such a deflationary process is desirable, or necessary, is beyond the point set for the present work.

The task here is to see how effective different tools of macroeconomic policy have been in the Danish attempt to implement the strong currency option, and whether the welfare costs of this could be minimized by using another mix

of macroeconomic policies than is presently being used. This in order to stress the fact that it is the efficiency of this deflation which is crucial for keeping adjustment costs down, and make monetary union an attractive goal also for weak currencies.

The high rate of unemployment, which is partly the result of an appreciating exchange rate, makes a public deficit nearly unavoidable, with declining tax receipts and increases in social transfers. There is then, according to Grauwe,[1] also a chance for vicious circles for an overvalued currency:

> "What is particularly disturbing about this is that the overvaluation of the currency which normally is a temporary phenomenon leads to an automatic and permanent expansion of the government sector. This makes further adjustment difficult, and as was argued earlier, may transform a temporary overvaluation into a protracted one. Vicious circles may also exist for overvalued currencies."

This indicates that the path for adjustment for a small open economy in a currency area like the EMS is very narrow. On the one hand exchange rate adjustment, downwards, is not a domestic policy tool any more, and besides that, could have serious repercussions by increasing inflationary pressure. On the other hand fixed exchange rates, despite inflation differentials, maintained by capital im-

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1) Paul de Grauwe, "Symptoms of an Overvalued Currency, the Case of the Belgian Franc ", in Marcello De Cecco (ed.), International Adjustment, Oxford 1983.

ports, may lead to a change in the country's demand and output pattern, which may prolong adjustment.

Recent criticism from especially the German Bundesbank and the OECD[1] has stressed the importance of a better coordination of national fiscal and budgetary policies, as well as monetary policies in order to achieve a higher degree of convergence of national inflation rates.

This debate is not new however:

> "It is not very fruitful to ask the central bank to control the money supply, if nobody can control the public deficit"[2]

and a similar British view:

> "The key to maintaining a reasonable monetary expansion in Britain must be a reduction of public sector borrowing. It is inconceivable that this can continue to run at a rate of 12% of GNP without thereby generating a renewed acceleration in the rate of money creation."[3]

The question which is raised here, and which will be dealt with in extenso in the present text is that of choosing the appropriate instrument to fight inflation in a small open economy being integrated into a larger currency area.

By choosing the strong currency option a small open economy seems to be able to control industrial prices,

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1) See German Bundesbank, Annual Report 1981, and OECD, Budget Financing and Monetary Control, Paris 1982.

2) Remarks by E. Hoffmeyer, Governor of the Danish National Bank, in BIS, Press Review No. 221, Nov. 1976.

3) D. Laidler, "Inflation in Britain", American Economic Review, Sept. 1976, p. 499.

but as the recent divergence of national inflation rates amongst the EMS countries suggests, this control of industrial prices did not have a conclusive influence on general cost of living indexes.

1.1.4. A framework for the analysis of macroeconomic policies.

Before embarking on the task of comparing the efficiency of different policies in the phases of deflation, which ends when convergence of inflation rates is reached,[1] it is convenient already here to present a simplified framework for the analysis of macroeconomic policies.

Basically macroeconomic policies consist of the following five activities:

i) Determining the net issue of money by the central bank, i.e. the issue of notes and coins, as well as increases in the deposit liabilities of the central bank to the private sector banks.

ii) Determining the public sector financial deficit. The public sector deficit equals the total current expenditure on goods and services plus income transfers and debt interest payments by the public sector minus current receipts plus gross domestic investment, less capital transfer receipts. Determining the public sector deficit (or surplus) involves many policy tools, of which two main components

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1) A clarification of the problem is presented in chapter 2, but the actual analysis first takes place in chapters 6 - 7 - 8.

are the fixing of the public expenditure level and the determination of the tax rate levels.

iii) Determining the net sale of foreign assets by the public sector, the central bank included. This involves net decreases in the official international reserves, and transactions with foreign central banks and the IMF.

iv) Determining the net sale of public sector securities, excluding the ones mentioned under items i and iii.

The four above-mentioned items must sum to zero, implying that the financial deficit is equal to the issue of money, the sale of securities, the sale of foreign assets or some combinations of these. It follows also that only three of the items can be determined independently. The last item is somewhat out of context, but as is shown in chapter 6, it must be included in the list of options:

v) Determining the exchange rate.

Chapter 2

Monetary integration and the national adjustment process. The scope for analysis.

Below the scope for analysis is presented. The need for formal monetary integration is a logical outcome of the preceding process of market integration.

So looking at costs and benefits of monetary integration we conclude that costs precede benefits, and that benefits are of a collective nature, while costs of adjustment are purely individual.

Using domestic credit restraint as the primary tool for economic convergence highlights another dimension of the distribution of costs and benefits, because the adjustment burden seems to fall more heavily on the tradeables sector than on the nontradeables sector. This paradox is formally analyzed in chapter 7.

The obvious answer to this bias in adjustment costs for the two sectors is that budgetary policies should play a more dominant role in the overall strategy of making national inflation rates converge.

This in spite of the earlier rejection of fiscal policy as a tool for monetary integration made originally by observers of a new monetarist way of thinking.

So in the present chapter a discussion of the roles of monetary and fiscal policy in the process of monetary inte-

gration is set forward and the conclusion is that fiscal policy indeed does matter.

Why do countries feel the need to participate in monetary integration ventures, and what are the possible effects of integration efforts on a country's economic structure and performance?

An essential prerequisite for monetary integration is market integration. The Rome treaty provided member countries with a tool to achieve market integration by lifting possible barriers which could hinder intra EC trade.

However on the financial side, the logical consequence to market integration is monetary integration, as uncertainty about future exchange rates is seen as an equally important hindrance to the free flow of goods and assets as tariff barriers and quantitative controls.

The disillusionment with the short reign of flexible exchange rates, as imposed immediately after the breakdown of the Bretton-Woods system,[1] gave nourishment to new regional currency areas. The "Snake" was an attempt to maintain a joint EC-float in times with rapid movements on the exchange markets, and the EMS is a more broadly based, and more ambitious, attempt to provide a currency area with internal stable exchange rates. For countries with a higher

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1) The disillusion with the short reign of floating exchange rates stems essentially from the conceived fact that floating exchange rates tended to overshoot, thus triggering off either vicious circles of inflation or virtuous circles of disinflation.

than average inflation rate this means, according to conventional theory, a reduction of the growth rate of the money supply, in order to bring about a reduction in inflation rates.

According to new monetarist theory the adjustment process covers the span of time where a reduction in the domestic money supply helps force the domestic inflation rate down to the level reigning abroad.

The first effect of a reduction of the money supply is a diminished effective money demand in relation to money wages, which in turn will affect the level of output and employment. The result is a disequilibrium in the labour market with fewer jobs available than existing demand. On the aggregate this implies, ceteris paribus, a lower real national income, which will affect the real exchange rate in the following ways:

a) Imports will tend to be reduced relative to exports, assuming that imports have a higher income elasticity than domestic goods. This effect tends to raise the exchange rate.

b) Tight monetary conditions will raise the real interest rate as a response to the scarcity of money relative to the amount of economic transactions, assuming a steady velocity of circulation.

A high real interest rate will attract capital inflows from abroad, if foreign investors estimate the interest rate dif-

ferential to be larger than a potential exchange-rate realignment. Such an inflow of foreign capital will raise the real exchange rate.

So during the adjustment process to a new equilibrium, the real exchange rate tends, ceteris paribus, to appreciate as a result of the lower real national income and its effects on the current account and because of the effects of the higher real interest rate on the capital account. This chain of events is coined the strong currency option. In order not to sacrifice the domestic export sector, flexibility in nominal exchange rates is a must, if the inflation differentials are too high, in order to influence real exchange rates. However as Thygesen (1980) points out:[1] "the main contribution to changes in real exchange rates must come from the domestic efforts of the participants."

Now, which kind of efforts are consistent with participation in a currency area, and which efforts are deemed to be inconsistent? This is a difficult question to answer, but it is one of the aims of the present study to, at least, give a tentative answer.

2.1. Costs and benefits from monetary integration.

Examining the costs and benefits deriving from the membership of a currency area, three basic types of benefits are readily identified:

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1) N. Thygesen, Exchange Rate Experiences and Policies of Small Countries: Some European Examples of the 1970's, Princeton 1980.

The first type of benefits is linked to the traditional argument about decreasing transaction costs for an international money.[1] The gradual reduction of uncertainty about future exchange rates will result in the integration of asset, as well as goods markets, which in turn will provide a more efficient allocation of resources, and hereby promote economic growth.

The second argument for monetary integration is the one we suitably could call "the monetarist/rational expectations argument.[2] This argument states that monetary integration disciplines governments, which have not yet been able to fight inflation effectively, by allowing their currencies to depreciate, and hence ending up in a vicious circle of inflation and devaluation. A firm commitment to a fixed exchange rate, by belonging to a credible currency area, will diminish future inflationary expectations, which in turn will have an impact on the behaviour of economic units, when future prices are determined.

The third argument for monetary integration could be coined the "new macroeconomics argument", and this argument has a strong bearing on the former argument, but it is far more radical in its implications.

Since money illusion seems to be a thing of the past, a reduction in real wage rates by depreciating the nominal ex-

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1) For a further discussion of this argument see C.P. Kindleberger, "The Benefits of International Money", Journal of International Economics, Sept. 1977.

2) The argument has its roots in the Scandinavian inflation model.

change rate will have next to no effect, as economic agents will find ways to counteract such policies.[1]

In order to evaluate the costs of monetary integration the following components leading to monetary integration are identified from the perspective of time:[2]

a) The linking of national currencies with a narrowing or vanishing band. No common central bank with common reserves is established. This is what Corden[3] calls the pseudo exchange rate union.

b) The coordination of economic policies in order to prevent disequilibrium in the balance of payments.

c) Some clearing mechanism for national external balances disequilibria, using a commonly accepted reserve asset.

d) Convertibility between capital and current transactions is established, which should imply that

e) Public confidence in the irrevocable nature of the fixed exchange rates is established. This state first emerges, however, according to Hamada:[4] "only after a substantial transition period, during which there is a successful maintenance of the de facto fixity of exchange rate parities, or only after some kind of political unification."

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1) For a clarification of the influence of the new macroeconomics on economic policy inside a currency area, see chapter 5.

2) These are basically Hamada's, op. cit., variables.

3) See Corden (1972), op. cit.

4) Hamada, op. cit.

f) Finally, a common currency is issued by a single central bank, which circulates in the currency area. This leads to the complete currency area.

So returning to the question about the perceived costs of monetary integration for a small open economy with an above average inflation rate, the costs are that of balance of payments adjustment with rigid exchange rates, when the countries forming the currency area do not fulfill the demands of the optimum currency area.[1]

Using Hamada's variables it can easily be seen that there is a difference in the time profile and distribution of costs and benefits. The benefits are of a collective nature, like a public good, and these are only fully attained in the last stage of the monetary unification process, i.e. when public confidence in the irrevocability of the fixity of the exchange rate is reached.

The costs of monetary integration are immediate and of a highly individualistic nature.

It is therefore logical, as stated in the previous chapter, to use the national level, the nation state, as our research object.

Much has been written about the "global" advantages and disadvantages of monetary integration. Focusing on a small open economy in order to examine the effects of the strong currency option, and policies to pursue a politically ac-

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1) See chapter 4 for the connection of microeconomic disturbances and monetary integration by the discussion of the optimal currency area theories.

ceptable period of transition, thereby approaching monetary integration from the grass-roots so to say, is not a common theme in available literature.[1] Traditionally the costs of monetary integration have been exposed in terms of the Phillips-curve trade-off.[2]

The convergence of national inflation rates would be more costly in terms of inflation and unemployment respectively if, initially, national trade-offs varied.

Low inflation countries thus would have to accept an unnecessary rise in domestic inflation rates, while high inflation countries would experience a high transitional unemployment rate. The experience of inflation in the last decade has seriously shattered the belief of a trade-off between inflation and unemployment,[3] and if such a trade-off indeed exists, it seems to be on unacceptable levels. This is the steepening of the Phillips curve.

There are several hypotheses for this diminishing trade-off between employment and inflation. An often cited

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1) Some notable exceptions are Thygesen (1980a), op. cit., and Paul deGrauwe, "Symptoms of an Overvalued Currency, The Case of the Belgian Franc ", in M. De Cecco (ed.), op. cit. (1983).

2) See i.e. H. Grubel, "The Theory of Optimal Currency Areas", The Canadian Journal of Economics, vol. 3, 1970. J.M. Fleming, "On Exchange Rate Unification", The Economic Journal, vol. 8, 1971, B. Balassa, "Monetary Integration in the European Common Market", in A.K. Swoboda (ed.), Europe and the Evolution of the International Monetary System, Geneva 1973.

3) Cf. the following quote: "a serious puzzle first emerged when the inflation rate scarcely budged in the recession of 1970", in A. Okun & C. Perry, Innovative Policies to Slow Inflation, Brookings paper 2, 1978.

reason is the growing feeling of policy instability and resulting rational inflation expectations, which in turn undermine money and exchange rate illusion.

Parkin[1] was the first to conclude that if domestic monetary policies no longer can boost employment significantly then the cost of joining a monetary union must be small indeed.

> "The central problem with which the transition must deal is that of arriving at a European consensus of what the rate of inflation should be and then equalizing national inflation rates, so that intra European exchange rates need not adjust."[2]

With hindsight, this rather optimistic proposition gives rise to a more complicated problem than it pretends to solve, namely, what we could call the N-th inflation rate problem, although it seems to be generally accepted that the lowest possible level of inflation gives a superior trajectory for real economic variables than an arbitrarily chosen higher level, as a continuance of inflationary policies and inflationary behaviour do not bring lasting advantages to employment and real economic growth.

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1) M. Parkin, "An Overwhelming Case for European Monetary Union", The Banker, Sept. 1972. P. deGrauwe demonstrated the same point geometrically in his "Conditions for Monetary Integration, a Geometric Interpretation", Weltwirtschaftliches Archiv, vol. 111, 1975, and it is probably these theories Roy Jenkins had in mind when he stated in his Jean Monnet lecture (Florence 1977) that: "We need to discard political arguments based on obsolete, inadequate or irrelevant economic theory: That the objections to objections to European monetary integration are the differing preferences on inflation and unemployment as between member states."

2) M. Parkin, op. cit.

Furthermore, the new monetarist view, as originally presented,[1] showed as the main point, that the need for exchange rate variations arises purely out of different rates of domestic credit expansion. Different rates of credit creation are both the cause of exchange-rate realignments and of differentials in domestic inflation rates. And as Parkin[2] notes: "What emerges from this then is that exchange-rates are largely irrelevant."

Although logically consistent, seen from the pure monetary approach to the exchange rate, this proposition lacks the scope for what will happen in the medium to long term, as opposed to the short term horizon of the monetarist approach.

One could take the opposite stand and claim that a tight credit policy would cripple investment and hence reduce future output, which would implicate that the current account will deteriorate rather than improve.

This apparent paradox that tight credits, on one hand, are the panacea for all balance of payments problems, and on the other hand can seriously limit current and, more probably, future output, thus deteriorating rather than improving the current account, stems from the limited conception of time of the new monetarist approach, cf. Allen &

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1) By i.a. E.S. Phelps, Inflation Policy and Unemployment Theory, The Cost Benefit Approach to Monetary Planning, London 1972, and D. Laidler, "The Current Inflation", National Westminster Quarterly Review, November 1972.

2) Parkin, op. cit.

Kenen who claim that the new monetarist approach:[1] "focuses single mindedly on monetary equilibrium in the never never land of the stationary state".

And secondly, that since the exchange-rate is the relative prices of monies, then the exchange rate is determined in and by the money markets. This is a logical flaw, according to Allen & Kenen:[2] "Although the exchange rate is the price that clears the money market, it is determined jointly with other variables, including interest rates, by interaction between money and bond markets. Over time and in the long run, moreover, the exchange rate comes to conform with the requirements of equilibrium in the goods markets, not only in the bond and money markets."

Newer contributions to the literature on the monetary approach to the exchange rate slowly start to agree that other factors than the money market determine the exchange rate, cf. a recent statement by Mussa:[3]

> "The exchange rate is a price that reflects not only current economic conditions, but also expectations of future conditions. The basic point is that apart from any influence of the level of the current account on the exchange rate, 'innovations' in the current account are

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1) P.R. Allen & P.B. Kenen, Asset Markets, Exchange Rates and Economic Integration, Cambridge 1981.

2) Allen & Kenen, op. cit.

3) M. Mussa, The Exchange Rate and the Current Account, Lecture given at the Institut für Weltwirtschaft, Kiel; forthcoming in Kieler Diskusionsbeiträge.

> likely to induce unexpected changes in the exchange rate. This is because an innovation in the current account defined as a deviation of the current account balance from its previously expected level, conveys information about changes in economic conditions relevant for determining the equilibrium exchange rate."

2.3. Fiscal policy and its role in the monetary integration process.

The role of fiscal, or budgetary, policy in monetary integration theory is often somewhat neglected or dismissed by the notion that deficit countries can easily finance their deficits on the common financial markets. Budgetary policy is thus treated as a mere technical variable, although a country's fiscal position has an important bearing on total domestic monetary demand, hereby affecting the consumption of domestic, as well as foreign goods and services.

A typical statement of the apparent irrelevance of fiscal policy in the context of monetary integration is the following early Corden quote:[1]

> "Monetary integration does not require fiscal integration, since governments can finance budget deficits by borrowing on the community's capital markets . . . It is an interesting question whether fiscal integration requires monetary integration, if it does, and assuming that fiscal integration is desirable, we may have an additional argument in favour of monetary integration."

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1) W.M. Corden (1972), op. cit.

A counterargument is the rather straightforward one, stressed by Meade and Scitovsky,[1] that fiscal and monetary unification must go hand in hand, because an effective stabilization policy requires the coordinated use of both fiscal and monetary policies.

In the present study it is one of the main goals to show that not only does monetary integration require fiscal integration, in the meaning of some amount of budgetary coordination, but a failure to do so will inevitably increase the costs of adjustment, and seriously endanger the safe return to a world of price and output stability, as theory describes.

Before analyzing the role of fiscal policy in monetary integrative efforts and in order to substantiate the argument stated above, we shall briefly discuss the origin of this bias of monetary policy taking the brunt of deflation in an economy seeking to find a lower level of inflation. This view is contrary to most of the literature about the potency of different financial policies under different exchange rate regimes, which for a long time dominated the

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1) See J. Meade, The Balance of Payments Problem of a Free Trade Area, and T. Scitovsky, Economic Theory and Western European Integration, Stanford 1958. A later reappraisal of this view is found in EC Commission Report of the Study Group on the Role of Public Finance in European Integration, Brussels 1977.

debate in the 60s and the 70s.[1] According to these findings fiscal policy had a relatively higher effectiveness in influencing output and income under fixed exchange rates, as monetary policy would have to be geared to the exchange rate target. A country belonging to a fixed exchange rate area will have to give up its monetary policy independence because the interest rate would be exogenously given.

As a result fiscal policy would be the more effective in influencing the level of domestic demand.

> "Thus under a fixed exchange rate (except to the extent that the external accounts were originally in surplus) monetary expansion can only be sustained as long as reserves hold out, while budgetary expansion if capital movements are sufficiently sensitive to interest rates, may be sustained indefinitely."[2]

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1) Cf. J.M. Fleming, "Domestic Financial Policies under Fixed and Floating Exchange Rates", IMF Staff Papers, vol. 9, 1962, R.A. Mundell, "Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates", Canadian Journal of Economics and Political Science, vol. 29, 1963, A.O. Kruger, "The Impact of Alternative Government Policies under Varying Exchange Rate Systems", Quarterly of Economics, vol. 79, 1965, and E. Sohmen, "Fiscal and Monetary Policy under Alternative Exchange Rate Regimes", Quarterly Journal of Economics, vol. 81, 1967. R.A. Mundell in an earlier article, "Flexible Exchange Rates and Employment Policy", Canadian Journal of Economics and Political Science, vol. 27, 1961, comes to the opposite conclusion compared with his 1963 article, but this stems from a fallacy in the effects of monetary policy on the interest rate according to R.S. Boyer, "Financial Policies in an Open Economy", Economica, vol. 45, 1978.

2) J.M. Fleming (1962), op. cit.

In an open economy with integration of goods, assets and money markets sustained budget deficits have foreign repercussions in forms of spill-overs influencing, primarily, the export sectors of other countries, this as an effect of the symmetric reduction of the domestic income multiplier. In the context of a currency area, a neighbour's expansionary fiscal policies may tempt governments to free-ride on neighbours' policies, hereby avoiding the costs of issuing their own debt.[1]

Furthermore, the predominance of monetary policy as the main tool in monetary integration can be explained in terms of the "neo-functional" approach to integration, which, put plainly, according to DeVries, "amounts to trying to trick governments into doing in a complicated way, what they refuse to do in a straightforward way".[2]

A restrictive monetary policy, i.e. the issue of public debt, seems to be more acceptable to the public, at least in the short run, than restrictive fiscal policy, i.e. tax increases. This coupled with the limited time horizon politicians seem to have on far-ranging economic is-

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1) See P.R. Allen & P.B. Kenen (1981), op. cit., p. 393, and W.E. Oates, Fiscal Federalism, New York 1972, p. 28, S. Engerman, "Regional Aspects of Stabilization Policy", in R.A. Musgrave (ed.), Essays in Fiscal Federalism, Brookings, 1965, pp. 53-56.

2) Tom DeVries, On the Meaning and Future of the European Monetary System, Princeton 1980, p. 3.

sues, cf. the first chapter, helps explain the apparent bias on monetary policy.[1]

The result of such an asymmetrical reliance on monetary policies, because they are thought to be easily divorced from current political pressure, is highly undesirable, as high interest rates by way of the ratchet effect will have difficulties in falling.[2]

Returning to the original question about the role of fiscal policy in monetary integration, the "new Cambridge view" of macroeconomics is in stark contrast to mainstream integration theory. The "new Cambridge view"[3] holds that fiscal policy must be the main instrument in monetary integration, as there is a direct connection between government budget deficits and current account deficits. The underly-

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1) For a further elaboration of this point, see J.M. Buchanan, "Easy Budgets and Tight Money", Lloyds Bank Review, April 1962.

2) An early view is the one of Frank Paish from 1961: "It is important that the measure to control the economy should be symmetrical. In recent years the measures to expand demand have taken the form mainly of tax reduction, while the main burden of restricting demand has been placed on monetary policy and higher interest rates. A continuation of this policy could raise interest rates without limits." The Statist, Nov. 10, 1961, here quoted from J.M. Buchanan (1962), op. cit.

3) For an elaboration of the Cambridge view see J. Spraos, "New Cambridge Macroeconomics, Assignment Rules and Interdependence", in R.Z. Aliber (ed.), 1977, op. cit.

ing assumption of the approach is that the household sector spends all available income. The implication of this, according to Spraos,[1] is that fiscal policy should be geared to a balance of payments target, while the exchange rate should be geared to domestic output stability.

The new Cambridge approach to macroeconomics has been severely criticised, especially because of the underlying assumption about the household sector spending whatever it earns on goods and services, and that this total domestic spending influences the exchange rate directly.

It is not the aim of the present study to dismiss or support the points made by the protagonists of the new Cambridge approach to macroeconomics, but seeing the main points of this approach in the context of monetary integration, i.e. a high degree of integration of national financial markets, the private behaviour assumption about spending whatever it earns, can be relaxed or even neglected, cf. Corden (1977):[2]

> "The current account deficit of a country is the sum of the private financial deficits (excess of investment over savings) and the public deficit. If the current account deficit increases this may be because the private deficit has risen, which is not a matter for public policy concern, or because the public deficit has risen, which indeed may be a matter for concern. But the balance of payments figures in themselves will not tell one whether there is a problem. One must go directly to the public sector figures (in-

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1) J. Spraos, op. cit.

2) W.M. Corden, Inflation, Exchange Rates and the World Economy: Lectures in International Economy, Chicago 1977.

> cluding the central bank) so making the balance of payments figures redundant."[1]

Whether this statement of Corden should be attributed to the new Cambridge approach or a variant of the absorption approach[2] is largely irrelevant. Both approaches appeal to the balance between national income and expenditures by looking at savings-propensities in the private and public sectors.

The point that budget deficits[3] have a definite bearing on the external balances is probably the most valid point for some kind of budgetary coordination during the integration process, as synchronized stabiliza-

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1) Corden's point is taken up by McKinnon in "Exchange Rate Instability, Trade Imbalances, and Monetary Policies in Japan and the US", in P. Oppenheimer (ed.), Issues in International Economics, Oxford 1980, and more recently with direct reference to the Corden quote in "The Exchange Rate and Macroeconomic Policy: Changing Postwar Perceptions", Journal of Economic Literature, vol. 19 (June 1981).

2) As originally presented by S.S. Alexander, "Effects of a Devaluation on a Trade Balance", IMF, Staff Papers, vol. 2, 1952. A more recent discussion is found in M. Michaely, Analyses of Devaluation, PPP, Elasticities and Absorption, Stockholm 1978.

3) In chapter 3 the link is demonstrated in terms of national accounting identities.

tion policies must have a stronger effect than unilateral measures because of the previously mentioned large national spill-over effects. As put by Magnifico: "Should policy making powers be allowed to migrate de facto into one or two dominant powers, or should they be shared evenly by the deliberate integration of fiscal targets and instruments?"[1] Furthermore as monetary finance is excluded because of the commitment to fixed exchange rates, external borrowing in order to sustain the exchange rate level is a must. This will affect the economic structure in the period of adjustment.

In his study of Belgian exchange-rate policy, DeGrauwe[2] concludes that the strong currency option combined with an expansive budgetary policy was a main contributor to the sharp decline of the price of tradeables versus the price of nontradeables.[3] An expansionary budgetary policy increases, notably via increased transfers, the demand for imports thus deteriorating the current account, and at the same time it permanently expanded the government sector, cf. DeGrauwe:[4]

> "The question arises here whether it made sense for a country to allow its currency to appreciate, and there-

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1) M. Magnifico, European Monetary Integration, London 1973, p. 19.

2) In M. De Cecco (1983), op. cit.

3) For a geometrical demonstration of capital imports and the relative prices of tradeables versus nontradeables see chapter 7.

4) Ibid.

> by to effectively prevent industrial prices to increase, when at the same time the budgetary policies were highly inflationary. What is more, one can argue that the overvaluation of the BF itself increased government transfers and government deficits. It induced the government to operate more and more as employer of last resort, and a great variety of public employment programs were set up. What is particularly disturbing about this is that the overvaluation of the currency which normally is a temporary phenomenon leads to an automatic and permanent expansion of the government sector. This then makes further adjustment difficult, and as was argued earlier may transform a temporary overvaluation into a protracted one. 'Vicious circles' may also exist for overvalued currencies."

In DeGrauwe's chain of arguments the squeeze effect of the initial contraction of the money supply would be temporary if the normal Friedmanite expectation about a fall in the nominal wage rate (or at least a decline in wage inflation) came true.

However, with a high degree of downward rigidity of nominal wages combined with the budgetary sterilization of the contractionary effects of the tight monetary policy, the only logical way to reduce nominal expenditure would be by combining the monetary contraction with some kind of fiscal contraction.[1]

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1) As pointed out by especially W.M. Corden, "The Exchange Rate, Monetary Policy and North Sea Oil: The Economic Theory of the Squeeze on Tradeables", in W.A. Eltis & P.J.N. Sinclair (eds.), The Money Supply and the Exchange Rate, Oxford 1981, p. 34.

A fiscal contraction in order to remove the bias against the tradeable sector can either be brought about by raising tax rates or by cutting public consumption. Whatever means is used a fiscal contraction in an open economy with a high degree of capital mobility will affect the interest rate in a downward direction, which in turn, ceteris paribus, will tend to weaken the currency and in this way it will relieve the initial bias against the tradeables sector.

2.4. The role of public debt in the adjustment process.

It has been the intention in the preceding section to stress the importance of fiscal policy in the monetary integration process because the costs of integration in the medium to long term seem to rise as monetary and fiscal instruments are assigned asymmetrically.

However a cost which has not been considered yet, but which has a prominent place in this study is the direct cost of financing the consistent deficit on the current account during the adjustment period. Until now we have discussed mainly the indirect, or secondary, effects of running a deficit on the current account for a prolonged period. The rationality of public borrowing in order to adjust to some exogenously given parameters when the effects of such stabilization efforts are high-

ly doubted[1] is discussed in chapters 5 and 7.

When borrowing is used to avoid the need to reduce current consumption the burden of repayment is placed on the next generation, and the costs of doing so may easily exceed the benefits enjoyed by the current generation.

If the borrowing is spent on projects which will produce a yield in the future then the present gross burden of finance will be offset by a future income stream, and the net result of the transaction will probably be positive.

However as the main part of the public debt is used for public consumption, the deficit is what Modigliani[2] calls deadweight, and his widely accepted principles for the national debt are worth reciting when it is acknowledged that the period for convergence of national inflation rates inside a currency area in reality lasts longer than any pessimist expected: "in so far as counter cyclical fiscal policy is concerned, our analysis does not require any significant re-evaluation of currently accepted views. Yet, by reminding us that fiscal operations involve considerations of inter generation equity,

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1) Cf. the arguments about debt neutrality and monetary superneutrality raised by the protagonists of the "new classical macroeconomics".

2) F. Modigliani, "Long Run Implications of Alternative Fiscal Policies and the Burden of the National Debt", Economic Journal, vol. 71, Dec. 1961, p. 755.

even when used for stabilisation purposes, it may help to clarify some issues. It does for example, establish a prima facie case, at least with respect to ad hoc measures as distinguished from built in stabilizers, for a course of action that will minimise the deadweight deficit and stimulate investment rather than consumption."[1]

In the context of monetary integration the inter-generational aspect becomes even more accentuated.

When the currency area starts to acquire the features of the optimal currency area,[2] with free movements of capital and labour, one can easily imagine that differences in fiscal systems, which in turn will be a function of net liabilities in the system, will induce migration of labour and/or capital into areas with a lower debt pro capita ratio in order to optimize net benefits.

It is clear that the existence of easy external funding has many advantages. One is that it temporarily reduces the chances that a budget deficit will "crowd out" private investment[3] because the private sector will be

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1) Modigliani, op. cit.

2) See chapter 4 where the criteria for the optimum currency area are defined.

3) See i.e., Harmen Lehment, "Internationale Aspekte der Staatsverschuldung", in Beihefte der Kunjunkturpolitik, heft 27, 1981.

able to use foreign funding too.

However, if one foresees a scenario with continuous budget deficits and realignments of the exchange rate, i.e. that the confidence in the exchange rate arrangement is low, the interest rate parity theorem will probably hold true thus diminishing the initial advantage for private importers of capital.

Another related question is how long a small economy like the Danish can go on financing a seemingly persistent balance of payments deficit, which in 1981 was kr 14 billion or 3.5% of GNP, and which now has lasted for 20 years.[1] Is there a limit for external indebtedness, and if this question is answered positively, how will this affect the adjustment process?

2.5. Tight credits in a mixed economy.

Another essential point which ought to be included in any analysis on monetary integration is whether tight

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1) Cf. some explanations of this balance of payments deficit. "Capital imports are reasonable for a country with a small foreign debt when agricultural protectionism in other countries necessitates accelerated structural adaptions of industry and agriculture." Economic Survey of Denmark, CPH, 1963, p. 11, and "It is a declared aim of economic policy to eliminate the present deficit on the balance of goods and services, but in order to prevent that from impairing the internal expansion the elimination is to be achieved over some years." Economic Survey of Denmark, CPH, 1966, p. 77.

monetary policy is able to constrain public sector consumption. It is clear that a reduced money supply eventually will filter through to the public sector, but there are, as is demonstrated below, long lags which seem to soften the impact. The trend of reduced consumption in the private sector and a growing share of consumption in the public sector is shown in table 1, which summarizes the use and supply of resources in the Danish economy.[1]

As is seen in the table, public consumption relative to private consumption has had quite a significant growth rate. However it is clear that the sluggishness in the international economy, with resulting unemployment, increased income transfers and depressed revenues, has had a significant impact on the consumption pattern. A recent OECD survey states that: "Public investment outlays, which were reduced in 1980, have continued to fall in 1981. At the same time, public consumption . . . has continued to grow faster than in most other member countries."[2]

With such a development it is not surprising that Denmark "has a public sector deficit considerably higher than in most other countries, around 7% of GNP".[3]

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1) The table should only be treated as an empirical example of a fairly general trend. The formal empirical analysis, with the Danish economy as a case study follows in chapters 8 and 9.

2) OECD, Economic Surveys, Denmark, Paris 1982, p. 12.

3) Ibid., p. 48.

Table 1

Supply and use of resources. Denmark as an example. Per cent change from previous periods at constant 1975 prices.

	1980[a]	1976	1977	1978	1979	1980	1981[b]
Private consumption	209.9	9.1	1.4	0.1	2.6	-4.1	-1.5
Public consumption	100.4	3.8	2.8	4.7	4.9	5.2	4
Gross fixed invest.	68.3	14.6	-3.3	2.4	-1.7	-13.7	-15.5
public	12.2	8.6	2.5	4.4	4.9	-17.7	-10
residential	18.8	20.1	-12.7	4.1	-2.5	-20.3	-26
business	37.3	18.0	1.1	0.8	-3.3	-8.7	-12
Final domestic demand	378.4	9.3	0.7	1.7	2.3	-3.7	-2.5
Changes in stocks	-0.3	1.3	-0.3	-0.3	0.3	-0.8	-
Total domestic demand	378.4	10.6	0.4	1.4	2.6	-4.5	-

a) Absolute prices in billion Dkr.

b) OECD forecast from Denmark, Economic Survey, January 1982.

Sources: Danmarks Statistik, Statistiske Efterretninger and OECD, op. cit.

Taking into account the restrictive Danish monetary policy during the last decade[1] such a development as described above seems difficult to understand.

1) See chapter 8, where indices for monetary and fiscal tightness are calculated for selected countries.

In the context of monetarist theory we shall therefore try to formulate a hypothesis why controlling consumption in a mixed economy with monetary means has some setbacks, and certainly will have distributionary effects, by reinforcing the present pattern of resource allocation.

Most monetarist econometric models seem to focus on some aspect of the rather complicated relationship between total domestic money expenditure and some definition of the money supply.

Using such an approach the relative expenditure components of total domestic expenditure are often overlooked. Congdon,[1] in a series of articles, has tried to deal with this problem by asking why the unemployment-inflation relationship has been adverse despite restrictive monetary policies, as has Friedman,[2] of late.

Congdon's answer[3] is that the movements of public wages and prices are beyond the effects of restrictive monetary policy.

Before embarking on the discussion of the likely effects of monetary policy in the context of the mixed economy, two lines of monetarist thinking are worth noting.[4]

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1) T. Congdon, Monetarism, An Essay in Definition, CPS, London 1978. Same author, "Why Has Monetarism Failed So Far, Parts 1 & 2", The Banker, March & April 1982.

2) M. Friedman pointed at the excessive public sector spending in the UK, when Thatcherite policies were evaluated in Der Spiegel, Autumn 1981.

3) T. Congdon, op. cit., April 1982.

4) Following Congdon, ibid.

The first line of thought does not acknowledge the problem, while the second only acknowledges it implicitly. We shall briefly present the two lines of thought, and afterwards try to draw a conclusion in line with the context of this study. The first way of looking at the dilemma of the seemingly adverse inflation/unemployment trade-off is inspired by Friedman's Presidential address,[1] where the main theme is the "natural rate of employment".[2]

Since macroeconomic policy, according to Friedman, does not influence the long-run level of employment, which is the domain of the institutions on the labour market, then monetary policy should be geared solely to reduce inflation by regulating money supply. The implication for employment is ignored.[3]

The second line of thought is based on the inflation expectations argument.

A stringent monetary policy will bring the market the message that future inflation rates are likely to diminish. Expectations about future market conditions influence the setting of prices in both the private as well as the public sector, ideally.

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1) The 1967 Presidential address is printed in M. Friedman, The Optimum Quantity of Money, London 1969.

2) The natural rate of unemployment is the rate where wage levels are seen to be steady = stable inflation.

3) As there yet is no method to estimate the natural rate of unemployment.

However if prices are set "wrongly", i.e. that expectations about future market conditions consistently have been false, factor prices are set too high. For labour this means a sort of Keynesian unemployment, and for capital this means higher interest rates and a lower investment level.

Now, let us try to distinguish between the two sectors, and see how a monetary slowdown affects the private and public sectors respectively.

a) The private sector.

The primary effect of a contractive monetary policy is a drop in economic activity, which decreases a firm's cash flow. The result is seen on the firm's bank balance. Depending on initial conditions the firm will sooner or later have to revise planned investment levels, and assuming a high rate of inflation, wage claims will be difficult to honour.

A decreasing bank balance and increasing liabilities force the firm to down-grade its activities.

b) The public sector.

For the public sector the liquidity restraint is not felt so burdensome even though revenues are falling in real terms, as the credit line between treasury and central bank does not seem to be subjugated to commercial debt management principles, which should not surprise.

Say that a shock hits the economy. This could be an external shock, that is a drastic change in the country's

terms of trade, or an internal shock, a drastic reduction in the money supply. If the shock hits the households first, these can either adjust by reducing real spending, or more likely, they would seek to transfer the impact to the firms by wage claims. The firms can either respond by increasing efficiency, if there is slack to cut, or they can reduce their net expenditure on wages and investment, which in turn would lead to increased unemployment.

Another possibility would be for the firms to pass over the impact of the wage claims to the households, which is difficult in an open economy with foreign competitors, by raising prices.

Whichever of the two options is taken, the problem will sooner or later end in the public sector because of automatic transfers, or support schemes for industry, or whatever one could imagine.

If we for a moment neglect income transfers, and look at net public consumption,[1] a case can indeed be presented, that inflation control via monetary means will squeeze the private sector harder than the public sector.

In the private sector market forces are at work, cf. the previous section about the impact of a monetary shock, and the liquidity in the private sector is a main determinant when wage claims are settled.

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1) I.e. total public consumption - (net transfers + public investment) = net public consumption.

In the public sector it is more difficult to see[1] how the conditions in the money market, or other constraints which may limit liquidity, will play a role when wage claims are settled. As Congdon mentions, wage settlements in the public sector are better explained by the sociological school of inflation, which stresses relative strength of bargaining power, while private sector wage inflation is a monetary phenomenon.[2]

Of course, one may argue that a tight monetary policy eventually will work through to the public sector, because wage settlements there will be influenced by the wage rate in the private sector.

However such a way of reasoning implies that monetary policy already has had its direct impact on the private sector. An answer to this dilemma is proposed by Con Congdon:[3]

If checking of inflation by means of monetary policy is biased in its impact on the two sectors, a case could be made for a formal incomes policy which would help to "redress the discriminatory impact of monetary policy".[4]

2.5.1. The mixed economy and monetary integration.

In the context of monetary integration, where the main goal in the adjustment period is the convergence of

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1) Unless there are rigid legal constraints on public spending.

2) T. Congdon, "The Incomes Policy Cycle in Britain", The Banker, Dec. 1980.

3) T. Congdon, "Why Has Monetarism Failed So Far", The Banker, Apr. 1982.

4) Ibid.

national inflation rates inside the proposed currency area primarily by monetary means, the differentiated impact of monetary policy on the two sectors raises two conceptual problems. Firstly, is it the private sector which primarily should adjust to shocks, and secondly, if the size of public sectors varies in the proposed currency area, i.e. that public expenditure as percentage of GNP differs widely, then the rate of success of inflation control via monetary means will differ from country to country proportionate to the relative sizes of public sectors.[1]

The first question is discussed in chapters 6 - 7 - 8, and the second question should be considered as one of the, by now numerous, criteria for a functional currency area, which all are analyzed in chapter 4.

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1) See chapter 8, where scattergrams of deficits, central bank financing, and monetary base growth are shown for selected countries.

Chapter 3

Smallness and openness of an economy, and their implications for the effectiveness of domestic macroeconomic policies.

As pointed out in the title of the present study the object for research is the small open economy engaged in monetary integration. The present chapter seeks to analyze the implications of "smallness" and "openness" for the effectiveness of domestic economic policies. Smallness is a familiar textbook phenomenon, so only a brief discussion of this concept is included here.

Openness, and by this is meant the increasing importance for national economic policies of economic linkages across national boundaries, has yet to find its definitive niche in literature.

The aim of the chapter is therefore to analyze in what ways conditions in the money market, the capital market, and in the commodity market influence macroeconomic policies in an open economy, in order to identify the limits for autonomous economic policy-making.

With the limitations imposed by smallness and openness, a framework for balance of payments policy is introduced and discussed in the last part of the chapter.

3.1. Smallness.

If the price of traded goods is exogenously given, the country in question thus being a price taker, the economy is considered to be small.

Such an economy cannot influence its own terms of trade in real terms. Whether goods or assets are traded internationally depends mainly on institutional factors, trade barriers, etc., or transport costs, as well as on national consumer preferences and income levels. In the theory of the small economy the internationally traded goods are homogeneous and perfect substitutes.

Had the goods been imperfect substitutes a small economy would have some influence on the price in foreign currencies on world markets.

These familiar textbook conditions for economic life show that events in the small economy do not have repercussions on the rest of the world, as the rest of the world is so big and varied that any disturbance stemming from the domestic economy easily is absorbed.

The ways a small economy can adjust to the rest of the world are limited to quantitative adjustments as it cannot, as previously mentioned, influence world prices.

This theory about the small economy was for a long time limited to one-good models, but[1] it also adapts to money and asset markets, as smallness will affect these markets in the same way as it affects the goods market.

There are essentially two ways of measuring smallness. One is to use the ratio of national GNP to

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1) Cf. W. Fuhrmann, "Die Theorie der kleine offene Volkswirtschaft und das Wirtschaftpolitische Dilemma", in Aussenwirtschaft, Heft 3, 1981.

"world" GNP, or, two, in a system with fixed exchange rates, to use the ratio of the national money stock to "world" money stocks.

However it is not the aim here to prove the obvious, that Denmark, our research object, is small, but later on in the analysis we should keep the definition of "smallness" in mind.

3.2. Openness.

> "Keynesian macro theory focused on the national economy, and the national government was explicitly or implicitly asserted to be the national form of organisation for achieving macroeconomic stability."[1]

The increasing openness of national economies and the effects of this were for a long period a somewhat neglected subject in literature. Keynes made no references to the international economy or to foreign exchange markets in the General Theory, which, according to McKinnon,[2] is a remarkable omission since Keynes gave the foreign exchange a pivotal role in his earlier "Tract on Monetary Reform". If the omission of exchange markets in the General Theory was deliberate action in order to simplify things or just a sign of the relative unimportance of the external balances is an open question, but the consequences of this omission were felt for a long time.

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1) A. Lindbeck (ed.), Inflation and Employment in Open Economies, New York 1979, p. 1.

2) R.I. McKinnon, "The Exchange Rate and Macroeconomic Policy: Changing Postwar Perceptions", Journal of Economic Literature, June 1981.

Today, however, nobody would disagree that international linkages have a vital impact on the conduct and effectiveness of domestic macro economic policies, although, and this is the crucial point, a general consensus on the nature of these linkages admittedly still has to evolve.

There are many ways to measure openness. Interest rate differentials have been used as an inverse measure of the degree of openness,[1] but as Whitman[2] notes such a measure is of necessity bilateral and cannot be used to achieve full comparability.

This is why the foreign trade ratio, exports and/or imports, as a proportion of gross national product more generally is used, as this measure is both simple and comparable.

Using this measure McKinnon[3] shows that the degree of openness for a selected group of countries accelerated rapidly during the last 15 years.

Grassman[4] on the other hand demonstrates that a group of European and North American countries have "roughly the same degree of openness today as a century ago", and that the trend line for several countries is decreasing.

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1) A good example is Betaenkning No. 769, a Danish white book, where the covariance of the Eurodollar and national interest levels is computed.

2) "Economic Openness and International Financial Flows", Marina v. N. Whitman, in Journal of Money, Credit and Banking, Nov. 1969.

3) R.I. McKinnon, 1981, op. cit.

4) Sven Grassman, "Long Term Openness of National Economies", Oxford Economic Papers, 1980, p. 123.

This paradox between the findings of McKinnon and Grassman is easily explained if the share of GNP is adjusted for in the calculations.[1]

As governmental sectors have grown rapidly during the last decades a pure trade/GNP ratio will "underrepresent" the trade component in the total, as the public sector often has had a faster growth rate than industrial and agricultural output, which by nature are tradeables. In table 1 on the next page ratios for export/GNP are calculated with and without public consumption.

Examining the figures in table 1, we see, not unexpectedly that the Scandinavian countries and Holland have an actual decline, or a very modest growth from 1951 to 1979. This seems to support the view of Grassman. However looking at the second lines, where the figures are adjusted for the increase in government spending, a rising trend line can be seen also for the above-mentioned countries, although the 4% increase in the case of Denmark is the lowest measured.

The main point, however, is to demonstrate how much national markets have become dependent on markets abroad. All the European countries have an export/GNP ratio of +30%, using the second lines for comparison.

Only the USA is significantly different. With its

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1) Which Grassman admittedly takes into account, ibid., p. 126, but it does not seem to affect his conclusion on p. 123.

Table 1

Exports as proportion of GNP. Nine selected countries.

	1951	1965	1979
Denmark			
with public sector	0.33	0.30	0.29
public sector excl.	0.37	0.36	0.40
Italy			
with public sector	0.12	0.15	0.25
public sector excl.	0.13	0.17	0.30
Germany			
with public sector	0.16	0.20	0.27
public sector excl.	0.18	0.22	0.34
Switzerland			
with public sector	0.27	0.30	0.34
public sector excl.	0.31	0.34	0.39
Sweden			
with public sector	0.28	0.22	0.31
public sector excl.	0.32	0.26	0.44
Norway			
with public sector	0.47	0.38	0.46
public sector excl.	0.53	0.43	0.58
Belgium			
with public sector	0.28	0.36	0.55
public sector excl.	0.32	0.41	0.67
Holland			
with public sector	0.48	0.45	0.52
public sector excl.	0.55	0.53	0.64
USA			
with public sector	0.05	0.05	0.09
public sector excl.	0.06	0.06	0.11

Source: IMF, International Financial Statistics, March 1981, Country tables, line 90c-99a and 90c-(99a-91f).

big internal markets one might still consider the American economy a closed one, which also can be seen from the way US economic policy traditionally has been conducted.[1]

Back to the Grassman-McKinnon controversy, if there ever was one. The IFS figures used for the calculations date only back to 1951, but from that year until 1979, using the second lines, the trend is clearly rising. The central matter then is whether one wants to include government spending or not, when measuring openness.

2.3. Market linkages in open economies.

The following section focuses on the key linkages between national economies:

a) Capital market linkages

b) Commodity trade

c) The exchange of national monies.

The idea is to analyze how domestic macroeconomic policies are affected by these links. The recent theories of rational expectations and the concepts of neutrality and superneutrality of policies are acknowledged,[2] but we shall assume below that policies do affect output and employ-

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1) Cf. the consistency from quote from Georg Schultz, 1973: "American policy as far as liquidity and domestic interest rates are concerned will only be determined in accordance with the needs of the US economy, excluding any other international concerns", from E.L. Morse, "La politique américaine de manipulation de la crise", Revue Française de Science Politique, vol. xii, no. 2.

2) An analysis of the impact of the new macroeconomics on stabilization policies in the context of coordination of economic policies is found in chapter 5.

ment, along the lines originally intended for these policies. We shall also assume that our small open economy is linked to the outside world by fixed exchange rates.

3.3.1. Capital market linkages.

The integration of international capital markets and the resulting higher degree of international capital mobility have ensured that the "real" cost of capital is the same domestically and internationally, save some inefficiencies pointed out by McKinnon.[1] In order to substantiate this proposition, and to discuss the policy implications of this, we shall start the discussion from the point of the interest-rate parity theorem (IRPT).

Briefly stated, IRPT tells us that interest rate differentials between securities which are denominated in different currencies are explained by the forward premium or discount on foreign exchange.

And as pointed out by, amongst others, Aliber,[2] the IRPT holds over the longer run for traded and close substitute securities denominated in different currencies, and to a lesser degree for more nationally oriented securities.

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1) For a discussion see R.I. McKinnon, Money in International Exchange, The Convertible Currency System, OUP, 1979, chapters 4 and 5.

2) See R.Z. Aliber, "The Interest Parity Theorem: A Reinterpretation", Journal of Political Economy, vol. 81, 1973, pp. 1451-59.

a) Capital mobility and monetary policy.

Let us start by examining the effects of capital mobility. An expansive monetary policy, i.e. expanding the money supply and easing quantitative credit controls, cf. item i, section 1.1.4, in an open economy under fixed exchange rates will initially reduce nominal interest rates on domestic securities, which will lead to capital outflows because of portfolio readjustments, induced by the opening interest rate differential, and furthermore, such an outflow will deplenish foreign reserves, which would signal a possible exchange rate realignment. If such a realignment did not take place it would certainly reduce the money supply, via the reduced level of reserves. In theory this would reestablish the initial level of money demand, making the expansion irrelevant. Another effect is the more directly that increases in aggregate demand coming from improved credit conditions would spill over into the markets for imported goods, which again would have negative effects for the foreign reserves. With a high degree of capital mobility an expansive monetary policy is constrained by the level of international reserves, making this option vulnerable.

b) Capital mobility and fiscal policy.

An expansive fiscal policy, i.e. widening the public sector financial deficit, cf. item ii, section 1.1.4, is not very effective for stabilization purposes because of

the diminished multiplier effect, cf. chapter 2, as foreign leaks proportionate to the marginal import propensity dilute the effects of the initial expansion.

An accommodating effect is that fiscal expansion will induce a capital inflow as a response to the current accounts deficit, which will strengthen the foreign exchange reserves.

However as the spill-over effect of the expansion is large because of openness, this may tempt foreign governments, i.e. the country's trade partners, to free-ride on the expansion. The export-led growth which trade-partners of an expanding economy will experience is easily seen as a better alternative than issuing their own debt in order to promote domestic economic growth.

The logical consequence of this dilemma is that a fiscal expansion should be directed towards the nontradeables sector in order to have stabilizing effects. However such a redirection of demand towards the nontradeables sector,[1] which mainly consists of the public and private services, could have severe structural repercussions, because the expansion eventually will work through to the external sector and create a current accounts deficit, and at the same time will affect the relative sizes of the tradeables and nontradeables sectors. Similarly, as Branson,[2] amongst others

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1) For an explanation of the importance of the two sectors see section 3.3.3.

2) W.H. Branson, "Portfolio Equilibrium and Monetary Policy with Foreign and Non-Traded Assets", in E. Classen & P. Salin (eds.), Recent Issues in International Monetary Economics, Amsterdam 1976.

has pointed out, open market operations by the central bank in order to influence the domestic interest rates are more likely to succeed if they are directed towards financial assets which are not close substitutes for internationally traded assets.

With highly integrated capital markets such financial assets are probably hard to find.

2.3.2. Commodity trade linkages.

The integration of markets, as discussed in chapter 2, has two main implications for macroeconomic policy in a small open economy. The first one has a bearing on purchasing power parity theory, while the second establishes the limits of domestic stabilization policy when the original disturbance comes from a change in relative prices of internationally traded goods.

a) Purchasing power parity and its implications for domestic macroeconomic policy.

Stated briefly the theory of purchasing power parity (PPP) ventures that the domestic price level measured in domestic currency equals the foreign price level measured in foreign currency, multiplied by the exchange rate of the domestic currency and the foreign currency.[2]

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1) As suggested by J.A. Frenkel & M.L. Mussa, "Monetary and Fiscal Policies in an Open Economy", in American Economists Association, Papers and Proceedings, May 1981, pp. 253-258. This source together with Corden (1977), op. cit., and McKinnon (1979 & 1981), op. cit., have been valuable sources of inspiration for the present section.

2) For a further elaboration of the PPP, both in its relative as well as in its absolute version, see L.T. Katseli-Papaefstratiou, The Reemergence of the PPP Doctrine in the 1970's, Princeton 1979.

In 1923 Keynes[1] argued that if disturbances are of a monetary nature, "then we may expect that PPP and exchange rate value will come together again before long".

So far so good. The catch is now how to measure the price-level in order to evaluate an abstract for PPP.

Balassa, in an early article,[2] asserted that "only by incorporating nontraded goods in the model the existence of a systematic relationship between PPP and exchange rates is indicated".

Officer[3] points out that productivity differences in domestic sectors alter domestic relative prices, which makes domestic price levels difficult to compare.

However taking these reservations about PPP into account together with factors like transport costs, trade barriers, etc., the PPP approach seems to be widely accepted, at least for medium to long term projections. A sort of consensus on the subject is expressed by Genberg:[4]

> "Discussions of the transmission of inflation naturally start with a price increase abroad and then try

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1) J.M. Keynes, A Tract on Monetary Reform, vol. iv, Collected Writings of J.M. Keynes, 1923, reprint, London 1971.

2) B. Balassa, "The PPP Doctrine, A Reappraisal", Journal of Political Economy, vol. 72, December 1964, pp. 584-596.

3) L.H. Officer, "The PPP Theory of Exchange Rates: A Review Article", IMF, Staff Papers 23, March 1976, pp. 1-61.

4) H. Genberg, "PPP Under Fixed and Flexible Exchange Rates", Journal of International Economics, 8, May 1978, pp. 247-276.

> to identify the channel by which domestic prices are affected. The most common such channel is probably that suggested by the arbitrage hypothesis. This hypothesis, which is also referred to as the traded goods model of the 'law of one price', simply states that the price of a homogeneous commodity must be the same in all countries provided the market for this commodity is internationally integrated.'

And he concludes: "PPP under fixed exchange rates implies that inflation rates must, subject to certain reservations be equal in all countries of an integrated world economy." The policy implication of PPP for a small open economy is then that such a country cannot choose its own inflation rate, or Phillips curve trade-off, independently of its long-run monetary policy and the long-run behaviour of its exchange rate.[1] So in the case of a small country which fixes its exchange rate to that of a major trading partner, the inflation rate of that country will strongly influence the domestic monetary expansion rate and the domestic inflation rate, provided this influence is not countered by expansive fiscal measures.

b) Changes in the price of internationally traded goods.

As many countries experienced after the first "oil-price shock" of 1973-74 stabilization policies in order to influence the level of real income after a change in the relative prices of internationally traded goods had taken place are deemed to fail.

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1) See Frenkel & Mussa (1981), op. cit., p. 253.

Countries which did not pass the whole price increase through to the consumer price faced a severe bout of inflation, while countries, and this was manifest after the second shock of '78, which followed a strategy of accepting the price rise by allowing a decrease in the real wage rate, fared better in terms of avoiding later sudden increases in the inflation rate and lost output.

Fiscal policy can in the short run influence the extent and distribution of losses in the real income level stemming from a change in the relative prices of internationally traded goods, and it can prolong impact periods, in which changes in income are translated into changes in real expenditure.

In the long run however, it is difficult to see how, and why, governments should try to control variables totally outside their control. Monetary policy does not per definition, see next section, have any impact on the income level of a small open economy under fixed exchange rates.[1] As a subset of this discussion the so-called Mundell-Laffer ratchet hypothesis should be mentioned as it presents a slightly different interpretation of the law of one price.[2]

This hypothesis claims that as exchange rate realign-

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1) For a formal analysis of this proposition see i.e. A.K. Swoboda, "Monetary Policy Under Fixed Exchange Rates, Effectiveness, the Speed of Adjustment and Proper Use", Economica, May 1973, pp. 136-54.

2) A.B. Laffer, "Do Devaluations Really Help Trade?", Wall Street Journal, Feb. 5, 1973.

ments fail to restore external equilibrium, the only effect of realignments is an increase in worldwide inflation, and the main culprits seem to be the goods markets.

The chain of argument is the following:[1]

As the law of one price implies that there is a world price for, admittedly, homogeneous goods, then exchange rate realignments will not change the devaluing country's prices vis-à-vis the rest of the world.

The ratchet effect postulates that the export prices in domestic currency fail to decline in the devaluing country and import prices fail to decline in the revaluing country. The overall effect is price increases in countries with a depreciating currency, which in turn add to "world" inflation.

The Mundell-Laffer ratchet hypothesis has been strongly criticized, and empirical evidence points against the hypothesis.[2]

3.3.3. The implications for macroeconomic policy of monetary linkages.

Central to the evolving theory of the small open economy is the concept of monetary equilibrium. According to

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1) For an overview see J. Wanniski, "The Mundell-Laffer Hypothesis, A New View of the World Economy", Public Interest, 39, Spring 1975.

2) For empirical refutal, see M.E. Kreinin, "The Effects of Exchange-Rate Changes on Prices and Volume of Foreign Trade", IMF, Staff Papers, 24, July 1977, p. 297, and M. Goldstein, "Downward Price Inflexibility, Ratchet Effects, and the International Impact of Import Price Changes, Some Empirical Evidence", IMF, Staff Papers, 24, November 1977, pp. 569-612.

the mainstream of the monetary approach the use of monetary policy for domestic stabilization purposes is constrained[1] by the fact that the equilibrium level of the demand for money is outside the control of the authorities, due to the openness and smallness of the economy. As propositioned by Swoboda:[2] "The full equilibrium effect on incomes, prices and interest rates of a once and for all change in the domestic assets of the banking system of an open economy is directly proportional to the economic size of the country relative to the rest of the world. A corollary of this proposition is that the effectiveness of monetary policy thus defined tends to zero as the country becomes smaller and smaller."

This proposition is easily proved, still following Swoboda's line of argument.[3]

We assume:

i) a stable economic system.

ii) being in an equilibrium position, any increase in the money stock will lead to a balance of payments deficit.

iii) that reduced international reserves implies a reduced money supply.

Say that the central bank starts selling securities, as defined in item iv, section 1.1, to the private banking system, or it issues more money, item i in section 1.1.

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1) See Frenkel & Mussa (1981), op. cit., p. 256.

2) Swoboda (1973), op. cit., p. 154.

3) Ibid.

Relative to the level of foreign reserves the money supply expands, which leads to a balance of payments deficit. A prolonged balance of payments deficit diminishes the international reserves, which tends to decrease the money supply. A reduction of the money stock is needed in order to restore monetary equilibrium. Assuming that the system in stable equilibrium is restored when the system has returned to its original position, which means that all real variables and prices have returned to their original levels.

So what has changed? The assets of the central bank and the private banking system have changed so that the initial increase in domestic assets now is matched by a decrease in foreign assets.

If this conclusion is accepted, that real economic variables are affected only in the very short run by monetary policy, then the costs of giving up monetary independence as part of becoming a member of a monetary union are small indeed. On the other hand, as previously argued, it puts the burden of adjustment on fiscal policy.

Another implication for monetary policy is the expectations aspect. As government policies surely will influence the exchange rate in some way,[1] it follows that the expectations of future policy initiatives must influence future exchange rates, cf. the quote of Mussa in chapter

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1) Included are ways not initially intended by policy-makers.

2. New information about a, say, higher inflation rate will signal a possible realignment of the exchange rate, which in turn will trigger off capital outflows, and in this way such a signal is often the start of a self-fulfilling prophecy.

3.3.4. A model of balance of payments policy.

To see how the above discussed economic linkages between national states constrain economic policy, a two targets - two instruments model of balance of payments policy is introduced.[1] This model includes a non-traded goods and a traded goods sector.[2]

In most monetary models money wages are assumed to be flexible. The main implication of this assumption is that devaluations do not have any real long-time effects, besides building up foreign reserves. A revaluation on the other hand reduced foreign reserves.[3]

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1) This model has its intellectual heritage in J.E. Meade, The Balance of Payments, Oxford 1951. Same author, Targets and Weapons for Domestic Stabilisation and the Balance of Payments, HWWA - Hamburg 1981. H.G. Johnson introduced switching in "Towards a General Theory of the Balance of Payments", in International Trade and Economic Growth, London 1958. A main source is Corden (1977), op. cit.

2) For a geometric interpretation see W.E.G. Salter, "Internal and External Balance", Economic Record, 1959, vol. 35, p. 226.

3) A devaluation raises the domestic price level, which reduces the real money supply and hereby creates temporary surplus until a new monetary equilibrium is found.

The model presented below concentrates on the effects for internal and external equilibrium of disabsorption and switching instead of relying solely on disabsorption as the monetarist model[1] is suggesting.

We have a two country world where each country produces non-traded goods, and two traded goods are exchanged between the two countries. The implication of this is that one country's deficit is the other country's surplus.

Having already shown the implications of monetary and fiscal policy for an open economy in the previous section, we shall initially treat these two instruments as one instrument, and call this instrument disabsorption.

The terms of trade are ignored in this model, cf. the previous section about commodity market linkages, as we use the small country assumption, which says that the country in question cannot influence its ToT, because export demand and import supply prices are exogenously given.

The distinction between the traded goods sector and the non-traded goods is by necessity arbitrary.[2] However the operational use of this distinction is seen when it is emphasized that the aim of the model is to distinguish be-

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1) Cf. the discussion in chapter 2, where tight credits were seen to be the answer for the new monetarists.

2) This distinction is only used as an analytic device because it probably is impossible to make this distinction in the real world, where many producers will supply tradeables as well as non-tradeables.

tween the sectors of the economy where prices and productivity are directly influenced by the exchange rate, and the sectors where this connection is more indirect.[1]

Another often used assumption is to let money wages be rigid downwards. In order to simplify matters we shall limit ourselves to assuming that the prices of nontradeables are rigid downwards. This is very much in line with the arguments of the Scandinavian inflation model, cf. chapter 1, where it was surplus profits in the tradeables sector which were the main source of inflation. Additionally public services are supposed to be included in the nontradeables sector.

We start our analysis from the situation of internal and external disequilibria. In order to remedy this situation it is necessary to have two instruments available. If disabsorption is the only instrument used, the existing internal disequilibrium could easily be aggravated in the following way:

Say that income is a function of domestic output. If the rate of absorption is higher than the rate of domestic supply a balance of payments deficit is the likely result.

The monetary implications of such a deficit have been discussed above. The main point of this discussion was that whether cash balances are run down or new credit is being created, such policies can only be sustained as long as

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1) See W.M. Corden (1981), in Fltis & Sinclair, op. cit., p. 31.

there are adequate foreign reserves.

So relying solely on disabsorption to reestablish external and internal balance, a tightening of monetary and fiscal policies are bound to reduce excess overall absorption. Taking into account our assumption about downward wage rigidity in the non-tradeables sector, the initial decrease in absorption will lead to excess supply of non-tradeables and thus aggravate the existing internal disequilibrium.

Consider now a policy which raises the prices of tradeables relative to those of non-tradeables.

Assuming that factors of production are mobile, at least in the medium run, a change in relative prices as outlined above will provide an initiative for resources to switch from production of non-traded goods into the production of traded goods.

The effects of such a switch for the non-traded sector are that the initial excess supply of nontradeables is diminished which, ceteris paribus, will help restore internal equilibrium, as it was the initial excess supply of non-tradeables which caused instability in output.

For the tradeables sector such a switch of productive resources will tend to reduce the initial excess demand for tradeables which in turn will improve the external balances.

Looking at the demand side of the economy, the change in relative prices between tradeables and nontradeables

will increase demand for nontradeables.

This will further reduce initial excess supply, and will also reduce the initial excess demand for tradeables.

If the switch has been brought about by an exchange rate realignment, which is the most likely instrument, the success of the switch hinges on domestic balance policy[1] after the devaluation has taken place.

In the market for nontradeables the switch eliminates the initial effects of the disabsorption policies, which reduced total absorption, but induced a surplus of nontradeables, which caused unemployment.

On the other hand, a switch without disabsorption would not necessarily improve the initial external disequilibrium. In order to demonstrate that, let us suppose that the domestic relative price of tradeables rises as a result of the switching policy.

Domestic demand for tradeables will, ceteris paribus, decrease. This will influence the balance of payments in a positive way. Assuming that the price of tradeables after the switch is constant, demand for nontradeables will increase.

If we further assume that the prices of nontradeables are flexible upwards, which seems to be quite a realistic assumption, these prices will rise until a new equilibrium price has been reached.

The resulting effect for the relative prices of such

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1) See chapters 6 and 7 where this point is further elucidated.

a movement in the price of the non-tradeable will turn out to be zero, thus eliminating the benefits of the initial switch.

Combining the disabsorption policies with the switching policies we get a better result, because the switching policies eliminate the excess supply of nontradeables which was created by the disabsorption. So the disabsorption policies improve the balance of payments, while the switching softens the blow.

The usefulness of this basic policy model in the present context is that it shows how a cut in absorption in order to improve the balance of payments need not have drastic repercussions in terms of unemployment effects, when it is followed by the right switching policy.

And turning this argument, if the remedies for a switch are unavailable, the adjustment in absorption levels should originate in the non-tradeables sector, which is a further argument for primary reliance on fiscal and budgetary policies in the adjustment period, as monetary policies are shown to be biased against the tradeables sector, cf. the discussion in chapter 2.

The basic policy model with factor mobility.

Let us now introduce factor mobility in our model:

Two production factors, labour and capital are mobile between the tradeable sector and the nontradeable sector.

In the foregoing section the crucial point was the behaviour of the domestic price-level of non-tradeables. If

the price was kept constant, the domestic price of tradeables could, in theory, be raised by the full amount of the devaluation. With factor mobility this result is altered slightly.[1]

We assume that the nontradeable sector, which is composed mainly of services, private and public, is labour intensive relative to the tradeables sector, and that money wages, at least, in the short term are held constant.

A switch increases the domestic price of tradeables, which in turn raises profits in that sector.[2]

Having factor mobility the rise in the returns in the tradeables sector will attract capital, and to a lesser degree labour as we assumed that the sector was capital intensive. This inflow of capital must per definition come from the non-tradeables sector and will continue until equilibrium is reached, i.e. when the marginal utility of additional capital in each sector equals each other.

Keeping the assumption of capital intensity in the tradeables sector in mind, the prices of non-tradeables

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1) Cf. the results of R.W. Jones & W.M. Corden, "Devaluation, Non-Flexible Prices, and the Trade Balance for a Small Country", Canadian Journal of Economics, IX, no. 1, Feb. 1976, pp. 150-161, and B. Hindley, "The Exchange Rate and Protection", Journal of International Economics, vol. 4, 1974, pp. 156-61.

2) We neglect possible J-curve effects, which anyhow are only of a transitory nature.

must rise less than the prices of tradeables. This because profits are a smaller part of total costs in the non-tradeables sector than in the tradeable sector.

By adding factor mobility to the model, only slight changes are found in the final outcome of a disabsorption policy combined with a switch.

A switch affects prices of both sectors positively, at least in the short to medium term, but as factor intensities are different in the two sectors, the price rise will be higher in the more capital intensive sector, because of our initial assumption that the tradeables sector was the more capital intensive.

Two main findings emerge from this basic policy model based on the absorption approach.

One is that a balance of payments cannot be solved by a switch (devaluation) alone, but must be accompanied by an increase in absorption, which is seen as the main tool for adjustment.

However as already Meade[1] pointed out, the necessary absorption implies either a reduction in government spending, a reduction in labour's real wages,[2] or a combination of both.

The other finding which seems important, and hence deserves to be discussed in more detail, is the apparent link

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1) J. Meade, op. cit.

2) The question of money illusion and exchange rate realignments is further elaborated upon in chapter 5.

between current deficits and budget deficits. As is shown below, it is not solely the absorption approach which focuses on the link between the current account deficit and the budget deficit. Also the monetary approach to the exchange rate has a clear mention of this link. Let us start by defining the current account deficit.

3.3.5. Current account deficits and budget deficits.

In the context of the absorption approach a current account deficit in an open economy is defined as the difference between total national income and the value of consumption and investment by domestic households, firms and the government sector.[1]

The implications of this are that in an open economy aggregate domestic spending can exceed national income, the difference being the current account deficit.

The gap is covered by foreign saving, which in turn is made available for domestic uses by the issue of for-

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1) This is merely a restatement of the familiar national account identity, where the national income, or aggregate supply (Y) is equated by the value of aggregate demand, which in turn is composed of private domestic consumption (C), private and public investment (I), and government spending (G) plus exports minus imports (X - M). So we get the identity: $Y = C + I + G + (X - M)$. $C + I + G$ is what Alexander (1952, op. cit.) calls absorption, and $(X - M)$ is the balance on the current account.

eign claims on future income.[1]

Consequently, a current account deficit can be explained by the factors which:

a) induce an excess domestic spending over current national income, and symmetrically
b) the factors which induce a reduction in aggregate demand relative to GNP in foreign countries. We shall concentrate on the first item.

In order to demonstrate this potential link between budget deficits and deficits on the current account we choose to use ordinary accounting identities.

In an open economy domestic investment can differ from the rate of domestic savings because capital is imported.[2] Schematically[3] savings and investment in an open economy can be equated in the following way:

Savings	Investment
Private savings	Private investment
Government savings (i.e. budget surplus)	Public investment
Foreign savings	(Foreign domestic investments)
Total savings	Total investments

1) National income is used here as a generic term, i.e. we do not make a distinction between the various national income aggregates.

2) The impact of capital imports on the tradeable and the non-tradeable sector is geometrically present in

3) Following Jai Hoon Yang, "Budget Deficits and Trade Deficits", The Review of the Federal Reserve Bank of St. Louis, October 1978, p. 10.

By rearranging these accounting items we get the following identity:

Government budget deficit = Private savings + Public savings + Foreign savings (for domestic use). (A)

If private savings are defined as the excess of private savings over private investment, and public savings are defined accordingly, the size of the government budget deficit must equal the aggregate of private, governmental and foreign savings.

Foreign savings, however, which are made available for domestic use, must equal the deficit on the current account, as we assume symmetry between the capital accounts and the balance of trade.

So we can rewrite expression (A) into the expression below:

Government budget deficit = Private savings + Public savings + Balance of trade deficit. (B)

If private savings decrease, or remain unchanged, a government deficit must be offset by a corresponding balance of trade deficit. Public saving is supposed to be negative as the initial condition was one of a government budget deficit. The assumption that private savings are decreasing or remain unchanged seems to be valid, as private households in times when real income is constant or falling tend to adjust their savings ratio instead of accepting a fall in private consumption. Although statistics are poor in the area of private propensities, it has been reported by the OECD,[1] that in the case of Denmark

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1) OECD, Economic Survey, 1982, op. cit.

the households' savings ratio fell by 1.5 to 2 percentage points in 1980.

Expression (B) shows that with this assumption about private savings behaviour, a link between government budget deficits and current account deficits has been established, based on the absorption approach.[1]

3.3.6. Current account deficits and budget deficits, a monetary approach explanation.

Using the monetary approach to balance of payments,[2] and keeping the implications of economic linkages in an open economy in mind,[3] it is possible[4] to show the link

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1) This link could also have been established using the Keynesian equilibrium condition. We assume that domestic and foreign price levels are set at unity.
Then: $Y = C + I_d + G + X - M$ (C)
Public and private investment are both contained in I_d. Total domestic savings are then:
$S^d = Y - C - G$ (D)
Let I_f be foreign investment, and split S up into S_g and S_p, which respectively stand for government savings and private savings. T is net tax revenues. Government sector savings can then be expressed as:
$S_g = T - G$ (E)
We then arrive at
$S_p + (T - G) - I_d = X - M$ (F)
Looking at the left-hand side of equation (F) it is seen that any improvement in the trade balance X - M must be accompanied by a rise in private savings, a rise in governmental savings, or a decrease in domestic investments.

2) See i.e. Frenkel & Johnson, 1976, op. cit.

3) See section 3.3.

4) Not surprisingly, as the monetary approach can be perceived as being a monetary "mirror image" of the real economy, which the absorption approach mainly is aimed at.

between current account deficits as a pure monetary phenomenon. One assumption is crucial for the argument: We must assume that persistent governmental budget deficits have positive repercussions on the money supply.

Using the familiar two country model, the chain of causality is straightforward.

In the open economy an initial excess supply of money will induce firms and households to start to dishoard their perceived surplus money stock, by spending it on goods, assets and/or services. This will have a spill-over effect on the foreign sector proportionate to the degree of openness in the economy. Such an excess supply of money would in a flexible exchange rate system lead to a realignment of the exchange rate, eventually.

In our fixed-exchange rate system the aggregate domestic excess spending over current real income, or actual output, will result in a temporary deficit on the current account. In the deficit country the international reserves are eroded, which will reduce the money base, thus having a self-equilibrating function, by reducing the excess demand.

Enter capital imports. Since all items on the balance of payments must in the end equate each other, the deficit on the current account is balanced by a surplus on the capital account.[1] If the demand for foreign currencies is perfectly matched by the supply of foreign currencies at the going exchange rate and the going domestic interest rate level, there

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1) As a result of double entry bookkeeping. See i.e. B.J. Cohen, Balance of Payments Policy, New York 1974, or the interesting "Balance of Payments Concepts, What Do They Really Mean", by D.S. Kemp in Review of the Federal Reserve Bank of St. Louis, July 1975, p. 14.

is no immediate concern.[1]

However the origins of the capital inflows are of interest. By examining the sources of the capital imports, it is possible to make an educated guess whether these inflows actually stem from the deliberate investment action of foreign private or public investors, i.e. autonomous investments, or they are induced by the financing needs of the governmental sector, i.e. net accommodating inflows.

We shall argue,[2] that if the capital inflows are the results of net purchases of domestic official assets by foreign institutions, then the inflows serve to support the exchange rate by strengthening the official foreign reserves. If this argument is accepted the initial trade deficit can be interpreted as being the effect of an excess supply of money.

The chain of causation would then look like this:

Governmental budget deficit - monetary accommodation of the budget deficit - current account deficit.[3]

If the government budget deficit was a result of a deliberate policy by the government in order to counteract shortfalls in demand, the rationality of such an action cannot be questioned, although the expansionary effects of

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1) The analysis of extended use of external debt finance is found in chapter 7.

2) As does J.H. Yang, op. cit., amongst others.

3) Empirical support for this hypothesis is presented in chapter 9 where Danish and German savings and investment data through the last decade are analyzed.

the deficit[1] probably will turn out to be smaller than expected.

However if the deficit is unplanned, and the debt issue not used for public capital formation, however defined, then such a current deficit must[2] represent an unwarranted disequilibrium. In order to correct such an unwarranted current account deficit, the old elasticities approach would have called for an exchange rate realignment. As is demonstrated above, such a realignment would probably only have a limited scope of success. Instead an increase in public, or private, savings would seem to be the appropriate instrument.

3.3.7. The central question of monetary integration: External and internal equilibrium

In the policy model it was demonstrated, that in the absence of some kind of switching instrument,[3] external and internal balance would best be achieved by a higher degree of public saving.

In the next chapter the criteria for the optimal and/or functional currency area are discussed.

A high degree of factor mobility between the regions of the currency area is supposed to solve the problem of a fixed-exchange rate.

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1) Empirical data, chapter 8, where main parameters for the EMS countries are compared, show that Denmark, which had the highest growth rate for public debt, only scored modestly in terms of employment and real economic growth.

2) Cf. R.I. McKinnon (1981), op. cit.

3) We still assume fixed exchange rates.

The question is now whether a small open economy can externally finance its balance of payments in the adjustment period,[1] or whether policies for structural change should be implemented as soon as possible. And a related question which should be asked is whether a reliance on the first option will make the final adjustment more difficult.

Ingram,[2] in a study of economic integration between Puerto Rico and USA, argues that financial integration will provide a vast amount of equilibrating capital movements which can be used to finance deficit countries' balance of payments[3] problems. With the point made by Corden[4] in mind, that a current accounts deficit is the sum of excess investment over savings in the private and the public sector, and hence, that the financial position of the private sector is a problem for the private sector, while the public financial position is a matter of public concern, then Ingram's point seems only to be valid for the private sector financial position. A relevant question is then how long-time capital movements can sustain a level of real absorption, which is too high for external balance. At some point in time the region must experience a fall in real income in order to restore equilibrium. It is very useful here to make a distinction between financing and adjustment. Financing means that the adjustment

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1) In order to spread the adjustment costs over a long period.

2) J.C. Ingram, Regional Payments Mechanisms: The Case of Puerto Rico, N.C. 1962a.

3) Ingram, op. cit., explicitly states that the essential financial integration should be for long term securities, which in itself would have an equilibrating effect.

4) See page ,

process is spread over a longer period, and a valid point is made by Ishiyama:[1] "It is not clear however whether the ease of financing always implies a smaller total adjustment cost for an area, in which a payments deficit has occurred."

The traditional argument that financial integration can eliminate the costs of a fixed exchange rate is based on the "monetary-fiscal policy mix approach", which briefly states that a country with full employment, and a current account deficit, can cover this deficit by a sufficiently high domestic interest rate.

A high interest rate will in turn lower private investment, which means a raise in the unemployment rate. Enter an expansive fiscal policy in order to maintain a desired level of aggregate demand. Potential crowding out of private investment is then countered by special allowances in order to boost private investments.

In theory it should then be possible to maintain a desired consumption-investment mix in spite of the current deficit.

The implications of this policy mix approach are that a country should be able to maintain any level[2] of real wages and factor incomes it likes, and to sustain this indefinitely by borrowing from abroad.

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1) Y. Ishiyama, "The Theory of Optimum Currency Areas, A Survey", IMF, Staff Papers, vol. 22, 1975, p. 356.

2) Cf. the critique of Corden (1972), op. cit., of the policy mix approach.

Such an interpretation is obviously wrong. Indeed it is questionable if the policy mix approach can be applied to the small open economy with satisfying results. Economic linkages in the money, goods and capital markets, as demonstrated in the foregoing section, are evident constraints.

Corden[1] sees further three weaknesses by following a strategy of using external finance, and we can add a fourth. If the amount the country needs to borrow grows at a higher rate than the availability of financial resources, the country may end up bidding up its own interest rate. This argument is valid for a large economy, but hardly for a small one, as it is real amounts that count.

Secondly, the more a country borrows, the less creditworthy the country becomes, which means loans with higher fixed and variable costs. If the country in question has a low growth rate, despite the capital inflows, it will end up with having a higher growth rate of the debt burden, which will imply that more and more is going to be borrowed in the future, in order to sustain the preferred level of real income, and in order to service the debt.

Thirdly, one may ask whether the existing exchange rate is so important, that consumption should be sustained now at the cost of a potential higher cut in future consumption. And fourthly, a persistent policy which tends to squeeze the tradeables sector and expand the non-tradeables

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1) Cf. W.M. Corden (1972), op. cit., p. 30-31.

sector, will seriously impede future growth and thus make the period of adjustment more costly.

So in the medium to long run a continuous financing strategy does not seem to give the answer to the central problem of internal and external balance, which is the result of the strong currency option of having a fixed exchange rate.

On the other hand, it accentuates the need for new strategies of deflation, which are not biased against one particular sector, and which have just as big an effect on prices and earnings as the present biased ones.

The bias of the present adjustment policies are formally evaluated in chapter 7.

Chapter 4

Micro- and macroeconomic conditions for monetary integration.

This chapter presents a, somewhat critical, analysis of the necessary micro- and macroeconomic preconditions for monetary integration, which have been put forward in theory during the last two decades.[1]

We conclude that none of these theories seem to offer a realistic solution to the central problem of internal and external equilibrium for a country with a fixed exchange rate target.

The only realistic tool is the burdensome process of coordination of national economic policies. An analysis of this issue is hence the subject for chapter 6.

Recent experience in the EMS stresses the need for policy coordination.

The French experiment of relatively expansionary fiscal policies and the resulting trade deficit vis-à-vis, especially, Germany, shows the limits for domestic policy autonomy.

In the foregoing chapter we discussed the implications of the rather basic point that the openness of an economy sharply reduces the probability of achieving real, and lasting, economic gains by manipulating the inflation rate.

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1) We concentrate on the theoretical discussion of the 60's and the 70's about international adjustment and monetary reform. It is in this framework the theories on optimal currency areas should be seen.

Indeed, Tower & Willet[1] suggest that as exchange rate illusion[2] and openness must be inversely correlated, a very high degree of openness will make adjustment under flexible exchange rates and fixed exchange rates very similar.[3]

And, as mentioned earlier, the central problem of monetary integration is the achievement of internal and external balance when the use of the exchange rate realignment tool is restricted. A high degree of financial capital mobility will ease the adjustment problem, as especially Ingram and Scitovsky[4] have pointed out, but not solve the problem, because internal imbalance caused by underutilization of domestic production factors, eventually will spill over to the external balance via a government budget deficit, thus prolonging the adjustment process and aggravating

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1) E. Tower & T.D. Willet, The Theory of Optimum Currency Areas and Exchange Rate Flexibility, Princeton 1976, p. 72.

2) We define exchange rate illusion as the inability of domestic economic agents to feel the effects of an exchange rate realignment on the purchasing power of domestic money. For a further discussion see chapter 5.

3) This point is elaborated upon in chapter 5.

4) J.C. Ingram, 1962a, 1962b, op. cit., and T. Scitovsky, "The Theory of Balance of Payments Adjustment", Journal of Political Economy, vol. 75, 1967, pp. 523-531, and same author, Money and the Balance of Payments, Chicago 1969.

the level of adjustment.

As we argued in the previous chapter, and as Corden,[1] and Tower and Willet [2] also have stressed, in the long run, a current account deficit cannot be offset by capital inflows. Accepting this point, an over reliance on the monetary fiscal policy mix as a long-run policy option is ruled out.

As the current account deficit only can be improved if real domestic expenditure is reduced, cf. our interpretation of the absorption approach, then domestic macroeconomic policies are constrained by the position of the current account, as originally stressed by Tower and Willet:[3]

> ". . . in highly open economies expenditure changing policies become the only tool for altering the balance of payments, which is to say that macroeconomic policies become subservient to the balance of payments constraints."

Moreover, Whitman[4] has in two articles emphasized that active adjustment is vital for a small open economy in an exchange rate area, as the fall in the area's exports and decline in overall economic activity often will originate from a common cause. That is that the factor that causes

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1) W.M. Corden (1972), op. cit.

2) Tower & Willet (1976), op. cit.

3) Ibid., p. 18.

4) M.v.N. Whitman, International and Interregional Payments Adjustments: A Synthetic View, Princeton 1967. Same author, Place Prosperity and People Prosperity, The Delineation of Optimal Policy Areas, New York 1972.

the overall decline in the country's external balance may also lower the real return on investments, which in turn will end up in the direct investment component of the capital account and make it more difficult to finance further deficits.

However an important factor which must be mentioned when the ability and desirability of external finance is discussed, is smallness. As Thygesen has pointed out,[1] small countries sometimes act as free riders in international capital markets because the absolute amounts small countries use to finance their external deficits are negligible.

> "Contrary to what textbooks international economics may teach, policy autonomy is sometimes greater for a small than for a large country. The United Kingdom and Italy reached the limits of their ability to finance external imbalances around 1976, when the IMF was called upon to review domestic policies and provide conditional lending. This was at a time when British and Italian external imbalances and debts were relatively small compared with those of Denmark.[2] Absolute amounts matter . . ."

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1) N. Thygesen (1980), op. cit., p. 27.

2) Cf. this quote of Thygesen to the following of Cooper: "even a small country can borrow in a private international capital market for a prolonged period only if the proceeds are used for investments which are sufficiently productive, not only to pay interest on the debt, but also to satisfy creditors that further lending is appropriate." Cooper (1968), op. cit., p. 183.

However, as Thygesen also points out,[1] such a process alters the composition of domestic demand and output, and is therefore not sustainable in the long run, and moreover "it imposes severe constraints on monetary management and requires tight control on movements of private capital".[2]

But the "central problem" of internal and external equilibria when the exchange rate alignment option is severely restricted, is still largely unsolved by sheer reliance on capital mobility.

The aim of the present chapter is therefore to present an analysis of necessary micro and macroeconomic conditions which must be met if monetary integration can be seen as successful.

In the first three chapters the explicit framework for analysis was that of the national state.

This individualistic angle of attack is relaxed in the present chapter and the next two. Thus we move from the angle of national self interest and welfare to a more collective oriented, or global approach.

The many economic criteria for the workings of a currency area, which are found necessary by literature are here divided up into two main categories, as does Revelas.[3]

The necessary conditions in the first category are mainly concerned with the adjustment capabilities of the

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1) N. Thygesen (1980), op. cit.

2) Ibid., p. 28.

3) K. Revelas, Optimale Währungsraume und Währungsunionen, Eine theoretische empirische und wirtschaftspolitische Analyse, Berlin 1980.

national economy in the context of microeconomic disturbances. These conditions are factor mobility, openness (or the share of tradeables in production) and diversification.

In the second category we find conditions for monetary integration, which are mainly concerned with macroeconomic disturbances.

The main difference between the two categories is that the criteria mentioned in the first category are necessary, or even vital, for the politically acceptable functioning of a proposed currency area, while the factors mentioned in the second category below are concerned with the question about how welfare costs are minimized in the adjustment period.

If the main criteria of the second category, which are similarity in rates of inflation and a close resemblance in policy attitudes, are unity or close to unity, the relative importance of the criteria mentioned in the first category will be decreasing.

A considerable body of literature emerged during the 60's and 70's relating the influence of cyclical and microeconomic disturbances with respect to stabilization policies to the pros and cons of flexible versus fixed exchange rates. Much of this literature, as previously mentioned,[1] focused on the global rather than the national scope. However we shall show that this literature is still relevant for the discussion of desirable characteristics of a proposed currency area.

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1) Cf. chapter 1.

4.1. Necessary criteria for monetary integration of the first category.

Traditionally the optimality of a currency area is judged with reference to the familiar short-term objectives of economic policy: employment stability, price stability and balance of payments equilibrium. Removal of a trade deficit through market forces under fixed exchange rates requires, as previously shown, a relative decline of money income in the area in question. If the surrounding world shows some degree of inflation, the area's prices need only decline relatively. No absolute decline is required, as Haberler was the first to show.[1] Downward inflexibility of money wages and prices is the main reason why the exchange rate tool is necessary to smooth out adjustment. In the absence of downward flexibility of money wages[2] the welfare costs of deflation to the level of prices and wages abroad are minimized if the following criteria are met:

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1) See G. Haberler, "Adjustment, Employment and Growth", in W. Fellner (ed.), Maintaining and Restoring Balance in International Payments, Princeton 1966.

2) We assume that real wages are flexible, cf. Corden (1972), op. cit., "if real wages are not flexible a devaluation will be followed so quickly by an adjustment of wages and other factor prices designed to maintain real values, that the effects of the devaluation will be quickly negated".

4.1.1. High mobility of factors of production.

A high mobility of factors of production was Mundell's[1] original proposition in order to solve the "central" problem of monetary integration. Mundell does not explicitly make a distinction between the production factors of labour and capital, which is, as shown later, a major point of criticism.

Mundell's main point, as elucidated by Ishiyama[2] is the following: Assuming that two regions A and B have a high degree of mutual intermobility of production factors, a shift in demand of goods from region B to the goods of region A can be counterbalanced by a change in the exchange rate. If region A coincides with country A and region B coincides with country B, a depreciation of currency B, and appreciation of currency A will relieve unemployment in country B, and control inflation in country A. This is the normal case for flexible exchange rates.

The novelty of the Mundellian approach is now that regions A and B do not necessarily, or always, belong to country A and B.

If the shift in demand does not correspond to the boundaries of the national economies (we assume multisectoral national economies), the following dilemma is bound to arise: Expansive economic policies by country A and B in order to solve the employment problem in their depressed re-

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1) R.A. Mundell, "A Theory of Optimum Currency Areas", American Economic Review, No. 51, Sept. 1961.

2) Y. Ishiyama (1975), op. cit.

gions are bound to ignite inflation in the prosperous parts, and vice versa deflationary policies in order to check inflation in the prosperous regions will aggravate the unemployment in the depressed regions.

As Mundell points out, a flexible exchange rate might solve the external balance problem between the two countries, but it does not bring about a simultaneous solution to the problems of inflation and unemployment in the prosperous and the depressed regions respectively. Since countries do have many regions, each with different mixes of production factors, interregional balance of payments problems are not cured by the realignment of national currencies. Instead Mundell stresses the point that a high degree of mobility of production factors will solve the adjustment problem between regions as well as between countries. The logical answer that each region should have its own currency is refuted because of these two reasons:

a) With a high number of national currencies the function of money as a medium of exchange is negated by the increasing costs of currency conversion, and
b) A small currency area will have a similar small exchange market which will allow speculators to manipulate the market.

That a high degree of factor mobility provides regions with a nearly automatic adjustment in cases of internal disequilibria is doubted by, amongst others, Onida,[1] who shows in

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1) F. Onida, The Theory and Policy of Optimum Currency Areas and Their Implications for European Monetary Union, Leyden 1972.

a little simplistic model that the adjustment merely is a trade balance adjustment. Internal levels for equilibrium are not taken into account.

Several levels of income are compatible with trade balance equilibrium, as there are national differences for the preferred position on the Phillips curve.[1] Fleming[2] criticizes the factor mobility argument because there is no distinction between labour mobility and capital mobility.

If we examine the concept of capital mobility alone and its equilibrating effects it has been demonstrated by several authors[3] that capital mobility can worsen internal equilibrium as well as equilibrating internal disequilibria.

Suppose that there is a shift in demand from the goods of country A to those of country B, as first shown in Mundell's original example.

Having a fixed exchange rate between the two regions, a balance of payments equilibrium is first restored when the economy is deflated in country B, and/or inflated in country A. In Mundell's original theory, it was assumed that differentials in unit factor costs were causes for disequilibrium, although the Heckscher-Ohlin theorem

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1) Although Presley, J.R. and G.E. Dennis in Currency Areas, London 1976, show that an inverse relationship between inflation and unemployment is quite complicated to prove in most European countries.

2) J.M. Fleming, "On Exchange Rate Unification", Economic Journal, vol. 81, 1971.

3) See i.e. Onida (1972), op. cit., and Fleming (1971), op. cit.

states that foreign trade equalizes factor prices.

Assume now that the deflation in country B would decrease the propensity to invest in country B, and the inflation in country A would symmetrically increase investments in country A above the rise in savings. The result would then be that capital mobility in this way would aggravate existing internal disequilibria instead of mitigating existing differences. Fleming[1] concludes:[2]

> "Altogether it will be seen that mobility of capital among the members of the group is as likely to aggravate as to mitigate the losses and friction that would otherwise result from the inability to adjust par values in the face of disequilibria arising from members of the area."

Labour mobility, which was presented by Mundell[3] as the primary determinant of the optimum currency area in order to smooth adjustment, seems only to be a long-run solution. With highly mobile capital a high degree of labour mobility would reduce the total unemployment costs of a given amount of real adjustment. Tower and Willet[4] see labour mobility as reinforcing capital mobility in the adjustment process. The longer time in which adjustment can take place, the more useful the concept of labour mobility will be. A counterargument to this would

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1) Fleming (1972), op. cit.

2) Assuming implicitly autonomous investments.

3) Mundell (1961), op. cit.

4) Tower & Willet, op. cit., p. 32.

be that such a trend of outward movements of labour would increase the existing debt per capita ratio, thus making final adjustment more expensive for the remaining. Lanyi, Scitovsky, Dunn, Kenen and Corden[1] have criticized the concept of labour mobility vehemently.

Lanyi[2] stresses that it is not lack of interregional mobility which is crucial, rather than the lack of inter-industrial mobility. As a consequence labour mobility is of little consequence for the adjustment of interregional imbalances. Kenen[3] points out that if labour intensities differ markedly amongst the regions, migration of labour will only have a very limited effect.

Scitovsky and Dunn[4] criticize the concept from the more practical angle, and add that the costs of such movements, both political and economical, cannot be ignored. The former author uses an Hecksher-Ohlin type analogy in a

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1) A. Lanyi, The Case for Floating Exchange Rates Reconsidered, Princeton 1969, T. Scitovsky, "The Theory of Balance of Payments Adjustment", Journal of Political Economy, 75, August 1967, R.M. Dunn, "Flexible Exchange Rates and Oligopoly Pricing, A Study of Canadian Markets", Journal of Political Economy, 75, August 1967, P.B. Kenen, "The Theory of Optimum Currency Areas", in Mundell and Swoboda (1969), op. cit., and W.M. Corden, 1972, op. cit.

2) Lanyi (1969), op. cit.

3) P.B. Kenen (1969), op. cit.

4) Scitovsky, op. cit.; Dunn, op. cit.

later article,[1] where he points out that labour mobility "sets limits to divergencies of (labour) costs between regions. Management . . . will not concede and labour will not press too hard for wages that would push costs beyond these limits, the former for fear of diminishing profits, the latter for fear of diminishing employment."

Ingram, however, in his study of Puerto Rican adjustment policies in the 50's, shows[2] that labour mobility had important effects even when there was full financial integration between Puerto Rico and the U.S. A similar solution is found in Vanderkamp[3] who shows that emigration from Canada had a positive effect, as unemployment declined when emigration grew. Still, migration is an irreversible policy tool.[4] So we may ask whether labour mobility is a sufficient factor to solve the central problem of monetary integration.

To rely solely on labour mobility as an adjustment factor in the short to medium run would run into difficul-

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1) See his Money and the Balance of Payments, Chicago 1969.

2) J.C. Ingram, Regional Payments Mechanisms: The Case of Puerto Rico, University of North Carolina, 1962.

3) J. Vanderkamp, "The Effects of Out-Migration on Regional Employment", Canadian Journal of Economics, vol. 3, Nov. 1970.

4) Cf. H. Giersch: "Outmigration may actually be the worst of all possible solutions to a balance of payments problem, since it is likely to be irreversible and to lead to a waste of capital invested in the infrastructure and a destruction of the environment through depopulation", in his "The Case for a European Regional Policy", in European Economic Integration and Monetary Unification, EC Commission, Brussels 1973.

ties because of the long-run nature of the tool. And even more complicated seem the implications of relying solely on labour mobility, when the very concept of labour is differentiated. According to Presley & Dennis:[1]

> "A further complication arises once it is recognised that all units of a factor are not identical. Different units of labour have different skills and abilities. One would suspect the more mobile units of labour are also the younger, and perhaps the more productive elements of the labour force. If this is so, mobility in the long run may produce disturbances to the competitive relationship between countries."

Under fixed exchange rates labour mobility acts as a substitute for deflation, which otherwise would be necessary in order to adjust to a change in relative competitiveness. However, the political usefulness of such a "grapes of wrath policy" is doubtful, without even thinking about how an explicit emigration policy could be implemented in real life. Corden notes:[2]

> "Can it really be imagined that a UK depressed area problem could be solved by the large scale migration of British workers to Germany? It is conceivable, but

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1) J.R. Presley & G.E.J. Dennis, Currency Areas, London 1976.

2) W.M. Corden, "The Adjustment Problem", in L.B. Krause & W.S. Salant (eds.), European Monetary Integration and its Meaning for the United States, Brookings 1973.

> when Britons are reluctant even to move from Scotland or Tyneside to the south, though the language is almost the same, it takes some imagination to conceive of labour mobility solving the central problem of monetary integration."

And it should be added, that even if labour mobility could solve the problem, it would remind very much of the tail-wagging-the-dog situation, where exchange rate variations of demand management would be the more appropriate tools.

In the optimal currency area theory, internal fixed exchange rates are off-set by internal factor mobility, and external flexible exchange rates are off-set by money illusion.

De Cecco[1] compares this way of reasoning with a set of Chinese boxes where the last and tiniest box is money illusion. The effects and nature of money illusion in the currency area context are analyzed in chapter 5.

4.1.2. Product diversification.

Kenen's argument[2] that highly diversified economies are a necessary precondition for a currency area[3] is based

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1) M. De Cecco, "La teoria aree monetarie ottime e l'unificazione monetaria europea", Note Economiche, 4 ed. 1971.

2) P.B. Kenen, "The Theory of Optimum Currency Areas, An Eclectic View", in R. Mundell & A.K. Swoboda, Monetary Problems of the International Economy, 1969.

3) Cf. Kenen's own definition: ". . . diversity in a nation's product mix, the number of single product regions contained in a single country, may be more relevant than labour mobility".
". . . a well diversified national economy will not have to undergo changes in its terms of trade as often as a single product national economy."
". . . when in fact it does confront a drop in demand for its principal products, unemployment will not rise as fast as it would in a less diversified economy."
All quotes from Kenen, ibid.

upon the assumption that the main cause for balance of payments imbalances is microeconomic demand disturbances.[1] So a country that spreads its risks, i.e. is well diversified, has a higher chance of avoiding shocks originating from certain segments of the market.

A decrease in export demand for goods produced in one segment of the market will not have serious implications for employment, because in a well diversified economy, each segment of the market only provides a fraction of total employment.

> "From the standpoint of external balance taken by itself, economic diversification, reflected in export diversification, serves, ex ante, to forestall the need for frequent changes in the terms of trade and therefore, for frequent changes in national exchange rates."[2]

Applied to the real world Kenen's diversification argument is difficult to operationalize. If the most diversified area is also the optimal currency area, then it follows that the world would be the most suitable candidate. McKinnon[3] comments that the more diversified an economy is, the larger it would be, and the smaller would be the foreign trade sector, and in this way it leads to the opposite conclusion of McKinnon's own criteria of openness, which is discussed be-

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1) Cf. Ishiyama, op. cit., p. 353.

2) Kenen, op. cit., p. 49.

3) McKinnon, R.I., "Optimum Currency Areas", American Economic Review, vol. 53, Sept. 1963.

low. However as also Ishiyama[1] points out the main difference between Kenen's and McKinnon's criteria is that Kenen assumes external export shocks, while McKinnon as we shall see is concerned with internal shocks.

4.1.3. Degree of openness.

McKinnon was the first to point out that the degree of openness of a currency area would influence the degree of deflation necessary to correct a given balance of payments deficit.

In chapter 3, the concept of openness was analyzed from the angle of efficiencies of macroeconomic stabilization policies. The present discussion should be seen in the context of the currency area debate, which in the present case can be summed up as why an open economy should employ a fixed exchange rate.

McKinnon's argument for fixed exchange rates and openness is based on the absorption theory,[2] and can be divided

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1) Ishiyama, op. cit., p. 354.

2) Cf. the following quote from McKinnon (1963), op. cit.: "In a highly open economy operating close to full employment, significant improvements in the trade balance will have to be accomplished via the reduction of domestic absorption, i.e. real expenditure. In the extreme case where the economy is completely open, i.e. all goods produced and consumed are tradables with prices determined by the outside, the only way the trade balance can be improved is by lowering domestic expenditure while maintaining output levels. Changes in the exchange rate will necessarily be completely off-set by internal price level repercussions with no improvement in the trade balance . . . . . if we move across the spectrum from closed to open economies flexible exchange rates become both less effective as a control device for external balance and more damaging to internal price level stability."

into three separate conditions. Two assumptions are crucial:[1]

i) The principal needs for exchange rate adjustments arise from microeconomic demand and supply conditions and
ii) Externally, price stability is a precondition.

The first of McKinnon's arguments focuses on price stability.

Assuming a high foreign elasticity of import supply and export demand which is plausible because of given world market prices, and a low elasticity of domestic import demand and export supply, a change in the exchange rate will eventually lead to price instability.

The domestic price of tradeables would change in the same proportions as the price of foreign money, being an open economy, such shifts in prices will influence the overall price index dramatically. If domestic stabilization policies are to be successful in such a case, the price of nontradeables would have to decrease symmetrically with the rise in tradeables. Such a contraction would, needless to say, have severe consequences in terms of lost output and employment. A destabilization of the domestic price level would furthermore imply that the role of money as a store of value would be reduced in step with infla-

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1) Cf. Ishiyama (1975), op. cit.

tion.[1]

And as Triffin & Grubel,[2] and Whitman[3] later did demonstrate, excessive domestic inflation in a highly open economy tends to spill directly over in increased imports before spilling over into prices, which again is the basis for triggering off a "vicious circle". On this background, a number of open economies trading extensively with each other will find it advantageous to form a currency area in order to maintain price stability.

The second criterion is about the existence of money

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1) Cf. McKinnon (1963), op. cit. "One of the aims of monetary policy is to set up a stable kind of money whose value in terms of a representative bundle of economic goods remains more stable than any single physical good. Indeed it is the maintenance of this stable value which gives money its liquidity properties. The process of saving and capital accumulation in a capitalist system is greatly hampered unless a suitable numeraire and store of value exists. It may be still more difficult if a more desirable money is available from another source, e.g. from a larger currency area."

2) R. Triffin and H.G. Grubel, "The Adjustment Mechanism to Differential Rates of Monetary Expansion Among the Countries of the EEC", Review of Economics and Statistics, Nov. 1962, vol. 44.

3) M.v.N. Whitman, "Economic Openness and International Financial Flows", Journal of Money, Credit and Banking, 1, Nov. 1969.

illusion. In an open economy, money illusion is, understandably, deemed to be next to absent, as import prices weigh heavily in the overall price index.

In order to restore a "sound" level of money illusion thus making exchange rate variations a viable option, open economies should have a fixed internal exchange rate and a flexible external one.

The third criterion in McKinnon's chain of argument is based on the nature of demand and supply elasticities.

In an economy where a large proportion of goods is tradeables, the impact on imports, which we assumed to have a low elasticity of demand, of an exchange rate realignment will logically be small. It follows then that a realignment in order to remove a given balance of payments deficit will have to be larger the more open the economy is, given the Marshall-Lerner condition is fulfilled.[1]

There are some critical points in McKinnon's reasoning. The assumption of stability in the rest of the

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1) Which briefly can be written as:

$$E_d^m \, E_d^x > E_s^m \, E_s^x$$

where: E_d^m is elasticity of import demand relative to the domestic price.
E_d^x is elasticity of export demand relative to foreign prices.
E_s^m is elasticity of import supply relative to foreign price.
E_s^x is elasticity of export supply relative to domestic prices.

world is rather optimistic, and has been severely criticized.[1] And McKinnon admits in a side remark, without elaborating further that "the idea of openness would have to be modified when the area was large enough to affect external prices".[2] And in a later re-issue of the article on optimum currency areas,[3] he adds "All the above comments assume the absence of chronic differential rates of inflation. Freely floating exchange rates are always preferable to fixed rates in the presence of substantial monetary instability." This leads us over into the second category of conditions for monetary integration, which mainly cope with macro-economic disturbances.

4.2. The second category of conditions for monetary integration.

4.2.1. Similarity in rates of inflation.

Section 4.1 focused especially on the effects of microeconomic disturbances in a currency area, and we found that a currency area would be seen as functional, if not optimal if:

a) the capacity of adjustment is so large that a return to internal and external equilibrium is possible despite fixed internal exchange rates, and
b) the potential capabilities of the exchange rate to change real economic variables already is constrained because of openness and diversification.

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1) By amongst others Corden (1972), op. cit.

2) McKinnon (1963), op. cit.

3) McKinnon (1969), op. cit., p. 234.

In this section disturbances of a macroeconomic nature are analyzed.

A brief definition of the term is needed before plunging into the analysis.

According to Revelas,[1] macroeconomic disturbances cover divergencies in important macroeconomic parameters amongst the participants of a currency area, which are main culprits in destabilizing external equilibrium.

The interaction between internal and external balance is explicitly neglected because only the external balance of a participating country has an overall effect on the performance of the whole currency area.

The importance of an equal propensity to inflation inside a currency area was originally put forward by Haberler[2] and elaborated by Fleming[3] and Magnifico.[4]

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1) Revelas (1980), op. cit.

2) G. Haberler, "The International Monetary System: Some Recent Developments and Discussions", in G.N. Halm (ed.), Approaches to Greater Flexibility of Exchange Rates: The Bürgenstock Papers, Princeton 1970.

3) J.M. Fleming, "On Exchange Rate Unification", The Economic Journal, vol. 81, London 1971, pp. 467-488.

4) G. Magnifico, European Monetary Unification, Princeton 1971, and Gaps in National Propensities to Inflation and European Monetary Unification, Paper presented at List Society, Basel 1972.

As the position of the external balance, as previously stressed, is of vital importance in the context of monetary integration, attention should be paid to the divergence in national inflation rates, as this divergence is an important factor in the development of the external balances of participating member states.[1]

A country belonging to a currency area with a higher than average inflation rate cannot, in the long run, at least, sustain a fixed exchange rate, when domestic competitiveness is decreasing as a result of the higher price level.

There are three commonly accepted factors which influence the inflation performance of a given country seen from a "cost-push" point of view, and thus can be seen as determinants for a country's propensity to inflation. These factors are: Wage policies of labour unions, productivity developments in domestic industries and the degree of internal competition.

Magnifico[2] adds to these factors the following two: Regional structure and inflationary expectations, which are both cost induced factors, and where the latter hardly is a new criterion.

Assuming a limited degree of labour mobility, differ-

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1) It is not here the intention to participate in the debate whether divergence is the cause for exchange rate realignments, or just an intermediary variable.

2) G. Magnifico, op. cit.

ences in regional economic structure will result in a relative worse employment/inflation trade-off for countries with a high degree of regional differences than for countries with a more homogeneous structure. The reason for this is that economic policy in the case of a country with weak and strong regions must be either less contractive or more expansive than would otherwise have been the case.[1]

The potential importance of similarity in inflationary expectations as a condition for a viable currency area is explained from two variables:

Firstly, historical inflation rates will form a basis for future inflationary expectations, when labour contracts are concluded. This is the wage-price spiral.

A currency area where the commitment to the fixity of the exchange rates is seen to be firm will accordingly influence expectations.[2] Secondly, the historical inflation rate influences the availability of production factors on the supply side.

A long period of inflation and hence reduced private investments in productive capital, will make the private sector react more sluggishly to expansionary impulses, because of a reduced acclerator function caused by bottlenecks in the productive sector.

The usefulness of the criterion of similarity in the national propensity to inflate is questionable.

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1) Cf. the nearly identical point made by Mundell.

2) See Vaubel (1978), p. 38, op. cit.

A counterargument is that identical propensities to inflate would make the creation of a de jure currency area superfluous, as identical national inflation levels already would indicate a de facto currency area.

The whole argument ultimately rests on the perceived importance of the Phillips curve trade-off. If there are nationally desired positions on the Phillips curve as Hirsch[1] suggests, adjustment to common inflation standards will be costly.

If on the other hand, the Phillips curve is steepening, as is suggested by Parkin,[2] then the problem is more easily solved.

4.2.2. The degree of policy integration.

Several contributions[3] to the literature on monetary integration stress the importance of policy integration.

It is not only commonness of real economic characteristics which is important for the viability of a currency area, but also similarity in attitude to important policy issues.

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1) F. Hirsch, "The Political Economics of European Monetary Integration", World Today, vol. 28, Oct. 1972, and "European Monetary Union, A Rebuttal", Banker, vol. 122, Nov. 1972.

2) M. Parkin, 1972, op. cit.

3) See i.e. Haberler (1970), op. cit., Ingram (1969), op. cit., and Tower and Willet (1976), op. cit., and same authors, "The Concept of Optimum Currency Areas and the Choice Between Fixed and Flexible Exchange Rates", in G.N. Halm (ed.), The Bürgenstock Papers, Princeton 1970.

A corollary to this is that some kind of institutionalized policy coordination, which is deemed necessary for the convergence of national inflation rates, would play an important role as a benchmark for the individual participant, when costs and benefits by joining a currency area are evaluated.

The criteria discussed in the context of the various contributions to the optimal currency area theory are all necessary preconditions, but hardly sufficient to solve the "central" problem of reconciling internal and external balance in participating nations, when the exchange rate is fixed.

So a framework for coordination is needed, to smoothen out the adjustment and also to act as a benchmark in order to measure how much policy autonomy must be given up when joining a currency area. The next chapter, on adjustment policies, will analyze this issue further, and in chapter 6, a loosely knitted framework for coordination of national economic policies is presented.

Chapter 5

Adjustment policies in a currency area. A clarification of some central issues.

Experience from realignments in the "Snake" and of the parities in the EMS suggest that timing is vital. Some of the realignments have indeed been clumsy, and have provided speculators ample apportunities forplacing one way bets. The gains of the speculators are matched by corresponding losses, by the central bank, c.f. chart below.

Chart 1.

Distribution of gains and losses by capital outflows preceeding an anticipated devaluation of the domestic currency.[1)]

		Effects for:		
		Abroad	Home	Central Bank
Contracts in Domestic currency	Foreign importers delayed payments.	+	O	-
	Foreign exporters earlier payments.	+	O	-
Contracts in a foreign currency	Domestic importers earlier payments for imports.	O	+	-
	Domestic exporters delayed payments from abroad.	O	+	-

+=gains/O=neutral/-=losses.

1) Cf. J. Hoiberg-Nielsen, Danmark i en internationaliseret verden. Konsekvenser og effekter for dansk okonomisk politik af den monetaere og financielle integration. Unpublished dissertation. Arhus

As can be seen in the chart, the central bank (i.e. the taxpayers) always shoulders the losses involved with uncertainties about the exchange rate.

With this distribution of the costs of exchange rate uncertainty in mind, we shall below question the validity of some issues of monetary integration which for long have been taken for granted by most teoretical contributions.

Is the strict division of, on one side, fixed exchange rate systems and on the other side, flexible exchange rate systems impossible from an operational point of view?

Which are the main effects and repercussions of devaluation, and connected to this issue, are small open economies more vulnerable to vicious circles of inflation than larger, more closed economies? These questions are discussed in the present chapter, and it is argued in the last part of the chapter that as both countries and individuals will try to avoid a deterioration in their respective financial positions, a payments deficit will always be sought to be passed over to somebody else.

On the international level, i.e. inside a currency area, a deficit is likely to end up in the country which is least willing to deflate and or control domestic inflation.

On the domestic level, a deterioration in a sectors financial position is likely to be passed over to the public sector, in form of an increase in the budget deficit.

The aim of the present chapter is then to analyze, somewhat critically, the concepts of adjustment and liquidity in an international monetary system. These two concepts were together with confidence, what we might call "the holy

trinity" in the debate in the late 60's on international monetary reform.

We are not going to present a re-run of this debate. Instead, the argument is that the economic-political environment of the 70's with a changing constellation of power and a climate of inflation have rendered the old dist inctions of adjustment with fixed and flexible exchange rates more or less obsolescent.

The context of the study is, as said in the introduction, small open economies, with a balance of payments deficit.

We divide the adjustment-process into policies which stabilize, and policies which finance deficits. Lastly the derived effects of devaluation, vicious circles, are discussed.

The whole question of changing the price of one currency in terms of another, whatever the means are, is then confronted with the so-called "tail-wagging-the-dog" arguement, which states the futility of monetary and fiscal measures that try to correct an imbalance of a few percent of GNP by a costly underutilization of production factors, which can have profound social repercussions, instead of simply financing the deficits with funds from the (ever?) liquid international financial markets, which became the significant feature of the 70's, partly due to the new constellation of surplus/deficit nations.

As shown in the foregoing chapter no automatic adjustment factors inside a proposed currency area like the EEC

are to be relied on, at least in the short run. This because of the "second best" nature[1] of the currency area opposed to the optimal conditions, as presented in theory.

Furthermore it was shown that the monetary approach tends to ignore the composition of the imbalance. If a deficit on the trade and services account is counter-weighed by the necessary accomodating capital inflows, this will not directly cause imbalance according to the monetary base concept.[2]

However, the resulting foreign indebtedness do have unexpected side-effects, and causes restrain on policy, which is part of thescope for the present study, cf the introduction.

Corden[3] sums up the essential implication of the claim of the monetary apporach that deficits present no problem, as they are self correcting through stock adjust-ment, in the following way: "Isuppose that one might ask how anything in the economy can be a problem. If everyone does what he wants to do, and knows what he is doing, and adjusts to changing circumstances, where is the problem?

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1) M.DeCecco (72) op.cit.

2) See M. Kreinin & L.H.Officer, The Monetary Approach to the Balance of Payments. P.73. Princeton 78.

3) W.M.Corden, Inflation, Exchange-rates and the World Economy. Chicago 1977.

Cordens answer to the question is that all economic agents make mistakes in the adjustment process, as adjustment is a painful process, which on the political side is constrained of the fact that governments want to be re-elected, and therefore cannot always go "by the book".

In sum the problem is the costs of adjustment and the issue is how to minimize these costs in a consistent way.

In a narrow sense adjustment refers to the process in which a situation of disequilibrium is changed, as such a situation cannot last forever, by the usual definitions at least.

This does not pose problems in itself, but as there are different options for adjustment, and a possibility of choice between them, of which some are more consisent with the aim of currency unification, the range of externalities by joining a currency area broadens. Traditionally the adjustment process have been divided into adjustment to monetary changes and adjustment to real changes.

A balance of payments deficity may be caused by autonomous inflation or induced by a shift in international demand[1].

On an operational level this distinction between monetary and real disturbances is difficult to use. This because real disturbances can be interpreted as initiated by monetary disturbances and vice-versa.

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1) A classical example is H.S. Houthakker & S.P. Magee, Income and Price elasticities in World Trade. Review of Economics and Statistics. May 1969, where the authors try to show that income elasticities of demand for exports of different industrial countries are different.

Instead we shall use the time dimension which admittedly is very unhandy too, what is short term and long term. So the important measure is to distinguish between policies to stabilize payments imbalances in the short term, and policies aimed at removing imbalances in the long run. This makes the distinction between measures of financing and measures of correcting deficits. To have a yardstick for the optimal adjustment process Snider[1] states this as one which removes external equlibrium without:

a) Restricting the freedom of international payments, trade and investments, and/or

b) -interfering with domestic policies for full employment, a stable price level, and economic growth.

As Snider[2] notes himself: "That the .... international system falls short of providing an optimum adjustment process in the above sense is abundantly clear."

However, like most ideal types, even if it does not exist, it has a clear definitorial value, which is worth keeping in mind.

We shall start by discussing measures to correct deficits by realignment of the exchange-rate.

5.1.

Realignments of the exchange rate.

The role of realignments of the exchange rate is of crucial importance, as the EMS is not to be interpreted with a system with an irrevocable fixed exchange rate, as the Werner plan suggested.

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1) Snider, op.cit.

2) cf. The statement of the Commission: "Success must not be confused with an absence of changes of central rates. If exchange rate adjustment became smaller and less frequent over time; the system could be regarded as a success. The European Monetary System. EC Commission, No 3.1979. pp 78-79.

The question of realignment of exchange rates is in somewhat contrast to a strict interpretation of the monetary approach, where, as previously noted, a correct domestic monetary policy will make exchange-rate policy unnecessary, and perhaps even counter-productive.

A devaluation from a position of deficit, which is the normal thing, is brought into effect from an excess supply of money initially. To sterilize this excess supply a devaluation is an instrument, which has an instant effect, compared to the time it would take selfequilibrating factors to do the job.

In the following we shall relax this assumption about the difference between adjustment with fixed and with flexible rates.

In a world with large inflation differentials nominal and real exchange rates will differ rapidly, which in a fixed system will require heavy intervention in the exchange-markets, and in a flexible system, daily changes of the exchange rate towards a rate of equlibrium will be the rule.

And as the fixed-exchange rates during the 70's have not been really fixed, and the flexible rates have not been truly flexible, the distinction seem more confusing than clarifying.

For a country with a balance of payments deficit, the real choice, at least in the short run, will be either to allow devaluation to lower the real money stock by increasing the price level, or to keep on financing the deficit from external sources, instead of cuts in the nominal money supply. The common feature for deficit countries in the "Snake" and in the EMS, seems to be a random mix of the three. If the deflationary impact of such policies is too devastating, so that this kind of con-

traction is resisted, then two other options are available. One to call for reflation of the leading currency in the currency area, the other being more capital imports ...

Originally a monetary regime based on:

a) Fixed exchange-rates meant a high degree of certainty, that is minimization of transaction costs. And..

b) Flexible exchange rates implied that the country in question had a certain degree of monetary independence, which meant insulation from foreign disturbances.

As Johnson notes on the system with fixed rates[1]: "The international monetary system did after all permit changes of exchange rates in both direction, and it would have been possible, in principle to confine most or all inflationary pressure of the United States by a series of revaluations of other countries currencies against the dollar."

His answer is that the eruopean countries did not have the political muscle to do such a thing.

Take the example of Germany and Switzerland[2], which have pursued internal price stability with a higher degree of success than their trading partners.

Until 1980 Germany had a substantial rise in nominal exchange rates but was able to hold real exchange stable[2].

The shortage of D-Mark created by the current account surplus was effectively offset by official invervention to supply the market with funds. In this way the real exchange

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1) Harry G. Johnson, Money, Balance of Payments theory and the International Monetary Problem. p 18. Princeton 77.

2) See chapter 8.

rate did not have to react to the shortage. The degree to which intervention affects the real exchange rate is determined by the way the intervention is financed. This means that funds must come from domestic sources, which tends to raise the real interest rate. The question is now how long such a policy can endure.

Recent developments in literature, expecially those of Dornbusch and Frenkel[1] adopting a mix between monetary approaches and international finance theory, suggest the futility of monetary autonomy for the national state, even under flexible rates. Dornbusch[2] finds, among other things, that independent monetary policies affect only nominal variables, thus simply postponing or slightly altering inflation and exchange rate paths.

Frenkel[3], from a "money-expectations exchange-rate linkage-point of view", suggests that monetary independence, even in the short run is largely illusionary, and states the basic assumption:

"Being a relative price of two assets (moneys) the equilibrium exchange rate is attained when the existing stocks of the two moneys are willingly held.

It is reasonable, therefore, that a theory of the determination of the relative price of two moneys could be stated conveneiently in terms of the supply of and demand for these moneys."

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1) Rudiger Dornbusch, "Expectations and Exchange rate Dynamics", Journal of Political Economy, Dec.1976, 1161-76.
J.Frenkel, "A Monetary approach to the exchange rate". Scandinavian Journal of Economics. May 1976, 200-61.

2) Dornbusch op.cit.

3) Frenkel; op;cit.

In the following we shall elaborate on these points, and in addition to the point that policy independence under flexible exchange rates seems to be futile, it is also shown that the certainty of fixed exchange rates is questionable; seen from the experiences of the last decade. So the distinction between the two exchange-rate regimes in a world with high inflation rate differentials seem to be loosing its value.

5.2.

Fixed and floating exchange rate systems. A new interpretation.

Assume a group of countries forming a currency area. To maintain par values each country is assumed to intervene in the exchange markets.

Starting from an initial condition of external disequilibrium, a country with a balance of payments deficit must be provided with captial imports, (which for imports of private capital would make a high internal interest rate necessary to induce private importers to take foreign credits), in order to maintain its central rate by intervention in its own market.

Agents in the markets can now start guessing about the degree of confidence in the arrangement. When is the imbalance deemed excessive from the point of either the deficit country or the surplus country? The country in surplus is buying foreign exchange, which in turn will increase the domestic money supply as we assume that sterilization policies from the central bank does not take place, or is only effective in the short run.

The surplus country has a higher degree of freedom for action, so if it chooses to follow a policy which tries

to avoid a realignment, such a venture can probably succeed in the short run, but it will increase the certainty that the deficit country must devalue. The time before an adjustment will become necessary depends upon the confidence in the exchange rate arrangement, and the liquidity of the financial markets.

So the cost of having a fixed exchange rate which is not really fixed is the cost of financing capital imports, the adjustment of the relative quantities of money and the domestic disturbances stemming from the higher price level following a devaluation. The impact is a function of the openness of the economy and the nature of money illusion.

Under flexible exchange rates, daily oscilliation in the exchange rate towards a converging equilibrium position will probably not have a very different effect on the exchange markets than the fixed rate, which initially did not change, but quickly came to be seen as needing some change.

Due to a depreciating currency the deficit country, which saw a decline in its real money stock under fixed rates now sees the same contractionary effects under flexible rates due to a higher price level.

In the surplus country the real money stock is increased by an appreciating currency, rather than the rise in the nominal quantity of money in the fixed rate system.

Assuming that there is a higher degree of downward wage rigidity in a surplus country[1)], the deficit country is again carrying most of the adjustment cost, as large price increases will decrease the real quantity of money in

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1) Assuming that wage claims are moderated in a devaluing country because jobs are threatened, cf Arne J. Isachsen, Norwegian economic policies in the last decade." in Marcello DeCecco (ed) 1983.op;cit.

order to reduce aggregate demand. How much aggregate demand is reduced depends on the inital deficit. According to Cooper[1], and before him; Hirschman[2], devaluation from a starting point of deficit does more than switching demandfrom import substitution goods, it also reduces real national income and may lead to a fall in aggregate demand.

Devaluation gives with one hand by raising export prices, and takes with the other by raising import prices. So if imports exceed exports the net result, ceteris paribus, is a net reduction in real income, which must be proportional to the ratio of the initial trade deficit to domestic production.

We can conclude that there is, at least in the longer run, an unavoidable trade off in situations of disequilibrium, between[3]:

a) A depreciation which reduces the real money supply by increasing prices, and ..

b) Allowing a decrease in the real money stock, by cutting nominal money supply.

"The only relief in such a situation, according to Makin[4], comes if a country can avoid both, which can happen for surplus countries able to find deficit countries foolish enough to attach national prestige to the relative price of their money."

1+2) R.N.Cooper, Devaluation and aggregate demand in aid-receiving countries, in J.D.Bhagwati et al, Trade, balance of payments and growth. Amsterdam 71, and A.O.Hirschman, Devaluation and the trade balance: A Note, Review of Economics and Statistice, No 31; 1949,pp 50-53.

3) This on a strict theoretical level, as is shown in the end of this chapter, continuing finance and political pressure to make the surplus country reflate are also realistic options.

4) J.H.Makin, Fixed vs Floating. Columbia Journal of W.B. vol XlV, no 4,79.

The question about the distribution of the adjustment burden is discussed further in the next chapter on co-ordination of monetary and fiscal policies in a currency area, but here it should be noted that protectionist measures[1] is the possible political alternative, as surplus countries can acquire reserves for a long time without being under the same adjustment pressure as a deficit country usually is under[2], thus avoiding adjustment.

The main reason for the above argument that fixed rates and floating rates in reality amounts to the same thing, by leaving most of the adjustment burden on the deficit country, is that many writers do not seem careful to distinguish between what we can call credibly fixed, and stable, but adjustable exchange rates. To find the border-line between the two terms is impossible, and makes the operational value of the distinction subject to some doubt.

The roots of the matter is the confidence aspect, and brings us to the degree of political unity which is an essential precondition for the working of a stable exchange rate system.[3]

Because it is the degree of political will, which in turn determines[4] how well national economic policies are coordinated, because the consistency between national economic policies determines how "fixed" internal excange-rates are inside a currency area.

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1) see e.g. C.F.Bergsten, Reforming the Gatt, the use of trade measures for balance of payments purposes. Journal of International Economics vol 7, No.1.

2) For an interesting elaboration on this point see L.Girton & D.roper, The evolution of Exchange rate policy, in Putnam & Sykes (eds) The Monetary Approach to International Adjustment. The authors state that central banks act as if the gold standard still existed, in order to maintain faith in their monies.

3) cf Walther Hallstein: "Die wahrungssystem ist der Prufstein der Gemeinshaft"

As we until now mainly have discussed the adjustment aspect in terms of the well tried context of fixed versus floating rates, we now briefly turn to the question of derived effects of devaluation[1]. The prevailing view on devaluation is summed up by Johnson[2], saying that devaluation can be expected to raise output if there are unemployed resources in the economy, and will raise prices domestically if there are no unemployed resources. The main effect is expenditure switching, a potential overheating of the economy can be contained by expenditure reducing policies.

The underlying assumption for the argument is a flexible labour market which in the short term seems to be very unlikely, judged from recent experiences.

A newer, and perhaps more realistic view on devaluation, which also fits better with the vicious circles hypotheses, is the view presented by Krugman and Taylor[3], who dissent from the view presented above.

Instead of merely switching demand from imports to import substitution and lowering export prices, provided that the law of one price is not effective, devaluation also have a strong contractionary effect.

The reason is the following:[4]

i) In the short run balance of payments deficit is structural, that is, both imports and exports are not very sensitive to price changes for a given level of domestic output.

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1) cf the following arguments about vicious circles.

2) Johnson Harry G, Elasticity, absorption, Keynesian Multiplier, Keynesian policy and Monetary approaches to devaluation theory, A simple Geometric exposition. American Ec.Rev.vol 66 (1976) p 448

Footnotes cont.

ii) As a consequence, any favourable short run effects of devaluation on the trade balance come primarily through economic contraction rather than substitution.
iii) Devaluation not only reduces output and emplyment, but redistributes income from labour to capital as well.
iv) Thus devaluation is a costly cure, and a devaluation big enough to reduce the balance of payments substantially in the short run may be unacceptable. In such a case the government should beg or borrow to meet the short term deficit and work towards eliminating its structural difficulties by expansion of traded goods production in the medium run.

Krugman & Taylors approach[5] is purely Keynesian, but the results are very similar to the results of the previous discussion about a working distinction between floating and fixed exchange rates. Here we concluded that the main effect of devaluation was that, by raising prices, it would diminish the real money stock, which in turn would increase the demand for nominal money at any level of output. The main effect is therefore contractionary.

The policy recommendation from Krugman & Taylor[6] is the opposite of the traditional, as devaluation in their framework should be accompanied, in many cases, by measures to increase demand.

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3) P:Krugman & L.Taylor, Contractionary effects of devaluation. Journal of International Economics 8' (1978) 445-456.

4) K & T , op cit

5) do. op cit.

67 do. op.cit.

However such an experiment of expansive policies on behalf of the government are most unlikely to be implemented in the first stage of a monetary unification process, where price stability and not output stability is the higher goal; in order to have national inflation rates converge.

5.3.

Vicious circles.

Next item is the question of vicious circles in the adjustment process. Are small open economies more prone to enter a series of vicious circles?

Although the idea of vicious circles is not a new one. Haberler[1] described the inflation-exchange-rate spiral in 1937, it is first in the last decade that many industrial countries have experience periods of accelerating price-inflation, unemployment and a depreciating nominal exchange-rate.

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1) G;Haberler, Theories of international trade with its application to commercial policy. N.Y. 1937.

The mechanics of a vicious circle is quite simple. The effect of a devaluation is rapidly passed through to domestic prices, with classical money illusion playing a central role, and back again to the exchange rate.

This succession of events is part of the adjustment process and the crucial thing is, whether this is followed up by accommodating policies, to soften the contraction of the economy.

From an analysis of what constitutes the vicious circle theory, we shall below try to determine whether small open economies are more exposed to and more vulnerable to vicious circles than larger more closed economies. This in turn will tell us something about differencies in adjustment costs between large and small/open and closed economies. We divide the vicious circle argument in the phases. 1)
A once and for all increase in the money stock will be assumed. No further monetary growth to accomodate the shock. The process of adjusting the economy to such a shock is divided into three phases.

Phase 1 contains the initial shock with its derived effects. In Phase II wages and prices are adjusting, and in Phase III, the economy is moving back towards a new steady state.

Phase I

The Domestic monetary expansion reduces the domestic interest rate in order to clear the money market. The

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1) cf. M.E.Bond, Exchange rages, Inflation and vicious circles. IMF, Staff papers, vol. 27, No 4, 1980.

interest rate will decline and this will narrow the interest rate differential, and cause outflows of capital, which in turn will induce a devaluation of the domestic currency.

The following expenditure switch from import to import substitution goods and a higher foreign demand for domestically produced goods will, according to Cooper & Hirschman[1], also have an expenditure reducing role. The relative size of the traded-goods sector and the size of the initial deficit will determine the needed fall in real balances in order to clear the money market. As most small economies also have a high degree of openness, the deflationary effect must be greater for a small country. The degree of diversification,cf. Kenen chapter 4, is essential too, as a short run equilibrium in the commodity market, induced by the switch effect of the exchange rate can be obtained more easily if there is a high degree of import substitution. However, high degree of import substitution is a large country assumption.

Furthermore, because of the openess of a small country J-curves are more likely to emerge, as the change in the exchange rate passes through the economy much faster than it would do in a large economy with a small foreign sector.

A rather isolated factor which must be included is the question of the size of the initial devaluation. A seemingly too high devaluation could induce capital inflows to finance the deterioration of the current account because of speculations about a later appreciation.

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1) Cooper & Hirschman, op;cit.

Phase II

This phase is the critical in the process. Assuming classical money illusion, the lowering of real wages is not felt immediately. This causes excessive demand for domestic goods and services. On the supply-side the costs of imported inputs are rising, and together with nominal wage increase, they are passed on into prices.

The resulting increase in the price level, which is assumed to take place more rapidly than prices abroad, "re-switches" demand from domestically produced goods to foreign goods. The result is a deterioration of the trade account, which in turn leads to another devaluation.

Phase III

The fall in income and employment will lead the economy to a new steady state, but only if there is real wage flexibility, downwards. If not, the economy will find itself in a new state with higher unemployment than before.

Such a state is clearly unsatisfactory and raises the question of monetary accomodation, made necessary as a result of political pressure.

An accomodating policy may work in the short run at least, but the most possible outcome is another phase of stagflation, like the one described in phase II.

According to Bond[1]:

"The new steady state is achieved when the adjustment process restores the economy to its initial real equilibrium, with all price increases in terms of domestic currency, domestic inflationary expectiations, and exchange rate depreciation occurring at the same rate, the expected

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1) Bond.op.cit.

future value of the exchange rate equal to the long run equilibrium value of the actual exchange rate, and the current account in balance."

These are pretty tough conditions.

Looking at empircal results to see whether small open economies are more prone to vicious circles, there are many indications to support such a view.

Results from Kreinin[1] on the pass-through effect from exchange rate changes to import prices, and Robinsons[2] results for the effects on the export side do show that small countries are more likely to experience heavy repercussions in terms of price effects of an exchange-rate change.

Price elasticities of demand for exports and imports are calculated by Stern[3] for total elasticities and by Deppler and Ripley[4] for manufactures.

The evidence from these sources again supports the hypothesis that small countries have lower long run elasticities (and possible much lower short run elasticities) than larger countries. This implies that small countries are more vulnerable to J-curves than large countries, and hence vicious circles will have a more profound effect the smaller and open the economy is. The costs in terms of unemployment must therefore be higher for small countries than for large countries.

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1) M.E.Kreinin, The Effect of exchange rate changes on the prices and volume of foreign trade. Staff Papers vol 24,1977 pp297-325

2) P.W.Robinson et al., The influence of exchange rate changes on prices A study of 18 industrial countries. Economica,vol 46(1979) pp 27-50.

3) R.M.Stern et al. Price Elasticities in International Trade London 76

4) M.C.Deppler & D.M.Ripley, The World Trade Model, Merchandise Trade. Staff Papers, vol 25, (1978).

5.4

Financing Deficits

The above discussed options for adjustment either via the exchange rate or by monetary contraction are based on the belief that distrubances must be accomodated in current real domestic absorption.

Another way of adjusting is by using the time dimension. A country can pay for more expensive imports by selling assets abroad or by foreign borrowing, in short, by importing capital.

In such a case the distrubances are accomodated through a reduction of future domestic absorption.

In the last decade most european nations have relied on the option of accomodating disturbances in the current real domestic absorption.

To match balance of payments surplusses, corresponding deficits must be found somewhere else in the system .

The distribution of these deficits can take two extreme forms, with many hybrid forms in between:[1)]

1) Every country would incur a deficit on the current account based on the balance some base year. Under such a system each country would increase its borrowing in the international financial markets by the amount of its "fair" share of total deficit vis a vis the surplus countries.

2) The other extreme is the N'th currency distribution: All countries, except one, the N'th country would retain their original current account balances while the N'th country would absorb the deficit.

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1) See R.Z.Aliber, Policies toward the Opec oil and wealth, Kiel 78.

If there is a general consensus that an overall external deficit on the aggregated balances of payments of a currency area is justifiable, then discussion about a necessary distribution of this deficit is consistent. The danger is that countries individually may try to improve their position.

The way of doing this, c.f. the foregoing section, would be by changing the exchange rate or competetive deflations, or a mixture of both.

Such policies would never improve the overall balance of payments position for the currency area taken as a whole, in the short run at least, but would only affect the internal distribution of deficits.

In an ideal world the first form of deficit distribution would be chosen, but in reality a distribution close to the N'th country variant seems to be the rule.

In aggregate the problem of financing deficits does not pose any conceptual difficulties. The surplus countries must accumulate assets on deficit countries, as they cannot consume their receipts. On the individual country level the financing of deficits poses problems by way of matching the supply of credits to the damand for credits.

First the supply of credits: It cannot be taken for granted that the suppliers of funds, say the Saudis, are burning to get assets denominated in Dkr. So there is a problem between the proportion of the actual deficits and the desired composition of portefolios in surplus countries. This brings in the intermediaries. As the balance of payments per definition always balance ex post, the important thing is the conditions by which balance is

achieved.

If balance is achieved by finance on reasonable terms accompanied by an acceptable stability of the exchange rate, in order not to encounter the derived unweldome effects described previously, then such a policy would be close to our definition of optimum adjustment of deficits.

In the example we shall assume that all receipts in the surplus countries are saved, so that increase in receipts does not give rise to increased imports. Furthermore we shall assume that "preservation-of-scarce-resources" policies are neglected. This could be justified by saying that the following example is for the short to medium run, and energy preservation is a long-term issue.

In the example we implicitly assume that the oil payments are the esbject, but other transfers for "rent" could also be assumed.

We start with the impact on the public sector, thereafter the effects on the households and the firms are examined. The subject for our interest is the "willingness" to hold debt.

The inflationary and/or deflationary impact created by the transfer of real income could be offset elsewhere in the public sector. Lowering of indirect taxes would be a possibility.

Assuming public expenditure is maintained, a budget deficit would arise. The size of the deficit would per definition equal the deficit on the current account, as we assumed that only the public sector was "willing" to accept the deficit.

Either by an expansion of the money or by bond issue or a mixture of both could this deficit be financed, provided that surplus countries would hold a combination of money and government bonds, at the going exchange rate and/or interest rate.

On the demand side the question is whether such an accomodating policy is appropriate for a small open economy.

Because if some countries in a (semi) fixed exchange rate area are deflating, and some are not, the burden of adjustment will fall on the countries not deflating, or only deflating moderately.

When the first oil shock came, the direct effect of the price increase was probably less serious than the indirect effects owing to different monetary responses from national governments.

When restrictive policies were adopted by some countries as responses to potential high inflation rates other countries did not reflate quickly enough. This meant that the initial shock had a double impact.

Exports from "slow deflators" were reduced because of ression abroad. Imports increased because of accommodating policies, so the trade gap worsened even more.

To return to the problem of "willingness" to accept a deterioration in the financial position by running a balance of payments deficit, we shall examine how an external deficit affects different sectors in the national economy. How can such a deficit be distributed, and how can the results be interpreted for international distribution.

If the households take the debt position, the deficit on the current account will be matched by a deterioration of financial positions of the households. The response of the households will depend on the nature of money illusion. The most likely outcome is a reduction of real expenditure in order to restore desired cash-balances. On the aggregate level reduced expenditure will lead to lower real income.

Equilibrium is first restored when savings have been reduced which probably first will happen at a lower level of demand and out-put,cf the normal Keynesian multiplier effect.[1)]

Finally we discuss the case where firms take on the deficit. This deficit either decreases profits and/or increases the overall indebtedness of the sector.

To accommodate this, firms may act like individuals by reducing expenditure in order to hold their cash balances at desired levels. This leads to lay-offs and a decline in the investment rate.

Another option is to raise prices. If the firm is in a sheltered sector this can have inflationary effects for the exposed sector,c.f. the Scandinavian model, and may drive firms out of the market. Consider now the effects for the public sector, the households and for the firms in a dynamic interrelationship.

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1) Normal stabilizers such as unemployment benefits and tax cuts nor included in this discussion.

If the initial shock hit the households first, the shock can be transferred over to the firms by successful wage claims. The firms would then react by reducing their expenditure, hereby creating unemployment, or could pass over the impact to the households and the public sector by price rises. This leads us to vicious circles, and could go on until the deficit is "willingly" accepted by one or more sectors. Domestically as well as internationally the problem is the distribution of the deficit and the acceptance of a deterioration in the financial positions.

On the domestic level, however, the problem will surely land in the public sector sometime because of automatic transfers.

The increase in unemployment benefits and the decrease in tax revenues due to deflation will invariably lead to an increase in the mublic deficit.

Internationally, that is in an exchange rate area with no formalized financial institutions, there is nobody willing to accept the deficit, which can lead to competitive deflations if coordination of policies do not take place, or if political support for the system is on a low level.

Alternatively the deficit will have to be carried by the members the currency area which have the lowest capability of controlling domestic inflationary pressure.

Chapter 6

The coordination of national economic policies inside a currency area.

A small open economy participating in a larger currency area is by definition a policy taker instead of a policy maker. This in contrast to the traditional theory of economic policy, which is a policy of choice.

The extent to which policy makers can influence economic parameters is discussed in the present chapter on the basis of the "policy neutrality or worse" propositions of the new classical economists. We conclude that policies do have a structural as well as a distributionary impact, and with this point in mind the dilemmas of policy coordination are analyzed in the context of the traditional Meades model.

Policy conflicts between countries arising from income targets incompatible with balance of payments equilibrium are shown to be a result of an inconsistency between policy targets and policy instruments.

A more balanced policy mix for the coordination of fiscal and monetary policies in the medium run is then introduced.

By relying on common budgetary and monetary rules it should be possible for a group of countries to coordinate national medium-term policy objectives, in order to avoid badly timed and badly managed exchange rate realignments inside a currency area.

6.1. The issue.

> "We note how, as order declines, the calls for coordination become more strident and desperate."[1]

The coordination of national economic policies inside a currency area is, as underlined in the former chapters, of vital importance. However in order to discuss the issue of coordination it seems to be necessary to specify explicitly what is meant by economic policies, their effects and the differences in impact, according to country specific parameters, before turning to the main questions of organizing principles for coordination of economic policies.

The structural implications of fiscal policies aimed to stabilize cyclical swings in the economy are not the focus of this chapter, but will be dealt with in extenso in chapter 7.

Various constraints, of external as well as of internal nature, are assumed throughout the analysis.

The well-known constraint of a small open economy in initial disequilibrium, the implications of increasing political hardship of raising additional taxes as results of recession and changing political consensus, and the, in the present context, obvious constraint of belonging to a currency area, which, as Meade pointed out initially, em-

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1) Jan Tumlir, "International Economic Order, Rules, Cooperation and Sovereignty", pp. 1-2, in P. Oppenheimer (ed.), Issues in International Economics, Oriel Press 1980.

phasizes demand management/financial policies, as the option of exchange rate adjustments, is severely restricted.

Under the Bretton Woods fixed exchange rate system the dollar was the n-th currency, and the rest of the participants of that system had either to bring their monetary expansion in line with that of the dollar or to use fiscal measures to check demand. Such a behaviour could, with some amount of good will, be called a coordination policy. However a more accurate term would be that of U.S. stabilization leadership and pure adaptive stabilization policies elsewhere. In the following we shall argue that the demand for more international coordination of stabilization policies, which has been voiced as essential by economists[1] from all camps, and whose cry, according to Vaubel,[2] "was magnified by the international organisations (OECD, IMF, BIS, EC)

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1) Examples are: McCracken & al., op. cit., C.P. Kindleberger, "Dominance and Leadership in the International Economy: Exploitation, Public Goods and Free Rides", in Hommage à F. Perroux, Grenoble 1978, W.M. Corden, "The Coordination of Stabilization Policies", in A. Ando, R. Herring & R. Marston, International Aspects of Stabilization Policies, Boston 1977.

2) R. Vaubel, International Coordination or Competition of National Stabilization Policies, mimeo, Florence 1979.

which saw a chance of increasing demand for their product", has a somewhat different meaning for the small open economy, constrained by the earlier mentioned variables, and accordingly, this will influence the perceived distribution of costs and benefits of belonging to a currency area for such a country. Another paradox of the coordination of national economic policies on an international level is the belief that policies can be agreed on internationally, which could not find support in national parliaments. The idea that a supranational body, or supranational decision-making, should be able to implement policies, where national bodies have given up, that is policy-making without politics, is commented on by Tumlir[1] in the following way: (from the belief that progress of mankind is directly correlated by the number of mistakes it can make) "with one . . . sovereignty we would be limited to only one big mistake at a time".

Another intangible problem of international coordination of economic policies or the centralization of decision-making, which it in fact amounts to, is the changing conceptions of national interest.

The differences in time horizons, i.e. elections[2] do

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1) Jan Tumlir, op. cit.

2) Although the existence of electoral cycles is hotly debated, empirical studies tend to support their existence, cf. E.R. Tufte, Political Control of the Economy, Princeton 1978, and M. Paldam, "Is There an Electoral Cycle? A Comparative Study of National Accounts", The Scandinavian Journal of Economics, vol. 81, no. 2, pp. 323-342.

have repercussions on the international level, where economic constraints agreed on in order to increase the viability of a monetary arrangement, could have consequences for the amount of support voters give a political leadership. Compare the following statement: "While some politicians believe that their constituency is more extensive than their country, some even have a global following, ultimately the national constituency decides whether the politician will retain power."[1]

On the international level it must be kept in mind that the participating national states do not have identical preferences,[2] nor do they all start from a position of equilibrium in basic parameters; i.e. price stability, full employment, external balance, etc., and neither does it include the basic fact that the process of economic cooperation involves nation states which have different historic traditions, and in turn are competing for power, leadership roles and influence, in order to promote and/or defend their perceived interests.

On this background it is not surprising that the small open economy entering a currency area will be a policy taker and not a policy maker, both in the formula-

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1) R.Z. Aliber, "Monetary Rules and Monetary Reform", in his The Political Economy of Monetary Reform, Chicago 1977.

2) Or identical Phillips curve trade-offs, for believers of the Phillips curve.

tion of national economic priorities and in the implementation of successful stabilization measures.

This, as will be discussed later, is in contrast to the traditional theory of Economic Policy, which is a theory of choice. So the coordination aspect tends more to be that of successful adaption of the policies of the dominant partner in the currency area, than that of choice.

The room for manoeuvre is thus limited: A high real interest rate is assigned to secure the financing of the external deficits and to protect the international reserves.

The effects of having a fixed exchange rate link to another currency with a higher degree of price stability will be felt with varying intensity throughout the economy, and deflationary impulses will be checked by a more expansive fiscal policy. However as fiscal incentives never were meant to operate for too long, a long adjustment process with reliance on tight monetary policies, will eventually diminish fiscal effectiveness, when long-run inflationary expectations are fuelled by ever increasing budget deficits.

The main question is then to ask whether monetary targets and/or exchange rate targets should be set in competition with fiscal policies or be coordinated with a declared fiscal stance.

An over-reliance on the Mundell-Fleming policy mix often results in a policy conflict. How to overcome this conflict is the aim of the present chapter. However, be-

fore proceeding so far, it is the intention to analyze the role and usefulness of stabilization policies in the light of the propositions of the "new macroeconomics".

6.2. The role of economic policy and the coordination without clearly stated goals.

On the background of the stagflation which has been experienced by most Western economies, serious doubt has been expressed in the ability of government to select optimal combinations of instruments in order to secure the familiar medium-term goals of economic policy: output stability, price stability and external balance through fine-tuning of fiscal, financial and monetary policies; the use of the exchange rate in the present context is ruled out.

The turn from what has been coined neo-Keynesian policy-optimism to the term of policy neutrality is the outcome of such lost faith in government's ability to affect real variables through policy action. Indeed interference can even make matters worse, as policy actions, according to one school of thought, often seem to have an adverse effect, or none at all. This "policy neutrality or worse" proposition, as advanced by the protagonists of the "new classical macroeconomics",[1] can be summed up in the fol-

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1) See Milton Friedman, "The Role of Monetary Policy", American Economic Review, vol. 58, March 1968, pp. 1-17. Robert E. Lucas, "Expectations and the Neutrality of Money", Journal of Economic Theory, vol. 4, April 1972, pp. 103-24. E.S. Phelps and J.B. Taylor, "Stabilizing Powers of Monetary Policy under Rational Expectations", Journal of Political Economy, vol. 85, February 1977, pp. 163-190. B.T. McCallum, "Price Level Stickiness and the Feasibility of Monetary Stabilization Policy with Rational Expectations", Journal of Political Economy, vol. 85, June 1977, pp. 627-634, and "Price Level Adjustments and the Rational Expectations Approach to Macroeconomic Stabilization Policies", Journal of Money, Credit and Banking, vol. 10, November, pp. 418-436.

lowing statements:

1. Uncertainty of the effects of policy due to incalculable time lags, makes it questionable to use stabilization policies except for certain simple rules.
2. The rational expectation hypothesis sterilizes effects of policy, as economic agents can take evasive action.
3. So only totally unanticipated policies will have a real and lasting effect. This is the surprise supply function[1] and
4. Debt neutrality, which states that the financing mode of stabilization policies is of no consequence. So it does not matter whether public spending is financed by taxes, borrowing or money creation.

The first three of these propositions will be discussed in the present chapter.

However in order to avoid total semantic confusion a working definition of stabilization policies is offered. Following Buiter[2] the traditional distinction between stabilization policies and structural policies should be abandoned. Stabilization policies are policies that in-

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1) As phrased by W.H. Buiter in "The Macroeconomics of Dr. Pangloss", The Economic Journal, vol. 90, March 1980, pp. 34-50, and more elaborately in "The Role of Economic Policy After the New Classical Macroeconomics", in Macroeconomic Analysis, by D. Currie & D. Pell (eds.), London 1981, pp. 233-278.

2) W.H. Buiter, "The Role of Economic Policy After the New Classical Macroeconomics", in Currie & Pell, op. cit.

fluence and hopefully minimize deviation of output and employment from their full employment levels, and structural policies alter the level and composition of full employment output--and employment. Policies which alter the relative size of public and private sectors or change a nation's investment/consumption mix are thus structural policies. However it is increasingly difficult to separate the effects of the two types of policy.

In the real world every policy action will have both stabilization as well as structural consequences, providing that the statements of policy neutrality are refuted.

> "This is of course, quite consistent with ill-informed policy-makers considering only either the stabilization, or the structural consequences of their actions, and ignoring half the implications of their policies. Some of the most serious dilemmas in economic policy-making occur when a policy that is desirable for its short-run stabilization effects has undesirable long-run structural implications, or vice-versa."[1]

Until now we have treated stabilization policies as one instrument.

Tinbergen's[2] solubility requirement states that several policy goals require an identical number of policy instruments.

Mundell's[3] original contribution was then, that stabi-

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1) Buiter, ibid.

2) J. Tinbergen, On the Theory of Economic Policy, Amsterdam 1952.

3) R.A. Mundell, "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Balance", IMF Staff Papers, vol. 9, pp. 70-77.

lization policies could be dichotomized into the two independent instruments: monetary and fiscal policy, as these instruments were supposed to have differential impacts, but would affect the two targets simultaneously. This again gave rise to the assignment problem. Which instrument should be used for which target? According to the principle of "effective market classification" the instrument should be allocated to the target where it exerts the greatest relative impact.

So we can identify two independent forms of stabilization policies:

a. Monetary policy, which is the control of high-powered money, and
b. Fiscal policy, which here is narrowly defined as deficit financing.

Although McCallum[1] states that the theorem of policy neutrality holds for all aspects of stabilization policies, we shall here primarily discuss the impacts of monetary policies, as deficit financing is treated elsewhere, and as the mainstream of analysis has been centered on monetary policy.

So let us turn to the first of the four statements about policy neutrality made by the "New Classical Macroeconomics". The first statement was:

1. The uncertainty of policy-outcome and the preference for certain simple rules.

This proposition does not explicitly state policy neutrality, the main concern is that the effects of policy

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1) McCallum, op. cit.

action are more or less unpredictable due to time lags and variability in expected outcome. The argument is briefly stated as follows; which in turn is admittedly inconsistent with the theorem of rational expectations, that as real world governments do not have perfect foresight about future events and as the world cannot be assumed to be a stationary system, then government should refrain from further increasing uncertainty by seeking to implement policies, when the nature of their outcome is doubtful. It is therefore more prudent to have simple, and hence easier to predict, rules to rely on.

This proposition is the one originally advanced by Friedman.[1] His constant growth rate of the money supply is the archetype of such a fixed simple rule.

However real world events seem to have caught up with the predictability aspect of this particular rule, if it is assumed that a fixed growth rate of the money supply is having a direct influence on the exchange rate.

The dollar/sterling exchange rate in the turbulent days of the Carter administration is an example of the unpredictability of the money supply as indicator for the exchange rate, and has been commented on by Forsyth & Edwards:[2] ". . . the relationship between domestic monetary policy and the exchange rate has proved to be much

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1) M. Friedman, op. cit.

2) I. Forsyth & F. Edwards, A Policy for Sterling, Chatham House 1979, p. 8.

more complex than the monetarists had predicted. In particular there have been divergences from the normal relationship which though they might have been temporary, were of a scale that had serious domestic consequences. Over the three years to 1979, UK monetary growth averaged not much more than 10% per annum with little variation between the years. However over that same period sterling fell from $2.02 to $1.56 and then rose to $2.32. These fluctuations in the sterling exchange rate in recent years cannot simply be explained in terms of the pace of monetary growth."

Of course it can be argued that Forsyth & Edwards do not take the potential fluctuations of the growth rate of the dollar supply into consideration, but the main point remains, that in a multiple currency world, a steady rate in domestic money growth does not guarantee a stable exchange rate, and furthermore, as argued earlier, the exchange rate is not necessarily determined in and by the money market.

2. The rational expectations argument, which was first introduced by Muth[1] for the theory of the firm, and applied to macroeconomics by mainly Lucas and Sargent & Wallace.[2]

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1) Muth, J.F., "Rational Expectations and the Theory of Price Movements", Econometrica, vol. 29, July 1961, pp. 315-39.

2) R.E. Lucas, "Expectations and the Neutrality of Money", Journal of Economic Theory, vol. 4, April 1972, pp. 103-24, and T. Sargent & N. Wallace, "Rational Expectations and the Theory of Economic Policy", Journal of Monetary Economics, vol. 4, April 1976, pp. 1-44.

In Muth's original paper from 1961, it was stated that the average expectation of firms concerning, say, the future price of a commodity would be a function of the expectations of all relevant economic agents. These expectations were in turn based on a correct, universally agreed economic theory. The actual future price would then become a sort of self-fulfilling prophecy. The most radical interpretation of this is the one of Shiller:[1] "Future variations anticipated at time t are true mathematical expectations of the future variables conditional on all variables in the model which are known to the public at time t."

The bearing of this on macroeconomic policy is that the private sector is able to respond to current and anticipated future policy actions. In order to promote policies which should affect real variables private economic behaviour must be anticipated by the government in order to implement effective policies towards private economic agents who in turn would take (evasive) action based on rational expectations, etc.

The promising aspect of the rational expectations model is that it offers an operational concept of the interaction between private sector behaviour and government behaviour, and their mutual expectations to each other.

However two main points of critique can be raised

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1) R.J. Shiller, "Rational Expectations and the Dynamic Structure of Macroeconomic Models", Journal of Monetary Economics, January 1978.

against the proposition of policy neutrality based on the rational expectations theorem.

Firstly, how do private agents acquire knowledge about the true or correct structure of the economy, or alternatively, how do private economic agents acquire identical, not necessarily correct, knowledge about the state of the economy? These questions are not answered by the extensive literature on the subject.

Secondly, if rational expectations in a somewhat primitive setting is assumed, then the resulting forecast will in principle be like a least square linear extrapolation to some point in the future. Such a result rests on the assumption that all private agents have identical perceptions about the desirability of the action of the government.

Now, in any distributive policy undertaken by the government some will see the state as the traditional benevolent despot while others may see it as an all consuming Leviathan.[1] In such a situation with perceptions of government action ranging from one extreme to another in a "good-bad continuum", the resulting least square extrapolation would have no meaning.

The third statement of the New Classical Macroeconomics is the following:

3. Only the surprise supply function matters.

This proposition is the logical extension of the former statement of rational expectations. The implication

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1) To use Buchanan's term used in G. Brennan & J.M. Buchanan, The Power to Tax, Cambridge 1981.

for the government of rational expectation behaviour by private economic agents is then that government should act irrationally by way of shocks and surprise.

The proposition that "only shocks work" has been suggested both for deficit spending as well as for the control of the nominal money supply. We shall concentrate here on the latter. We shall argue that even anticipated money is bound to have the intended effects at least in the following two ways:

a) Through wage contracts. If the labour market is organized in a system with negotiated multi-period wage contracts without full compensation for alternations in the real wage rate then an even anticipated increase in the nominal money supply will have real effects. This provided that the labour market sticks to such an agreement. This point has been proved by, amongst others, Fischer[1] and in a slightly different connection by Grossman,[2] who finds that ". . . although both parties can improve their expected outcomes by making the arrangement, one of the parties usually will find his actual outcome would be better if he was not bound by the arrangement".

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1) Fischer, S., "Long Term Contracts, Rational Expectations and the Optimal Money Supply Rule", Journal of Political Economy, Feb. 1979, pp. 191, 205.

2) H. Grossman, "Risk Shifting, Layoffs and Seniority", Journal of Monetary Economics, vol. 4, Nov. 1978, pp. 661-86.

b) A second channel through which an anticipated increase in the money supply will affect real variables is via the inflation tax. Any portfolio holder tries to maximize the return of his portfolio. Assets which are bad hedges against inflation will be substituted for more inflation-proof assets. This is the so-called Tobin effect, which we in Buiter's interpretation[1] shall contrast with the views of Afxentiou[2] whose main concern is the altered income distribution stemming from an increase in the money supply.

First Buiter:

"Anticipated future money growth, to the extent that it is associated with anticipated future inflation, will move desired portfolio composition away from assets that are poor hedges against inflation. E.g. in many money and growth models money and capital are the only two stores of value. With no market determined interest rate attached to outside money balances, an increase in the anticipated rate of inflation will reduce the demand for money, stimulate capital formation and thus over time boost productive capacity and actual output. Whenever output is a function of some anticipated real rate of return variable, either in the short run (via the supply of labour) or in the long run (via the capital stock), anticipated future money will have real effects."

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1) W. Buiter, "The Role of Economic Policy", in Currie & Pell (eds.), op. cit.

2) P.C. Afxentiou, Anti-Government Sentiments and Their Policy Implications, note missing.

Then Afxentiou:

> "In countries with high unemployment rates, a contraction of government spending together with a move towards a balanced budget must be accompanied by increases in the supply of money in order to prevent unemployment from rising. And provided the objective is to lower unemployment the money supply must be increased further. The required increases in money supply are made possible by the purchase of government bonds by the central bank at prices that are high enough to prompt people to substitute cash for bonds in their portfolios. Since bondholders as wealthmaximizers are always prepared to exchange their bonds for cash provided the price of bonds is raised, such transactions represent a direct and unilateral transfer of monetary wealth from the central bank to them. Bonds are known to be held mostly by banks or by near banks, and to the extent that they are privately held they are held mainly by the rich. Thus the initial impact of increases in the supply of money amounts to a transfer of wealth either to the rich, or to institutions which are largely owned and controlled by the rich."

The two examples of anticipated stabilization policies were shown to have direct effects on the real economy, as well as having structural effects. A formal presentation of this is presented in the next chapter.

What conclusions are then likely to be drawn from the above discussion of the proposition of policy neutrality as made by the new macroeconomists?

As mentioned in the beginning of this section, real world events had given rise to doubt about governments' ability to steer the economy on an acceptable course, but this policy pessimism does not necessarily imply policy neutrality or worse propositions.

A conclusion to share is the one voiced by Buiter,[1] which says:

> "After all policy neutrality would be most welcome when the conduct of policy is erratic, confusing or incompetent. No such easy escape is available to the policymaker. Policy can stabilize and it can destabilize, it can promote growth and prosperity or destroy it."

So assuming that policies do matter, we can proceed to the next link of the chain, that is the coordination aspect.

6.3. Which goals for coordination?

In the "Snake" and in the EMS the institutional coordination of policy has been, and is still, the weak point. Because there is no formal decision about which specific goals the exchange-rate area is set up to pursue.

If there is no clearly defined goal for coordination, centralized decision-making seems superfluous, as the important thing is to decide realistically what one wants to achieve, and then how to achieve it.

The only vague formulation of responsibilities for policy coordination between the participating member-states is found in §3.6 of the Brussels Communiqué which briefly states:

> "When a currency crosses its threshold of divergence this results in a presumption that the au-

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1) W.H. Buiter, "Monetary, Financial and Fiscal Policies Under Rational Expectations", IMF Staff Papers, vol. 27, Dec. 1980, pp. 785-811.

> thorities concerned will correct this situation by adequate measures, namely:
> a) Diversified intervention.
> b) Measures of domestic monetary policy.
> c) Changes in central rates.
> d) Other measures of economic policy.
> . . . In case such measures, on account of special circumstances are not taken, the reasons for this shall be given to the other authorities, especially in the concertation between central banks. Consultations will, if necessary then take place in the appropriate community bodies, including the council of ministers."

This formulation is very vague, and as Thygesen[1] comments, even in a double sense:

> "Firstly the nature of the adjustment action is not well defined, indeed, it is not mandatory to take action at all, and secondly, it is very difficult to assess a priori how often currencies will in practice reach their ECU threshold. Yet this flexibility may turn out to be a considerable asset, by enabling the EMS to modify and sharpen its procedures if and when the need arises."

Some years later, with the present divergence of monetary trends inside the EMS, need has arisen, but new initiatives have not been put forward. Indeed where the first two realignments went off smoothly, the last realignments have proved difficult. Furthermore, some currencies did reach the threshold of divergence several times without any corrective measures being taken.

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1) N. Thygesen, EMS, Options and Precursors, København 1979.

And as Thygesen notices later:

> "It would be naive to suggest that coordination of monetary policies can in itself hold together the EMS. But it seems equally certain that if the participants do not develop the minimal machinery and rules of conduct for such coordination, they will be ill equipped to deal with the increasing strains that are bound to arise in the EMS from time to time--both when a central rate adjustment is called for, and when it is not."[1]

In the absence of such rules of conduct for the coordination of policies, an ad hoc-ery approach is taking place amongst central-bankers. This does not solve the n-th currency problem, as a hegemonial country is not recognised,[2] and neither is a set of formalized rules.

The present state of the art with Germany as at least a primus inter pares is commented on by Gillibert & Monti:

> "This is not the only, nor the most desirable of solutions of the n-th currency problem, but it had the force of inertia behind it. How long and how far it will continue . . . remains to be seen. And yet this is the aspect that needs to be watched first and foremost if we want to assess the chances of survival of the EMS. If this is how things stand, that is, if durable integration within EMS depends on the extent to which each member country succeeds in imitating German economic policy, then at first sight the greater the gap between a coun-

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1) Thygesen, op. cit.

2) Especially with a new French government and eventual British membership.

try's current economic policy and that of the German model, the greater will be the cost of adjusting to membership of the agreement."[1]

Such a state of affairs as that described above is clearly unstable and unsatisfying, if the ultimate goal is a viable monetary union. Swoboda[2] makes the sensible distinction between a viable currency area and the optimal currency area, where the coordination of economic policies increases the viability of a currency area. Viability is here defined as the possibility of reconciling, at least within tolerable margins, internal and external balances under fixed exchange rates for a given group of countries or regions.

What can be put instead of this unsatisfying arrangement? The obvious answer to solve the n-th currency problem is the establishment of a European central bank. This at least in theory. This bank should according to Parkin[3] have "a single attainable objective of achieving

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1) Gillibert & Monti, "Weak Currencies and the Weakness of the EMS", The Three Banks Review, Aug. 1981.

2) A.K. Swoboda, "Policy Conflict, Inconsistent Goals, and the Coordination of Economic Policies", in H.G. Johnson & A.K. Swoboda (eds.), The Economy of Common Currencies, London 1973.

3) M. Parkin, "In Search of a Monetary Constitution for the EC", in Fratianni & Peters, op. cit.

a growth rate of the aggregate money supply, approximating to the rate of real growth of output".

However fascinating such a proposal may be, it probably raises more problems of a political nature, than it seems to solve, because member states' fiscal policies will be affected.

A preliminary conclusion is the straightforward one, that, as the EMS and the Snake grew out of community desire to include national economic policies in the integration process, and as the actual undertakings of fixing exchange rates were initiated because of external events, explicit rules were never agreed on. This probably would have meant endless delays in the respective schemes.

And even if rules had been agreed on, these would certainly have a different impact from country to country. Strong currency countries with an obligation to intervene in the exchange markets at fixed points invariably increase their domestic monetary base as they cannot automatically let their currencies appreciate. In such a case the strong currency country will call the agreement "a vehicle of inflation" while the weak currency country would complain of the sufferings from the deflationary impact of an overvalued exchange rate.

Furthermore the impact of rules is differentiated according to the countries' "propensity to export shocks".[1]

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1) Aliber (1977), op. cit.

> "The more likely a country is to export shocks, the more likely that its trading partners might wish to constrain its policies by rules. The less likely a country is to export shocks, the less interested other countries will be to constrain its behaviour. Consequently the major beneficiaries of the reduction in uncertainty from imposition of rules are likely to be smaller countries, while the costs or constraints are likely to be felt by the larger countries."[1]

It can be added for clarification that small countries' ability to export shocks is at least on par with that of large countries, relatively, but it is absolute amounts which matter. And this is an important explanatory variable why large countries seem to avoid such constraints, which in theory would even out the present skewed distribution of costs and benefits of belonging to a currency area, cf. chapter 1.

Until a clearer understanding is reached amongst the participants of a currency area the previously quoted statement of Gillibert & Monti, that only the best imitators of German economic policies and performance will see a reduction in adjustments costs, seems to be valid, looking at EMS experience. Seen from the perspective of the small open economy, the immediate range of options for actually making an imitation is limited, which is the subject for discussion in the following section.

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1) Aliber (1977), op. cit.

6.4. The limited range of policy options for the small open economy.

Consider the following two approaches to economic policy as the only "valid" ones, or as two ideal types, in the Weberian sense:

a) The theory of economic policy[1]

b) Endogenous policy making[2]

Accepting this proposition, the aim is here to show how actual behaviour seems to be more in line with proposition b than with proposition a, and that a currency area probably would function much better by relying more on proposition a!

We first turn to discuss a "mainstream" presentation of the theory of economic policy.

a) The theory of economic policy.

This is a theory of choice. The ranking of priorities for the economic policy is the logical outcome of the political process. The theory of economic policy is then used to implement the desired ranking of economic goals. The level of sophistication of the technique of maximizing the desired goals in terms of resources is

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1) As presented by: J. Tinbergen (1952), op. cit., and later Bent Hansen, Finanspolitikens Ekonomiska Teori, Stockholm 1955.

2) Examples of this line of thought can be found in: A. Lindbeck, "Economic Policy Making with Endogenous Politicians", American Economic Journal, Jan. 1976.

very high[1] in available literature, but the basis of the theory seems to be the following: The economy is presented as a more or less definite model, where some variables are supposed to be controllable, and are hence instruments. Other variables are of a more uncontrollable nature and are the exogenous input for the model. Finally the political goals are introduced. The aim of the exercise is now to find the combination of instruments which maximizes the desired ranking of political objectives.

To achieve the greatest possible welfare only two real constraints are taken into consideration, existing production factors and technological factors.

If society has several, and perhaps conflicting, objectives the economist then advises how much of one objective it is necessary to give up in order to have more of another. Politicians are supposed to make the weighing of the objectives and to formulate a workable rank order.

This way of thinking is in essence the original liberal one, that politicians are concerned with values and economists are concerned with facts. The implication is the isolation of the two systems from each other.

To outline the framework further, it is convenient to start from the basis of Tinbergen, where each independent

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1) See i.e. R.S. Pindyck, Optimal Planning for Economic Stabilization, Amsterdam 1973, or A.E. Bryson & Y.C. Ho, Applied Optimal Control, Optimization Estimation and Control, Washington 1979.

policy objective must be assigned an independent policy instrument. As an example, the level of demand which gives price stability cannot be expected also to provide full employment and external equilibrium and desired level of economic growth, etc. The well-known Tinbergen proposition is then that a number of policy targets only can be achieved simultaneously, if there are, generally speaking, as many instruments as targets.[1] To complicate things, instruments can be objectives and vice versa. And instruments are often mistaken for variables which are part of the causal link between instruments and objectives.[2] An example[3] is the desirability of a higher rate of investment in the private sector in order to secure the objective of higher economic growth. Even if a higher rate of level of private investment is a means to fulfill the objective, it is not an instrument in the more narrow formulation, because it is not under the direct control of government. An instrument in such an example would be different taxation rates depending on end use of money.

The main conclusion to draw, for our previously stated ends, is that the theory of economic policy is a tool to direct the economy in a desired direction, which is based on an objective weighing of suitable alternatives.

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1) J. Tinbergen (1952), op. cit.

2) See i.e. N. Kaldor (ed.), Conflicts in Policy Objectives, Cambridge 1971.

3) Cf. Graham, op. cit.

The other approach to economic policy is:

b) Endogenous policy making.

This way of approaching economic policy making is more difficult to operationalize. The main contrast to the "a" approach is that instead of choice, this approach is a constant process of wheeling and dealing inside a vaguely defined area of what is possible politically. Decisions are taken under pressure, and alternatives seem few, or non-existent. The optimal decisions here are the ones which restore "equilibria" by having different sources of political pressure sterilizing one another, without looking much at longer term consequences. By trying to let political demand functions meet available supply of policies, with the government acting like an intermediate, or playing the auctioneer's role in a market process, we are already in the domain of public choice theory,[1] so even though the two theories may seem to be worlds apart, they are actually complementary to each other.

The b-approach defines the constraints which hinder the optimization of the a-approach.

So as the freedom of action consequently is decreased in the a-approach, the b-approach seems to be the more interesting. The following example from Denmark illustrates this point of a decreasing range of options.

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1) See i.e. D.C. Mueller, Public Choice, Cambridge 1979.

Say that there are only two major policy objectives: Full employment and external equilibrium. The ranking of the two objectives is here indifferent.

In 1980 the Danish balance of payments deficit was Dkr 20 billions, or approx. 4.5% of GNP. If no corrective measures are taken the deficit on the balance of payments will reach a level of Dkr 40 billions[1] in 1982, which is 6% in current prices of GNP.

To reach external equilibrium from such a position a drastic reduction of domestic demand would be needed. Assuming identical import propensities in all sectors, the total reduction of domestic demand would be within the order of Dkr 90 billions, or 23% of total domestic demand.

With unchanged productivity, unemployment would have to rise by further 17%,[2] in real terms by approx. 400,000 people, or 20,000 unemployed for each Dkr billion reduced demand. Such an option is of course outside the politically possible.

A lasting improvement could probably be achieved[3] by a drastic 10% real devaluation, which would produce an

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1) Figures from Government Finances, June 1981, København.

2) See Economic Council, June 1980.

3) Suggested by Economic Council 1979, as the Dkr was, and is, following a path of real appreciation. This was first demonstrated by N. Blomgren-Hansen & J. Pedersen, "Arbejdsmarked og Betalingsbalance", Nationaløkonomisk Tidsskrift, No. 3, 1977.

output/employment path superior to the one achievable by tightening fiscal policy.

Such an option is preliminarily ruled out because of the commitments in the EMS, and also because of the effects on the large outstanding debt.

A more realistic option, according to Zeuthen,[1] is an export led growth by way of decreasing effectively the import rate. Such a move implies a shift of resources from the domestic sector to the competition sector, which again implies a rise in private investment. Judging from the figures in chapter 8, an already depressed investment rate makes this option difficult. The Danish interest rate has traditionally been so high that the private sector was induced to borrow abroad, which helped finance the deficit on the balance of payments. A lower interest rate would stop this inducement, and people would start repaying their foreign debts. In order not to see the international reserves disappear, or even worse consequences, the public sector would have to finance the whole deficit, Dkr 20 billions, debt servicing on foreign debt Dkr 5 billions, and perhaps half the long-term private component of the foreign debt, Dkr 15 billions. All in all Dkr 40 billions in a year. According to the Governor of the Central Bank this would be nearly impossi-

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1) H.E. Zeuthen, "Strukturtilpasning og ligevaegt pa betalingsbalancen", Nationaløkonomisk Tidsskrift, No. 3, 1980.

ble.[1]

So the real choice in this example is to maintain a restrictive monetary policy in order to secure the financing of the current account, and to have lax fiscal policy to offset the impact. This is the Mundell-Fleming assignment principle.

This limited choice of options is commented on by the Danish central bank governor:

> "Is it possible now to maintain an independent distribution and welfare policy? In the longer run this is not possible. . . . real external constraints which are consequences of the increasing degree of economic integration in the Western world seriously limit our choice. The logical question is whether there are alternative possibilities. There are not many, and they are not very attractive. One possibility is to seek a higher level by increasing self-sufficiency and imposing import controls. This would imply a drastic decrease in the standard of living, and increase potential tensions in our society."[2]

Such a sinister point of view is understandable, if one is solely looking at the constraints, in this case only considering the b-approach.

Instead of mere adaption however, there should be opportunity in any form of economic cooperation to influence events instead of mere adaption, or acceptance of events.

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1) E. Hoffmeyer, "Internationale Bindinger pa Dansk Økonomi", Nationaløkonomisk Tidsskrift, No. 3, 1980.

2) Ibid.

That is, to be able to implement real policy initiatives in order to find a more favourable medium and long term trajectory for the economy than the present rather unsatisfactory one, i.e. to rely more, than is the present case, on an a-type approach to economic policy, as the present option of relying on restrictive monetary policies and more or less accommodating fiscal policies has unwanted repercussions.

6.5. A framework for policy coordination inside a currency area.

Traditionally coordination of economic policies has been seen as an internationalization of the "assignment problem", where instruments are assigned to those targets for which they have a comparative advantage.

Komiya[1] stresses the point that if the coordination process is seen as an assignment problem, then it is important to distinguish between those matters which should be dealt with exclusively by the national governments, and those matters which need to be coordinated. Decisions to set national targets for economic growth, unemployment and inflation should in the view of Komiya be regarded as matters lying outside the domain of international coordination.

Such an approach to coordination of economic policies is very much in contrast to the view that openness of an

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1) R. Komiya, "Is International Coordination of National Economic Policies Necessary?", in P. Oppenheimer (1980), ed., op. cit., p. 32.

economy makes it increasingly difficult to sustain a "divergent" money income on a national level. In chapter 3 we analyzed the impact of monetary, capital and goods market linkages on the open economy and found that nearly all forms of economic activity would be affected by, and affect, events abroad, because of the existence of large spill-overs from national stabilization policies.

A classical, or a neo-classical, economist would probably see international policy coordination as a non-event, because mainstream economic theory would prescribe decentralized decision-making, and adjustment through the markets.

However as Head[1] originally suggested, and Vaubel[2] later has elaborated upon, price and output stability can be seen as an international public good.

> "An economic unit increasing consumption or investment spending, or accepting a substantial money wage cut in a situation of unemployment equilibrium, can by no means appropriate to itself, through private

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1) J.G. Head, "Public Good and Public Policy", Public Finance, No. 3, 1962.

2) R. Vaubel, International Coordination or Competition of National Stabilization Policies? A Welfare Economic Approach, Paper presented at colloquium on: New Economic Approaches to the Study of International Integration: Application of Economic Analysis to Political Decision Making, EUI, Florence 1979.

> pricing, the full social benefits in the form of multiplier and real balance effects on the incomes and profits of other economic units. With signs changed, a similar argument applies to the inflation case. Again in the case of suboptimal growth, the full benefits in terms of rising real wages from growth promoting behaviour, such as thrift, risk bearing, dividend and wage restraint, are seldom anything like fully appropriable from the point of view of the economic unit which must bear the full cost of such behaviour. In all these cases it would be possible for the community, by means of cooperative action, to compensate potential losers from socially desirable changes, and still enjoy a net benefit with some members better off, and none worse off. Such cooperative efforts will seldom be forthcoming in the absence of coercion and the inefficiency due to non-appropriability will therefore persist. In a broad but very real and important sense then, domestic and international economic stability, domestic and international allocation of resources in accordance with consumers' wishes and an optimal rate of growth can all quite properly be regarded as public goods, for adequate provision of which public policy must be relied upon" (italics in original).[1]

Vaubel[2] argues that although price and output stability can be seen as an international public good, then it does not follow that internationally negotiated decision making is superior to independent and competitive decision making, because it is a complicated task to make an operational distinction between the two kinds of externalities, real income and distributional, which is vital for the ap-

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1) J.G. Head, 1962, op. cit.

2) R. Vaubel, 1979, op. cit.

proach.[1]

So he suggests that competition between national stabilization policies in fact[2] is preferable to coordination, because competition provides the public good of knowledge and discovery,[3] and he gives the following example:

> ". . . if Switzerland and Germany had been prevented from pursuing their disinflationary stabilization policies over the past few years, citizens in Italy, the United Kingdom and elsewhere might not have realized as clearly that inflation in their own countries was and is due to the inappropriate monetary policies conducted by their own governments, and consequently the public pressure on these governments to reduce inflation would have been much weaker."[4]

Vaubel's theory is based on free floating exchange rates, and in a world with flexible exchange rates such an approach no doubt would be optimal.

However in a fixed exchange rate currency area, which is the main underlying assumption for the present work, the

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1) For a discussion of the role of externalities in the public goods theory see R. Vaubel, Strategies for Currency Unification, Tübingen 1978, pp. 75-79.

2) R. Vaubel, 1979, op. cit.

3) This statement is derived from Hayek, cf. "In the long run the existence of groups ahead of the rest is clearly an advantage to those who are behind", in his Constitution of Liberty, London 1960.

4) R. Vaubel, 1979, op. cit., p. 17.

reason why "citizens in Italy, the United Kingdom and elsewhere" realize clearly the level of domestic inflation, is probably the same fixity of exchange rates combined with the existing inflation rate differentials. So one could turn the argument the other way around, and claim, at least in the very short run, that it is the fixed exchange rates and not the diverging inflation levels which are the main concern for the "citizens".

Using game theory, Niehans and Hamada[1] show that non-cooperative decisions can lead to outcomes inferior to those realizable with coordination.

Coordination of national economic policies can be modeled on a game tree with respect to either cooperative or non-cooperative games. In a cooperative game the national decision-makers make binding agreements about future policies, which might be different from the ones they themselves would have implemented. This is coordination. If on the other hand the agreements are of a more loose character, so that the agreements can be adapted according to

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1) See i.e. Jürg Niehans, "Monetary and Fiscal Policies in Open Economies under Fixed Exchange Rates, An Optimizing Approach", Journal of Political Economy, vol. 76, Aug. 1968, pp. 893-920, Koichi Hamada, "A Strategic Analysis of Monetary Interdependence", Journal of Political Economy, vol. 84, Aug. 1976, pp. 677-700, Koichi Hamada, "On the Political Economy of Monetary Integration", in R.Z. Aliber (ed.), 1977, op. cit., Koichi Hamada, "Alternative Exchange Rate Systems and the Interdependence of Monetary Policies", in R.Z. Aliber (ed.), National Monetary Policies and the International Financial System, Chicago 1974, and more recently, Koichi Hamada, "Macroeconomic Strategy and Coordination Under Alternative Exchange Rates", in R. Dornbusch and J.A. Frenkel (eds.), International Economic Policy: Theory and Evidence, Baltimore 1979.

individual immediate interest, the game is coined non-cooperative.

A non-cooperative game has basically two variants: the Cournot-Nash solution and the Stackelberg solution.[1]

In the Cournot-Nash solution each player ignores the effects of its decisions on the other, and takes the other players' decisions for given. The Stackelberg solution is based on asymmetry, and this is the game which comes nearest in its implication to the coordination principle based on competition, as advocated by Vaubel.

In the Stackelberg solution the game is dominated by one player, which because of its dominant position, is able to anticipate the reaction functions of the other players.

By taking the other players' reactions to its own decisions into account, it can bend these decisions to its own benefit.

In his "Strategic analysis . . ." Hamada shows that non-cooperative decisions of national actors are likely to generate inferior outcomes compared to near Pareto-optimal outcomes realizable with coordination, while the outcomes under the Cournot-Nash and Stackelberg assumptions, show

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1) For an exhaustive explanation of these terms see i.e. J.W. Friedman, "Cournot, Bowley, Stackelberg and Fellner and the Evolution of Reaction Functions", in B. Balassa & R. Nelson (eds.), Economic Progress, Private Values and Public Policy: Essays in Honour of William Fellner, Leiden 1977.

that the Stackelberg leader always reaps more benefit than the other players when a leader-follower setting is assumed.

The original work of Niehans[1] showed that a failure to reach an agreement by the main economic actors, a non-cooperative outcome, resulted in his model in a recession in world economic activity. Finally it is worth mentioning Cooper,[2] who reaches two main conclusions in his study on the perceived need for coordination:

a) That international coordination tends to speed up adjustment and reduces the chances of cyclical divergencies of national equilibria.
b) That coordination becomes more necessary when a high degree of goods and capital market integration exists.

6.6. Coordination of policies in a two country model.

In chapter 4 it was demonstrated that the different criteria for the functional working of a currency area were necessary preconditions, but not sufficient to solve the central problem of monetary integration: the achievement of internal and external balances.

If economic disintegration inside a currency area is to be avoided the adjustment process must be sped up, in

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1) J. Niehans (1968), op. cit.

2) R.N. Cooper, "Macroeconomic Policy Adjustment in Interdependent Economies", Quarterly Journal of Economics, vol. 83, no. 1, Feb. 1969, pp. 1-26. It should be noted that Cooper's results are not based on game theory.

order to reduce the costs of having only one single currency, or the equivalent fixed exchange rate.

In order to show which goals realistically can be coordinated and why policy conflicts might arise, a simple analytical model is presented, based on comparative statics as used originally by Meade and later by, amongst others, Dornbusch & Swoboda.[1]

Policy conflict between internal and external balance in a two country model can, simplified, be divided into four different disequilibrium situations, which are shown below in the original Meade scheme. We assume two countries, Sigma and Delta.[2]

State	Country Delta	Country Sigma
1	deflation	deflation
2	deflation	inflation
3	inflation	deflation
4	inflation	inflation

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1) See J.E. Meade (1951), op. cit., and A.K. Swoboda and R. Dornbush, "International Adjustment, Macroeconomic Policy, and Monetary Equilibrium in a Two Country Model of Income Determination", in M.B. Conolly & A.K. Swoboda (eds.), International Trade and Money, London 1972, and A.K. Swoboda, "Policy Conflict, Inconsistent Goals, and the Coordination of Economic Policies", in H.G. Johnson & A.K. Swoboda (eds.), 1973, op. cit.

2) See J.E. Meade (1951), op. cit.
One could also focus on budget balances in the two countries, then the taxonomic scheme would look like this:

State	Delta	Sigma
1	deficit	deficit
2	deficit	surplus
3	surplus	deficit
4	surplus	surplus

The analysis would be similar.

The available policy instruments are, cf. chapter 3, absorption and disabsorption, where the first reduces expenditure and the latter increases expenditure.

Internal balance is defined as a specific target value of real income. External balance can be defined conveniently as no change in reserve levels.

Country Delta has a surplus on its balance of payments, and correspondingly Country Sigma is in deficit.

Policy conflicts between internal and external balance will arise for country Delta in states 3 and 4, and for country Sigma in states 1 and 3.

Both countries will simultaneously experience a conflict in state 3.

A state 2 situation is the most simple, according to Meade.[1] Here it is sufficient if both countries adjust their interest rates, downwards in Delta and upwards in Sigma. This will relieve the disequilibrium on the current account.

The conflicts in states 1 and 4 are tractable. In state 4 both countries must try to contract in order to check inflation. This they can do either by raising the tax rate or raising the interest rate. Say that Sigma raises its interest rate in order to improve the balance of payments position by inducing capital from Delta as an effect of the interest rate differential.

The capital outflow from Delta will not reduce in-

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1) J. Meade (1951 & 1981), op. cit.

flation in the short run, as a time lag is to be expected before domestic investment will be affected.

In Sigma the rise in the interest rate will eventually work through to domestic investment, consumption and employment, and the initial inflation is soon succeeded by a corresponding deflation.

This is the state 3 problem, where expenditure policies cannot solve the dilemma.

Sigma cannot lower its interest rate, and neither can Delta without the reemergence of the original balance of payments disequilibrium. This situation with the surplus country having a potential inflation problem and the deficit country experiencing degrees of deflation[1] is according to Meade[2] a very likely outcome of a bad coordination of income targets, and it certainly does remind one of the real problem of adjustment in the EMS,[3] with the rift between so-called weak and strong currencies.

The state 3 situation arises because income targets in the two countries, Sigma and Delta, are incompatible

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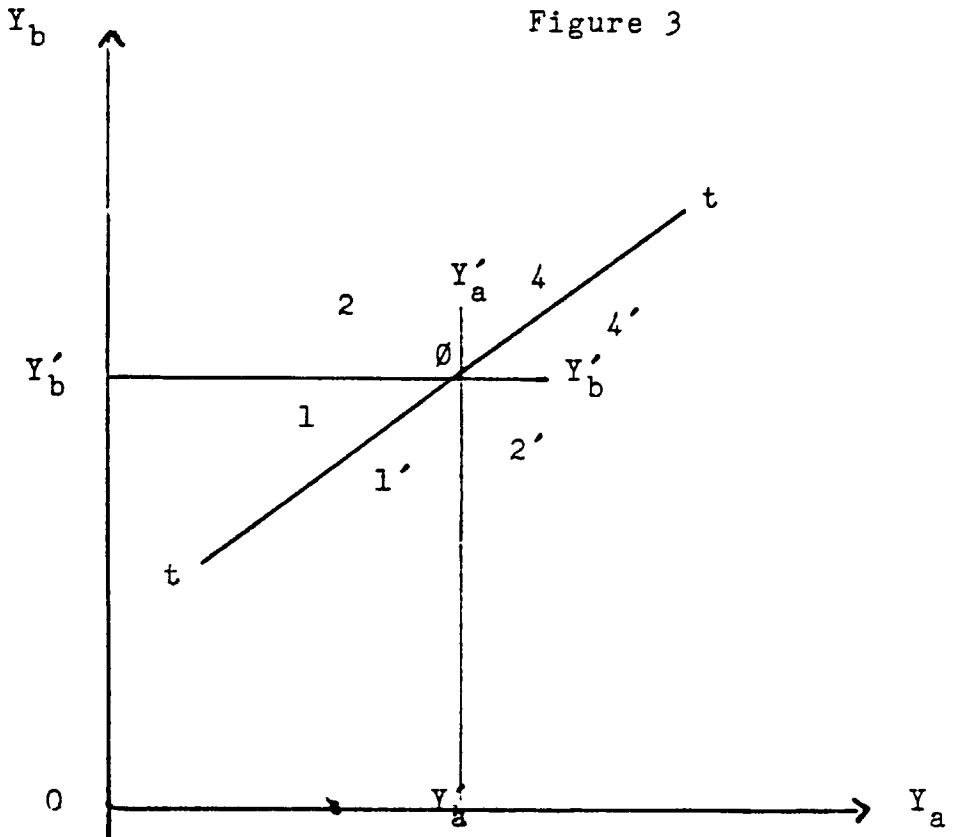
1) As the analysis is based on comparative statics, it is not possible to include the more realistic situation of persistent inflation or deflation.

2) J. Meade (1951), op. cit.

3) When the EMS started, a large part of German literature was preoccupied with the (realistic) assumption that EMS would turn into a vehicle of German inflation.

Figure 3



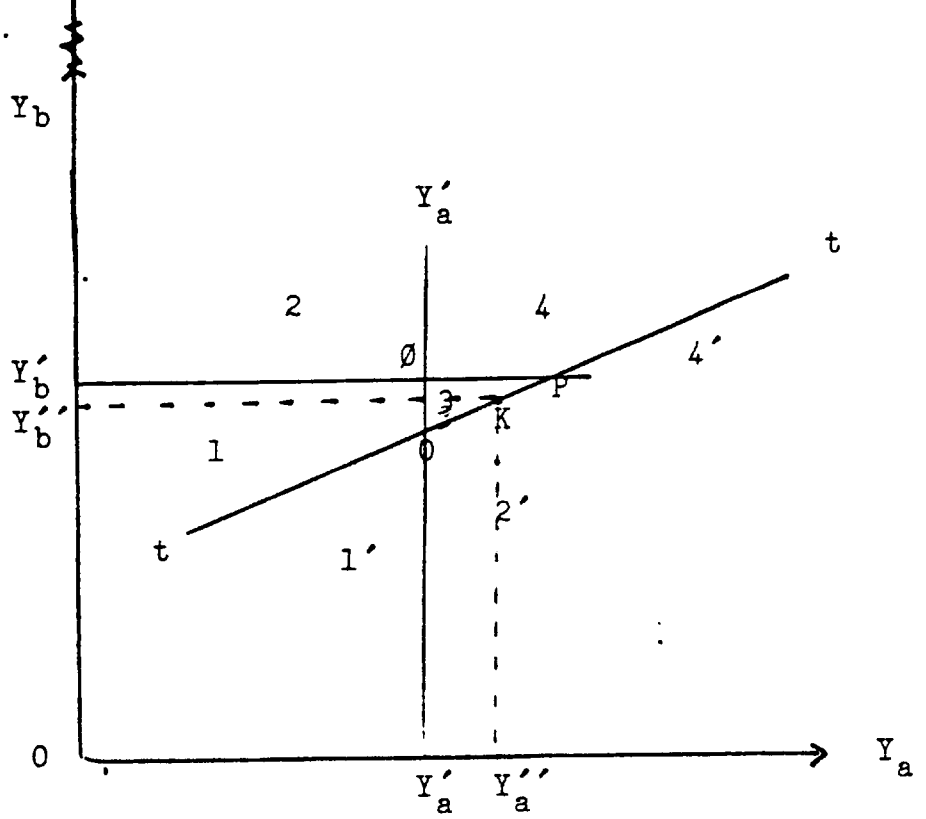


Figure 4

with the balance of payments requirement, which is shown graphically on the preceding page.[1] In figures 3 and 4 the incomes of Delta and Sigma are shown on the x and y axis respectively.

The income level of Delta is Y_a, and the income level of Sigma is denominated Y_b.

Let us start with figure 3, which shows the easy case of coordination of income targets.

The line tt represents the combinations of income levels in the two countries, which will preserve a balance of payments equilibrium. All points above line tt show a balance of payments surplus for country Delta, while correspondingly points below signify a deficit. Line Y'_a-Y'_a represents the desired target level of real income for Delta, Y'_b-Y'_b is the target income for Sigma.

The areas 1-2-4 correspond to states 1-2-4 for Country Sigma, while 1'-2'-4' correspond to states 1-2-4 for Country Delta.

In figure 3 the two income target lines intersect the tt line in point Ø, which shows that equilibrium at point Ø can be found by expenditure policies in country Sigma and Delta respectively. The state 3 situation does not exist in figure 3 because the three target lines Y'_a-Y'_a, Y'_b-Y'_b and tt all intersect in the point Ø, so it

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1) With the model partially adopted from Dornbusch & Swoboda (1972), op. cit., and Swoboda (1973), op. cit.

is impossible for Delta to experience inflation and surplus while Sigma is experiencing deflation and deficit. In this case the income targets of the two countries are compatible.

In figure 4, on the other hand, a state 3 situation is shown in area 3.

Expenditure policies in the two countries cannot bring about internal and external balance simultaneously, because, as is shown below, the income targets of the two countries are incompatible, with the instruments available.

Say that the two countries in figure 4 follow expenditure policies aimed at internal balance. The income levels will then be Y'_a and Y'_b, and they will meet in point Ø, as previously.

However, at point Ø, Delta is in a balance of payments situation while Sigma is in deficit.

In such a situation Sigma will lose reserves, induced capital flows are for the moment unrealistically neglected, and Delta will gain reserves.

If this situation is prolonged, it will result in some degree of deflation in Sigma, and symmetrically, a degree of reflation in Delta. Eventually equilibrium can be found somewhere along the line segment O,P, which is part of the tt-combined balance of payments line. The burden of adjustment because of incompatible targets for real income, is borne by either of the two countries according to different divisions of line segment O,P.

In point K the adjustment burden falls more heavily on Delta, which has to increase its income target by line segment $Y'_a-Y''_a$, than Sigma, which has to reduce its income target $Y'_b-Y''_b$.

According to Swoboda,[1] policy conflict between countries, arising from income targets incompatible with balance of payments equilibrium is a result of an inconsistency between policy targets and policy instruments.

A sustained disequilibrium of the state 3 situation implies a failure of coordination of national income targets, or the need for an additional policy instrument.

Because in the state 3 situation we have three targets for national economic policy, internal equilibria in Sigma and Delta and a balance of payments of equilibrium, but only two instruments, expenditure policies in Delta and in Sigma.

As an expenditure switching policy in this context, which could shift the tt-line from O to Ø, is ruled out, a higher degree of harmonization of policies is required.

6.6.1. The rationale for medium-term expenditure policy making inside a currency area.

Below it is argued that the case for an independent fiscal policy in a small open economy is very weak. In the medium to long run asymmetry between fiscal stance and monetary target/exchange rate target will be increasingly difficult. As a consequence fiscal and monetary

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1) A. Swoboda (1972), op. cit.

policies should, at least for the medium and long term, be seen as one instrument instead of two. If a strategy of disinflation is to be implemented it is essential to create, for the medium term, an environment of stability. The way monetary targets/exchange rate targets seem to be set in competition with fiscal policy is clearly not a workable solution. Consistent budget deficits and tight monetary policies are not an optimal combination. So it is here the aim to discuss the setting of a medium financial target, with more symmetry between the two complementary instruments of economic policy. Traditionally the issue of financial crowding out has been examined in the light of a too lax fiscal policy.

However for a small open economy like the Danish, where a larger part of foreign borrowing now is done by the government sector, a real level of interest several percentage points above the foreign rates cannot eternally be defended by the old dogma that it is necessary for balance of payments reasons. Monetary policy, being more flexible than fiscal policy in the short term, should be relied upon if a potential crowding out[1] is felt, cf. Wilson:[2]

> "Why should it be thought worthwhile to investigate in such detail a situation where a public deficit is

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1) The role of crowding out is discussed and analyzed in extenso in the next chapter.

2) T. Wilson, "Crowding Out, The Real Issues", BNL Quarterly Review, No. 130, 1979, p. 235.

to be financed year out and in without any increase in the amount of money? If crowding out should occur on a scale that was thought to be undesirable, the remedy would be the rather obvious one of increasing the money supply."

Returning to our policy conflict between Delta and Sigma, the inconsistency between income targets could be remedied if each defined a compatible medium financial target, based on accepted rules for the assignments of expenditure policies.

However as was argued in a preceding section, coordination of national economic policies should not be seen as a panacea for international acceptance of policies which could not be agreed upon on a national level.

A corollary of this is that a coordination of fiscal and monetary policies, in the form of a medium-term financial target, should first be agreed upon nationally, before an international coordination can take place.

6.6.2. Assumptions about a more balanced policy-mix for the coordination of fiscal and monetary policies in the medium term.

The case for a medium-term financial target hinges basically on three propositions, which we must take for granted. These are:

i) That the containment of high inflation rates is given priority relative to the other medium-term goals of economic growth and employment,[1] and that the control of

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1) See mainly: OECD, Monetary Targets and Inflation Control, Paris 1979.

monetary aggregates are interdependent instruments if inflationary expectations are to be controlled.[1]

ii) That the divergent public expenditure trends inside a currency area are unsustainable, as the difference in domestic allocation of resources has inflationary implications. As a consequence of this government expenditure and taxation should, in the longer term, be brought into balance with available resources.

iii) That the financing of budget deficits has a bearing on inflationary expectations, as a high governmental sector indebtedness eventually will bring pressure upon the government to "monetize" the deficit, which will undermine both monetary and fiscal effort to check inflationary pressure.

For a country which has a high degree of external debt, i.e. Denmark, a medium-term financial target will allow gradual adjustment as opposed to the potential drastic real income transfer from debt servicing, which might be a plausible outcome if the external debt is allowed to grow with the same speed as during the last decade, and if international recovery is further delayed.

Are these propositions realistic as building blocks for the eventual coordination inside the European monetary system? By examining already publicized national medium-term budgetary targets (see figure 5) the answer is in the affirmative. The only thing needed is some form of institutional coordination; this will be discussed below.

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1) Cf. the discussion in chapter 2.

Figure 5. Medium-term budgetary targets for EMS members.

Country	Time Horizon	Policy Target
Germany	1981-85	Reduction of federal deficit from DM 34 bill. to DM 17.5 bill.
France	1976-80	No current target.
U.K.	1980/1-84/5	Reduction of PSBR from 5.7% of GNP to 2% of GNP, implying a fall from 45% of GNP to 41% in 82/83.
Italy	1981-83	Freezing of PSBR at 1980 level.
Belgium	1979-82	Reduction of government borrowing to 5% of GNP, and a zero volume growth of current spending (unemployment benefits and debt interest excluded).
Denmark	1980-93	General objective to reduce the central government deficit, restriction of public spending. External balance.
Netherlands	1978-82	Reduction of public sector deficit from 5.25% to 4 - 4.5%.

Source: OECD Secretariat.

As can be seen from figure 5, all the members of the EMS[1] have already implemented some form for, however

1) France had from 1976 to 1980 the target of reducing the government deficit from 3% in 1975 to 0.5%. Information from Ireland missing.

loosely defined, medium-term financial target.

However, in order to make these targets credible, thus forcing inflationary expectations to decline, these targets need to be institutionalized so that a homogeneous set of monetary and budgetary rules can emerge, which can be used and accepted by all participants. Such a task is, needless to say, beyond the scope of the present work, but we can define some guidelines and some constraints for such an exercise.

6.6.3. Guidelines for common budgetary and monetary rules.

The basis for any coordination of national economic policies and the following international compatibility is to have nearly identical budgeting procedures.

As it is now, very different definitions of what a budget consists of are found inside the EEC. See figure 6 on the next page.

In Italy and in the United Kingdom the definition of

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1) Although the findings cannot be said to be decisive, a negative relationship is found between growth performance and public sector expansion. The following relationships were tested: Government expenditure on goods and services/GNP growth, Government employment/GNP growth, Government expenditures on goods and services, government employment/inflation performance. Figures from 14 OECD countries were used from 1970-1980. The lack of decisiveness stems from the fact that the negative relationship could be a function of lower overall growth.

Figure 6. Public sector budgetary procedures in the EMS countries.

Country	Coverage of budget. What is included.	Borrowing constraints	Planning horizon
Germany	Federal government net borrowing, loans and grants to local government, social security, railways and post office incl.	Legal limits: should not exceed investment.[1]	5 year projections of expenditures & revenues for both state and local government. Coordinated by Financial Planning Council.
France	Central government financial balance, excluding social security.	Balanced budget until 1974.	Calendar year, medium-term projections of some expenditures through National Plans.
U.K.	PSBR (gross) including public corporations.	None.	4 year rolling through "Medium term financial strategy".
Italy	Since 1979, enlarged public sector deficit. General government + autonomous agencies	Limits by parliament.	Calendar year in context of 3 year rolling programme.
Belgium	Central government net borrowing requirements, including loans to other sectors.	Limits on current borrowing.	Calendar year for expenditure and revenues. Medium term projections according to national plan.
Denmark	Central government financial balance net and gross borrowing requirement. Includes deficits of public enterprises and social security.	None.	4 year rolling programme for expenditure. 1 year for revenues. Since 1979, a "medium term action programme.

Netherlands	Central government net borrowing requirements, transfers to social security and public enterprises included.	None.	4 year rolling programme since 1975. Linked to revenue via "structural budget margin".[2] Blueprint 81 sets guidelines for medium-term economic policies 78-81.

Note: Financial balance = balance between total spending and revenues. Net borrowing requirement = financial balance plus net acquisition of financial assets. Gross borrowing requirements = net borrowing plus refinancing.

1) In Germany the "Sachverständigenrat" develops a normative deficit which is derived from a historical full employment level, where private savings equal public sector dissavings. This makes the level of private sector savings a decisive factor. For further information see T.F. Dernburg, "Fiscal Analysis in the Federal Republic of Germany: The Cyclically Neutral Budget", IMF, Staff Papers, p. 826, 1975. However the propositions of the Sachverständigenrat are not binding.

2) See E. van Dunnen, "Long Term Fiscal and Monetary Policies in the Netherlands", OECD Economic Survey of the Netherlands 1981.

Source: OECD secretariat and national budgets.

the budget seems to be the broadest, as all branches of government and government affiliated expenditure are included. In most other cases budgets of public corporations are left outside the budget, which then leaves a wide spectrum of activities outside the budget.

The column about borrowing constraints shows a varied picture, and perhaps it is a tautology to consider restraints on borrowing, as a parliament always has the power, in some way, to amend the legislation.[1]

However some kind of limit must be assumed to work, at least in the short term, when there are legal constraints on borrowing. Looking at the planning horizon, most countries have a systematic planning procedure of expenditures as well as revenues some years ahead. Only Denmark has adopted the rather illogical system of planning expenditure four years ahead, while revenues are planned on a yearly basis. The consequence, as also shown by Grønnegard,[2] is that the government is consistently overoptimistic about yearly economic growth figures, in order to minimize planned deficits.

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1) Cf. J.M. Buchanan & G. Brennan (1981), op. cit., J.M. Buchanan & R.E. Wagner, Democracy in Deficit: The Political Legacy of Lord Keynes, New York 1978.

2) Grønnegard, op. cit. (1982), shows that the actual expenditure increase relative to planned revenue is significant. Worst in 1974/75-75/76 when planned growth was estimated to be -2.6% and the actual outcome was 8.1%. In 1980/81 the planned expenditure growth was 0%, the actual figure was 4.4%.

Without digressing into the basics of public finance it seems evident that the Dutch and German planning principles come quite close to the ideal of a medium-term strategy for equilibrating income targets inside a currency area.

Both budgetary principles are tuned to the savings surplus of the private sector, in principle, and both budgets are divided into two components: a cyclically neutral component and a cyclical impulse component.[1]

The former part typifies the long-run growth path of the economy, while the latter ensures that short-term cyclical impulses in order to correct sudden disturbances do not spill over into the medium term.

The obvious advantage of budgetary systems like the one mentioned above is that:

a) They take revenues and expenditure into consideration for an extended period.

b) And by dividing the budget into two components, short-run measures are, in principle, separated from the longer term growth objectives.

c) By taking the private sector savings ratio into ac-

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1) This is the German version. The Dutch version is nearly identical. Here short-term variations around the structural budget norm can go on up to a predetermined limit, where "emergency brakes" come into function.

count[1] a link is established to the balance of payments.[2]

The next step in the analysis of necessary operating procedures for a coordination of financial policies in the medium term is to focus on rules for monetary growth and/or exchange rate targets, having examined the budgetary/fiscal side.

The techniques central banks use when they determine their monetary targets are alchemy for the outsider.

However as a rule of thumb[3] a target is made up of the following components: the amount of productive potential + desired change in capacity utilization + some defined inflation constant minus the expected change in the velocity, which in turn will allow for the cyclical position of the economy.

Such a rule of thumb is of course a crude approximation. In Thygesen (1978) three steps in setting a monetary target are introduced.[4]

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1) This is in fact a Keynesian influenced system. When private sector investment recovers, countercyclical fiscal policy should decline. See the analysis of gross investment and government financial savings in Denmark and in Germany in the last decade in relation to the development of the balance of trade account. Chapter 9.

2) Cf. the discussion in chapter 3.

3) See OECD (1979), op. cit.

4) N. Thygesen, International Coordination of Monetary Policies - With Special Reference to the European Community, Memo No. 62, København.

Firstly, using a realistic estimate of future GNP, which conveniently could be derived from the advocated budgetary target, dividing it with the average money stock, the resulting measure for velocity gives an indication of the direction of the policy. This conjecture is based upon the assumption that an, at least, medium-term stability in the demand for money exists. In order to remedy this defect, a better estimate for the demand for money function could be used, preferably based on a more refined technique than our rule of thumb. This is the second level.

Thirdly,[1] this evolving monetary rule should be tuned to a price target, set up by the government.

Instead of relying on a monetary target, smaller countries, like Denmark and Belgium, choose to fix their exchange rate stability. The rationale for this, as previously discussed, is the high degree of openness and indexation of the economies, which would make depreciations feed through to domestic prices.

Denmark does not officially publish a monetary target, but the Netherlands use a monetary rule, despite the fixed exchange rate link to DM, which briefly says that long-term monetary growth should equal long-run national income growth in volume terms adjusted for unavoidable[2] price increases.

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1) Cf. Thygesen (1978), op. cit.

2) E. Van Dunnen (1981), op. cit.

Having discussed possible rules for budgetary and monetary control, the next question is how to control such a scheme by the contracting parties, or more pessimistically, can such a scheme be controlled?

Two main problems for control immediately arise:

1) The increasing relative price of public consumption, due to differences in sector productivity, and
2) Indexation of transfers to prices and wages.

We shall start by discussing the importance of the latter problem.

Indexation of income transfers to some definition of the price level has the disadvantage, in the present context, that economies subject to inflationary shocks, might have extreme difficulties in keeping to the agreed medium-term financial strategy. In this way the supposed cure to the disease actually makes the patient worse off.

No doubt indexation was first introduced for reasons of equality in income transfers, now however the differences in indexation schemes amongst the EMS participants seem to generate more inequality amongst the participants.

In figure 7 (next page) the differences in indexation inside the EMS area are shown.

It is not surprising that Germany and the Netherlands seem to have the lowest degree of indexation, while weak currency countries like Italy, Denmark and Belgium have a nearly full indexation. In addition to the differences in

Table 7. The degree of indexation in the EMS countries.

	personal income tax			public expenditure		
	date	type	index	pensions	other transfers	government wages
Belgium	-	threshold (b)	CPI	prices	prices	prices
Denmark	1970	Bracket	CPX(g)	wages	prices	wages
France	1968	discretionary	CPI	-	-	-
Germany	-	-	-	-	-	-
Ireland (no info available)						
Italy	-	-	-	prices/wages	prices	prices
Netherlands	1972	80% bracket	CPI	legal minimum wage	-	average private sector wage
United Kingdom	1978	Bracket (d)	CPI	prices	prices	(c) (e)

key: CPI = consumer price index, indirect taxes incl. CPX = consumer price index, indirect taxes excl. b = in Belgium indexation is not routinely applied. c = public service pensions indexed. e = a limited number of sectors are indexed to prices. d = indexation factor 0 in 1981-82. g = only full indexation to a certain level, since 1978. Source: OECD secretariat.

indexation, the share of social security transfers in total government current spending differs significantly amongst the EMS countries. See table 8 below.

Table 8. Share of social security transfers in total government current spending.

Country	1970	1980
Germany	38.6	37.6
France	48.4	52.7
U.K.	26.4	27.6
Italy	43.9	38.3
Netherlands	44.1	49.4
Belgium	42.6	44.1
Denmark	32.3	33.2

Sources: DIW, Wochenbereicht 3/82, Die Offentlichen Haushalte im internationalen Vergleich, and OECD, Yearbook of National Accounts.

Ceteris paribus, the role of indexation of income transfers plays a minor part, relatively, in countries like Denmark and the UK, because the larger part of current government spending in these two countries is concentrated on goods and services plus government debt interest payments.[1] Consequently, in the case of Denmark, the common explana-

1) For the more thorough analysis of this point, see chapter 8.

tion that the high level of transfers is the culprit for the explosive growth of the public sector, must be questioned. For comparison see table 10, where the shares of total government expenditure in GDP/GNP are calculated for the EMS countries.

The next problem in this discussion of adequate control over budgetary targets is the tendency to wage increases in the public sector without any clear link to productivity increases, however defined. In table 9 a.& b this tendency is shown.

Table 9 a. The share of government current expenditures on goods and services in the value of total consumption.

Country	1970	1980
Germany	22.7	27.0
France	18.6	19.7
U.K.	22.1	26.3
Italy	18.0	21.1
Netherlands	22.2	23.0
Belgium	18.6	22.9
Denmark	26.5	32.4

Source: OECD, National Accounts 1951-1980, Paris 1982.

Table 9 b. Share of government current expenditure on goods and services in the volume of total consumption.

Country	1970	1980
Germany	22.7	23.9
France	21.5	19.7
U.K.	24.8	25.4
Italy	18.0	18.7
Netherlands	23.7	22.8
Belgium	20.9	21.7
Denmark	28.1	33.6

Source: OECD

By comparing the two tables we can see that the table with volume does not show significant growth, except for Denmark.

Looking at the value of total consumption the picture changes. Here all countries score a significant rise, again with Denmark somewhat out of the trend.

It may be a coincidence but the Netherlands (see table 7) which has government sector wages linked to average private sector wages had the smallest absolute increase in both accounts.

Turning to the question of monetary control, the immediate problem is closely connected to what kind of monetary target one wants to control.

Table 10. The shares of total government expenditure in GDP/GNP shares in the EMS countries 1970-1980

	1970	1977	1978	1979	1980
Germany	37.6	46.5	46.5	46.4	47.0
France	38.9	44.2	45.1	45.3	46.2'
UK	39.3	44.1	43.7	43.5	45.5'
Italy	34.2	42.5	46.1	45.5	45.5'
Belgium	36.5	46.7	47.9	49.7	49.5'
Denmark	39.5	45.0	45.8'	48.7	52.5'
Ireland	39.6	46.5	47.2	-	-
Luxemburg	33.1	52.6	-	-	-
Netherlands	45.5	56.0	57.5	59.5	60.4'

Source: National Accounts of OECD Countries. Total government expenditure is defined as: current disbursements (capital consumption incl.) + gross capital formation. This equals the sum of lines: 23, 28, 29 and 30 minus line 26 in the standard tables 9 in the National Accounts statistics. Figures marked ' show an estimate by the OECD Secretariat.

Inventions in the financial markets make it increasingly difficult to control only one narrowly defined target.

Recent American experience seems to show a high degree of complementarity in the different definitions of monetary targets. I.e. when one target seems to decrease, a wider definition of the target would increase. To remedy this, Meade[1] has been arguing for a carefully chosen price index as a target, or the growth rate of money value of national income.

Another problem, as first described by Vaubel,[2] is that pre-announced monetary targets have been associated with policy conflicts. When real exchange rates rise, as the result of a (too?) restrictive monetary target[3] which target should then be abandoned? The exchange rate target or the target for monetary growth?

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1) See J.E. Meade, The Intelligent Radical's Guide to Economic Policy, London 1975. Although Meade's contribution seems to reconcile the rationale behind both monetary and exchange rate targets, it has not yet been accepted by policy makers.

2) R. Vaubel, "International Shifts in the Demand for Money, Their Effects on Exchange Rates and Price Levels and Their Implications for the Pre-Announcement of Monetary Expansion", Weltwirtschaftliches Archiv, 1980, pp. 1-44.

3) In Vaubel's analysis the real appreciation of the DM was due to currency substitution against the US dollar.

In such a situation the Sachverständigenrat[1] recommended a suspension of the monetary target, if the tightness of the monetary policy was leading to significant changes in the real exchange rate.

In the context of the small open economy a foreign price level probably offers a better designator for the domestic price level than does a monetary target.[2]

The underlying assumption for this is that if price disturbances for an economy arise primarily from changes in the general level of foreign prices a monetary target would seem to work.

In the small open economy where domestic cost mark-ups are the dominant source of inflation, a stabilization of the nominal exchange rate to a foreign currency, at some rational level, would probably offer better prospects for price stabilization.

6.6.4. The final coordination of short and medium economic policies in the context of a currency area.

In the section below it is important to distinguish between ex-ante and ex-post coordination.

The difference between the two terms is that ex-ante coordination is[3] "taken with a view also to the way in

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1) According to Vaubel (1980), op. cit.

2) This point is convincingly demonstrated by M.J. Artis and D.A. Currie, "Monetary Targets and the Exchange Rate: A Case for Conditional Targets", in W.A. Eltis & P.J.N. Sinclair (eds.), op. cit., 1981.

3) Quoting Thygesen (1978), op. cit., p. 2.

which decisions fit into the prospects and plans of other countries . . . In short, coordination implies the fixing of mutually consistent objectives." Ex-post coordination implies[1] the "convergence of national economic trends towards a dominant and common international pattern".

An analogy to car racing gives a clear distinction between the two terms.

Ex-post planning is like driving a car forwards by relying solely on information obtained from the rear mirror.

Let us now for a short moment return to our Delta-Sigma model where a state 3 situation implied an inconsistency of national income targets.

In such a case Sigma should try to formulate ex-ante a relatively slower growth in its medium-term financial target than is the case of Delta's target.

When formulating the medium-term financial target two areas for potential policy conflict should be identified:

a) The need for consistency between short-run monetary policy and the medium-term desired level of inflation.
b) The need for consistency between short-term fiscal policy and the medium-term budgetary objective.

In chapters 2 and 3 it was argued that a restrictive monetary policy and a more accommodating fiscal policy would have potential long-term adverse effects on the economy, and in the next chapter an analysis is presented,

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1) Thygesen (1978), op. cit., p. 2.

which shows how and why such problems arise. However a conclusion to be drawn from chapters 2 and 3 was that the reliance on tight monetary policies was inconsistent when it was combined with large budget deficits, which seem to raise long-run inflationary expectations, when the combined effects of lower economic growth, higher interest rates are expected to lead to further deficits.

So how do we arrive at a credible medium-term financial target, where consistency exists between monetary and fiscal policy, and what should such a target cover?

Let us first negate the question and see what such a target is not meant to cover.

The political discussion about the income level desired in the future, or how national income levels are reconciled institutionally are not subjects for the present analysis. Our more modest scope is to see how the two potential kinds of policy conflict, as listed above, can be avoided by suggesting some guidelines which should be commonly accepted by the participating states in a currency area, besides having a degree of commonness in budgetary procedures, which are seen as a necessary basis for the guidelines.

Let us start by looking at item b, the consistency between short-term fiscal policy and the medium-term budgetary target. An ideal type of a world is found when fiscal policy works without frictions, the governmental

budget varies counter-cyclically to booms and recessions respectively, and where the markets would discount short-term imbalances between government sector and private sector demands for credit as transitory.

Automatic stabilisers would be relied upon as a sufficient instrument for keeping the economy on a desired long-run growth trajectory.

When revenues fall, due to recessions, the increased level of income transfers and public investments would be financed by additional borrowing or monetary finance.

Vice versa, in a boom, a budget surplus would emerge accordingly.[1]

The real world according to, amongst others, the OECD[2] presents a somewhat different picture. If stabilisers work for too long, and if they finance, mainly, government consumption, their fiscal effectiveness tends to decrease, while interest payments increase.

And secondly, automatic stabilisers very seldom have only an economic "raison d'être".

Political considerations, which by their very nature,

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1) Such a world is described in E.F. Infante & J.L. Stein, "Money Financed Fiscal Policy in a Growing Economy", Journal of Political Economy, vol. 88, no. 2, 1980, where rational expectations would be formed according to a preconceived budget deficit where the economy would be in structural balance, because the automatic stabilisers were seen to be self-correcting.

2) OECD, Budget Financing and Monetary Control, Paris 1982.

differ from economic rationality, play an important role, as politicians' time horizons and the cyclical swings in the economy do not necessarily overlap.

The implication of this is that automatic stabilisers cannot be assumed to be solely assigned to a long-term growth objective of the economy, but they are part of a political system of distribution. As such they are very difficult to change, even when they work against their intended objective, that of counteracting shocks.

Cairncross,[1] in a recent article, has suggested that automatic stabilisers are far from sufficient for recovery, and with the increasing openness of economies it is indeed questionable whether automatic stabilisers should be expected to cope with supply-shocks, i.e. drastic changes in relative world prices, when they were originally designed to cope with domestic demand shocks. The futility of relying on automatic stabilisers in the light of supply shocks was analyzed in the section about openness and economic linkages in chapter 3.

However instead of dismissing stabilisers as inadequate for short-term stabilization, energy prices which are the most "shock-prone" items should be excluded from the indexes, which they still are not in some EMS countries.

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1) A. Cairncross, "The Relationship Between Fiscal and Monetary Policy", Banca Nazionale Lavoro, Quarterly Review, 1981, p. 379.

That short-term fiscal policy tends to "overshoot" and thus makes a medium-term objective inconsistent, is shown in the analysis below in chapter 8, where gross investment, governmental financial savings and current account surplus were analyzed for Denmark and Germany. The results show that, for Denmark especially, the governmental demand support was strangely calibrated, because counter-cyclical fiscal policy was at several times out of line with the investment recovery.

That a private investment recovery was not taken into account in planned fiscal action can only be explained by taking the lack of a link to private savings in Danish budgetary procedure into account.

When discussing consistency between short-term fiscal policy and a medium budgetary target, it is important to realise the difference between ex-ante budgetary cuts and ex-post realised savings. Some ex-ante budget savings cut easily gets adverse effects. The savings cuts in public investments, which in the case of Denmark have been drastic, may lead to higher unemployment with resulting increase in income transfers, which again, ceteris paribus, will lead to a higher deficit at a lower level of employment.

The conclusions we can draw from this are that budgetary decisions seem to have a high degree of autonomy in

the short run, an ex-ante tight fiscal stance may bring an ex-post increase in the budget deficit.

So the question here is whether an independent monetary policy can achieve the bringing of future inflation under control. Looking at the information in chapter 8, the smaller countries have had difficulties in lowering their inflation rates despite restrictive monetary policies. And taking the large budget deficits in these countries[1] into consideration it is questionable whether tight money alone can reduce inflationary expectations, when feed-backs in the way of expectations of future lower growth and resulting larger government deficits seem to loom high over recovery.

Accepting that short-term rigidities exist in short-term public spending, it seems logical that this fact should be taken into account when monetary targets are set.

A short-term tight monetary policy[2] might easily have adverse effects on an overall financial target, because the resulting cumulative interest payments and debt servicing of the resulting budget deficits, will make financing difficult and in this way raise expecta-

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1) See chapter 8.

2) See the analysis by T. Sargent and N. Wallace, "Some Unpleasant Monetarist Arithmetic", Reserve Bank of Minneapolis, Quarterly Review, fall 1981.

tions that the state eventually will start on monetary finance.

Summing up our conclusions in order to formulate some guidelines for the coordination of fiscal and monetary policies into medium-term financial targets, the following points can be made.

i. In order to compare national income targets, a uniform budgeting procedure inside the currency area would be needed.
ii. Such a budgetary procedure could ideally include a link to the balance on the current account, by including the position of private sector savings, as shown in chapter 3.
iii. When the medium-term financial target is formulated, the mix between monetary and fiscal policy is set, so that monetary targets and/or exchange rate targets are set in accordance with a predetermined fiscal stance, not in competition with intended fiscal policy.
iv. This requires a better coordination of treasury and central bank policies, but need not infringe on the institutional independence of some central banks, cf. the following quote from the German Bundesbank: "It is the conviction of the Bundesbank that control of the money supply for the sake of combating inflation and ensuring steady economic growth can only be successful if the policies and behaviour of public authorities, enterprises and trade unions are guided by the same objectives."[1]

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1) Memorandum by the Deutsche Bundesbank, House of Commons, Treasury and civil service committee, 1980, vol. 2, p. 12.

v. With the inflexibility of fiscal policy in mind, monetary policy should be oriented for the long term, while the fiscal stance should have a short-term autonomy.
vi. Ex-ante planning of the fiscal stance for the medium term should rely on projections for both expenditure and revenue.

6.7. Coordination of medium-term financial targets inside a currency area, the political issue.

By coordinating national medium-term financial targets participants, and especially the weaker currencies, in a currency area can get a more realistic perception of costs and benefits of joining the currency area, and at the same time the fixity of internal exchange rates would be more credible, thus preventing one way bets.

The treasuries and central banks would have a forum for debate, and in this way monetary cooperation would become politicized and dragged out of the realm of technicians, cf. the quote of Andrew Shonfield,[1] "The plan can be characterized as a scheme for European Integration by central bankers instead of governments. The hope is evidently that central bankers being recognized as technicians will be allowed to get on with their job with the minimum of interference from politicians and populace."

Recent experience inside the EMS, where central banks and treasuries have been at odds with each other, underlines the needs for a more coordinated effort, if badly timed realignments are to be avoided.

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1) A. Shonfield, Europe, Journey to an Unknown Destination, 1972, p. 74.

Chapter 7

The economic effects of an over reliance on tight monetary and lax fiscal policies.

If fiscal policy in the short to medium run has a high degree of autonomy, as claimed in the preceding chapter, a tight monetary policy and corresponding high interest rates are assigned the task of combating domestic inflation, as well as correcting an external imbalance.

This rather vulgar interpretation of the Mundell-Fleming policy-mix theory is a typical outcome for the small open economy.[1] In the present chapter Keynesian and neo-Keynesian frameworks for stabilization policies in small open economies are analyzed, and a conclusion is that these models do not take longer term effects on economic structure of different policy mixes into consideration.

So the main part of the chapter is used for an analysis of the economic effects on economic structure of an over reliance on tight monetary policies and accommodating fiscal policies. By using a modified Salter diagram, we show that capital imports induced by high real domestic interest rates will have serious repercussions on the production and consumption patterns of the economy.

Bond financing of government deficits as a result of an expansive fiscal policy will in an open economy have only slight financial crowding-out effects. However it is

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1) Empirical evidence is found in the next chapter.

shown that a very likely outcome of continuing deficit finance is crowding-out via the exchange rate. Lastly a link between stabilization policies and public sector growth is sought to be established.

The effects of fiscal policy on the external balance in a fixed exchange rate framework have been demonstrated by, notably, Whitman[1] and Branson.[2]

The former showed that the outcomes of fiscal policy in an open economy were determined by the relative slopes of monetary and external equilibrium relations, and including the domestic bond rate and price-level, the latter demonstrated that if the external balance line is steeper than the asset equilibrium relation, an increase in government expenditure would lead to a deficit on the current account.[3]

The limits to fiscal policy in the form of the government budget constraint can be traced back to Modigliani.[4] The implication of the government budget constraint was further elaborated by Blinder and Solow[5] and Tobin & Buiter in examining the crowding-out effect.[6]

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1) M.v.N. Whitman, Policies for External and Internal Balance, Princeton Paper no. 9, Dec. 1970.

2) W.H. Branson, "A Keynesian Approach to Worldwide Inflation", in Krause & Salant, Worldwide Inflation, Brookings, 1977.

3) We note the similarity to the original absorption approach, cf. chapter 2 and 3.

4) F. Modigliani, "The Monetary Mechanism and its Interaction with Real Phenomenon", Review of Economics and Statistics, Feb. 1963.

5) A.S. Blinder & R.M. Solow, "Does Fiscal Policy Matter", Journal of Public Economics, Nov. 1973.

6) J. Tobin and W. Buiter, "Long Term Effects of Fiscal and Monetary Policy in Aggregate Demand", in J. Stein (ed.), Monetarism, North-Holland, 1976.

Below we shall follow a somewhat different strategy in analyzing the combined effects of a tight monetary policy and an accommodating fiscal policy. We find that a restrictive monetary stance will affect the production pattern of an economy and an accommodating fiscal policy will eventually result in a real crowding-out effect, or crowding-out via the exchange rate.

In chapter 2, the apparent minor role of fiscal policy as a tool of demand management in the process of monetary integration was discussed, and a partial conclusion was that an inconsistent combination of monetary and fiscal policies would most likely result in a tighter monetary policy than would otherwise have been the case.

Such a development would in turn make some sectors of the economy carry more of the adjustment burden than was probably originally intended.

Chapter 6 presented some guidelines for the coordination of monetary and fiscal policies in the short to medium term, this without explicitly dealing with the potential effects on the economy of different doses of the mixture.

The aim of the present chapter is accordingly to present an analysis of the effects of capital formation and hence economic structure of different policy mixes in the now familiar context of the small open economy.

This analysis is in order to examine whether other policy mixes could distribute the costs of disinflation more evenly, and in a way which does not seem to penalize future

potential so heavily as the present policy mix seems to do.

Although the Mundell-Fleming policy mix approach[1] has been severely criticized for having no corrective effects on the current account, possibly aggravating it in periods, the approach has recently been sought to be rehabilitated.[2]

When the Mundell-Fleming policy approach was presented it was very attractive to policy makers, because it seemed to offer them a panacea for the internal/external equilibrium problem, and it was widely adopted by small open economies with, especially, external balance problems.

And according to Hoffmeyer and Hansen,[3] the Mundell-Fleming assignment principle was indeed the cornerstone for

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1) As first presented by Mundell in his The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability, in IMF Staff papers, IX, 1962, p. 70. Briefly, this simple rule states that a country suffering from domestic unemployment and external imbalance would have to rely on both expansive and contractive policy measures. This would obviously create a conflict. Assuming full capital mobility, monetary policy would be assigned the improvement of the external balance, while fiscal expansion would be assigned to the unemployment problem.

2) See D.K. Fausten, "A Partial Rehabilitation of the Policy Mix Approach", Kyklos, vol. 34, 1981, p. 203.

3) E. Hoffmeyer & L. Hansen, "Danish Monetary Policy During the Last Decade", Kredit und Kapital, Heft 2, 1978.

Danish monetary policy during the last decade.

As the case study of Denmark in the next chapters shows, it is, ceteris paribus, difficult to see a degree of real adjustment after a decade's use of this policy mix.

Below we shall analyze the economic effects of an (over) reliance on tight monetary and accommodating fiscal policy.

First the implication for stabilization policies in a small open economy of the Keynesian framework is presented, and on this background macroeconomic policies of deflation based on newer theories are discussed. Finally the link from stabilization policies to public sector growth is established.

7.1. Keynesian and neo-Keynesian framework for stabilization policies in a small open economy.

The traditional view on stabilization policies in small open economies[1] was for a long time influenced by the (near) trivial textbook Keynesian quantity model, and the constraints of the small open economy were simplified by Hansen.[2]

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1) See i.e. A. Rødseth, "Macroeconomic Policy in a Small Open Economy", Scandinavian Journal of Economics, No. 1, 1979, and same author, "Nyare teori om stabiliseringspolitikk i opne økonomiar", Sosialøkonomen, Oslo, No. 6, 1979, where the Keynesian tradition is compared with the newer contributions of Turnovsky, S.J., Macroeconomic Analysis and Stabilization Theory, Cambridge 1977, and Calmfors, L., Prices, Wages and Employment in the Open Economy, Stockholm 1978.

2) B. Hansen, Finanspolitikens ekonomiska teori, Uppsala 1955.

So let us sum up the two models briefly, in order to draw some conclusions for stabilization policies.

The well-known "Keynesian textbook" model is based on the national account balance identity, with derived multipliers which in turn are functions of import and export propensities.

Three main conclusions for stabilization policy are normally mentioned, when this model is discussed:

i) The level of domestic activity can be changed by the government by expansive or contractive budgets. The only serious leakage is the propensity to import.
ii) An expansive policy will erode the current account balance because of the increase in imports.
iii) In order to minimize the effects on the current account the expansionary measures are concentrated to sectors in the economy with a low import propensity.

Complementary to this model, but with a focus on the constraints for the small open economy, is the model of Hansen.[1] This model explicitly assumes the law of one price, the small open economy as a price taker, and a fixed exchange rate. With a fixed exchange rate and fixed world prices the domestic price level is the exogenously given.

The figure shows the terms of trade constraints for the economy.

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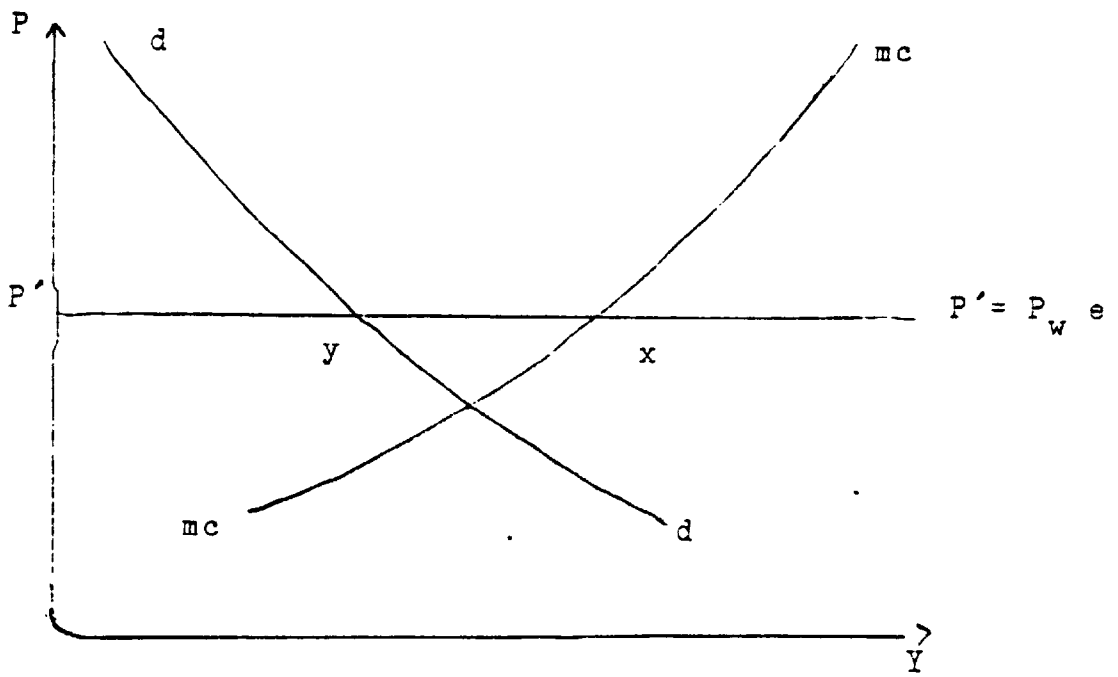
1) B. Hansen, op. cit., 1955.

Fig. 1

The small open economy and the terms of trade constraint.



The domestic price level P' is given by the world price level P_w and the exchange rate e.

The mc curve shows the marginal productivity costs for the domestic economy. Producers choose the production locus x where marginal costs equate the price level.

The dd-curve shows domestic aggregate demand, so the domestic consumption locus will be y.

The line segment yx is in this example the export surplus, but had the demand curve and the marginal cost curve been steeper both, or respectively, a deficit would have occurred.

The conclusions about stabilization policies from this simple macro model are the following:

i) The level of equilibrium aggregate demand is determined by costs of production, world market prices and the exchange rate, which again determine the terms of trade.

ii) The current account is then determined by the level of domestic demand and the terms of trade.

If we try to compare the two models we see that:

a) The first model treats export as an exogenous variable,[1] while the export volume in the second model is determined by domestic parameters.

b) In the first model a policy conflict arises between the level of domestic activity and the balance on the current account, while an improvement of the terms of trade can alter the level of production and the export surplus in the second model.

c) In the first model prices and wages do not affect the production level explicitly, while in the second model prices and wages are determining factors for the level of production.

d) In the first model the level of domestic demand is the determining factor for the level of production, while such a link is not found in the second model.

Instead of seeing the two models as exponents of com-

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1) Cf. Rødseth, op. cit. (1979).

peting traditions[1] in economic theory, the newer Hansen model shows the constraints of the "Keynesian textbook" model when exposed to openness.

What these two models do not show, are the longer term effects of different mixes of fiscal and monetary policies, the effects of different modes of budget financing, and the impact of capital mobility expressed in a two sector economy, which then is the aim of the present chapter.

We shall start the analysis by examining deflation through a contractionary monetary policy and an accommodating fiscal policy, because, as explained in chapter 2, this seems to have been the typical policy mix for the adjustment strategy in some of the weaker currency countries.

7.2. Economic effects of deflation through purely monetary policy.

We shall below concentrate on two aspects of medium-term effects of a tight monetary policy:

a) The effects on the exchange rate of a monetary contraction and the derived effects of this in terms of a monetary squeeze on the tradeables sector, and
b) The direct effects on the economy of a monetary contraction.

We start with item a, and by monetary contraction we mean a total reliance on items i & iv as stated in section 1.1.4, that is fixing the net issue of money and the net sale of

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1) Cf. Rødseth (1979), op. cit., who sees the two models as competing interpretations.

public securities.

A simple way of describing the relationship between monetary policy and the exchange rate is done by Budd & Warburton in the following way:[1]

a) A long-run neutrality of money exists, which equals demand for real money balances with the level of real output.[2]

b) Purchasing power parity holds in the long run.

It is assumed that:

1) Output can be divided into tradeables and nontradeables.[3]
2) Although PPP is expected to hold in the long run for traded goods, the general domestic price levels need not converge.
3) The domestic relative prices depend on:
   i) The ratio of productivity in the tradeables and the nontradeables sectors.
   ii) The ratios of output in the traded and nontraded goods sectors respectively.

If we furthermore assume that the nominal exchange rate moves to equate the price of traded goods in terms of a common cur-

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1) See A.P. Budd & P.J. Warburton, "Monetary Policies and Exchange Rates", Recherches Economiques de Louvain, vol. 45, no. 1, 1979.

2) The exact level depends on what could be called a country's income elasticity of demand for money balances, which will vary according to the sophistication of national financial institutions.

3) Which is, as previously mentioned, a somewhat arbitrary division.

rency,[1] we get the following three variables as main factors in determining the exchange rate:[2]

a) The relative money supply.

b) The relative output level.

c) The relative price level, as determined by items i and ii.

Let us now see what happens when a tight monetary policy is introduced.

In addition to the previous assumptions we add two:

1) The terms of trade are exogenously given, which is the small country assumption, and

2) The country starts from a position with a deficit on the external balance. This assumption is crucial for the second part of the analysis, where the medium run effects are analyzed.

If securities are bought by foreigners, or are bought by domestic agents, who would otherwise have invested abroad, the exchange rate is, ceteris paribus, bound to appreciate.

A monetary contraction with a resulting appreciation of the exchange rate will have different effects for the tradeables and the nontradeables sector respectively.

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1) This is a tricky assumption, and as is demonstrated in the next chapter, the real interest rate probably plays a more significant role in a fixed rate currency area with diverging inflation differentials.

2) Cf. Budd & Warburton, op. cit., 1979.

Using a simplification of Corden's[1] original analysis, in figure 2, we show how a monetary squeeze will affect the two sectors adversely, and how, by using a modified Salter diagram[2] the resulting capital inflows will aggravate this trend, by changing the relative prices.

The role of traded and nontraded goods in the open economy has a long ancestry.[3]

Today this tradition can be split up into two strands, the Australian model and the Scandinavian model.

The difference between the two interpretations is embedded in the transformation curve between the two kinds of goods, as emphasized by Dornbusch.[4]

In the Scandinavian model, labour is the only production factor,[5] and traded and nontraded goods are produced

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1) W.M. Corden (1981), op. cit.

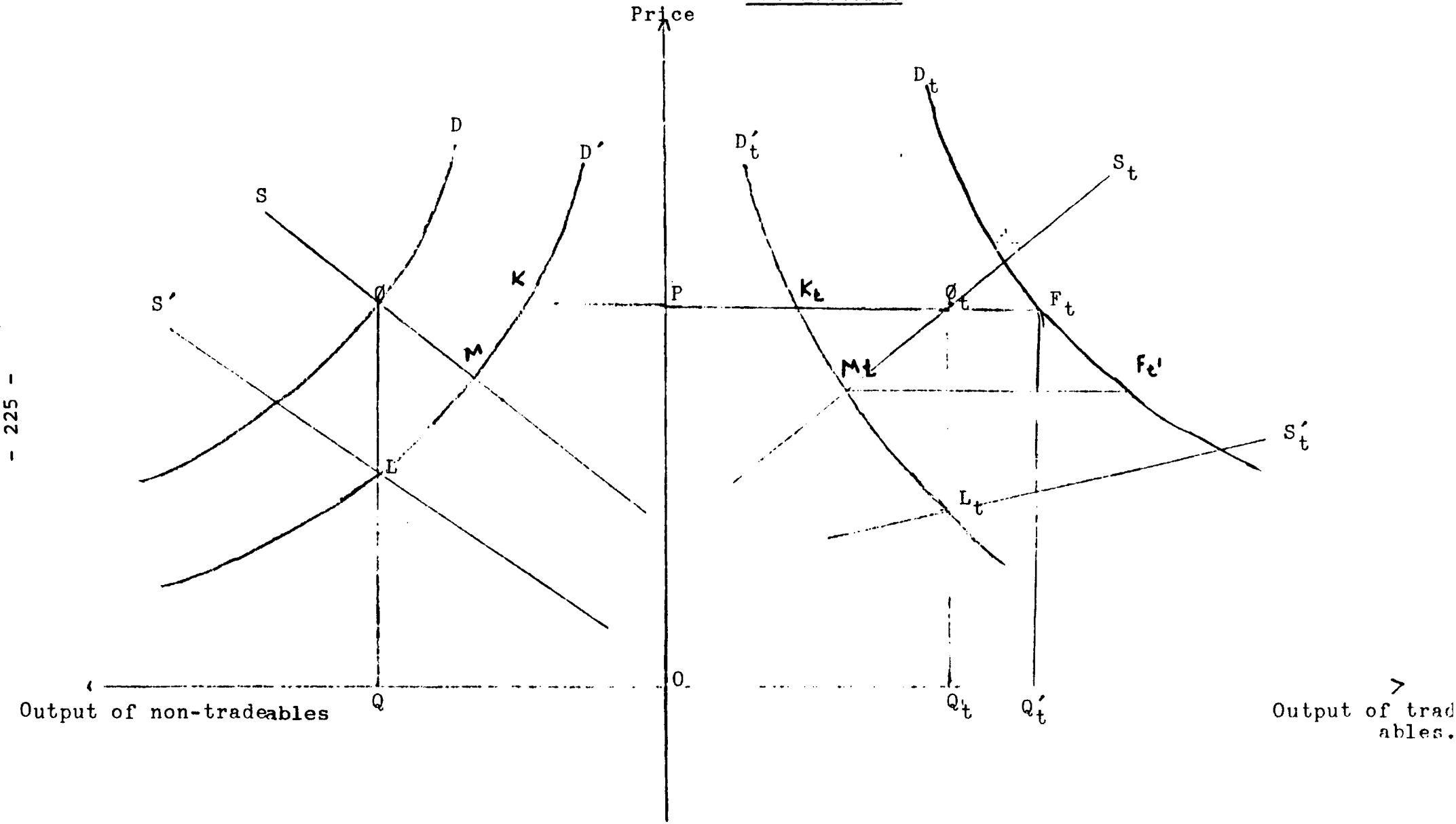
2) As originally devised by Salter, W.E., "Internal and External Balance. The Role of Price and Expenditure Effects", Economic Record, 35, Aug. 1959, p. 226-238.

3) An early Danish contributor is Carl Iversen, International Capital Movements, New York 1935.

4) A discussion of the two models is found in his Open Economy Macroeconomics, New York 1980, chapter 6.

5) See references in chapter 2 for this model.

two sectors.


Price
D
D'
S
S'
K
M
L
P
O
Q
Output of non-tradeables
D_t
D'_t
S_t
K_t
M_t
F_t
F_t'
S'_t
L_t
Q_t
Q'_t
Output of tradables.

with constant returns and fixed unit labour requirements. This implies that a constant marginal rate of substitution exists, and the transformation curve is accordingly a straight line.

The relative price is a function of technology alone, and is independent of the composition of output in the two sectors.

In the Australian model labour is mobile between the two sectors[1] with diminishing returns, which indicates a convex transformation curve.[2]

The slope of the transformation curve, see figure 3, gives the relative price of nontraded goods in terms of traded goods, which implies that the relative price is dependent on the composition of output.

Below we shall try to show that this relative price is identical with the real exchange rate.

So for our purpose we choose the Australian model, as this model stresses the importance of relative prices.

In the figure, output of nontradeables, where the government sector is the main purveyor, and output of tradeables are depicted on the horizontal axis, while the price is on the vertical axis. The nominal wage is held constant and the price elasticity of each good is unity. The latter assumption is relaxed in the last part of the

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1) Only in the medium to long term.

2) The Australian model has its origin in the works of Salter (1959), op. cit., and Corden (72+77+81), op. cit., and T. Swan, "Economic Control in a Dependent Economy", Economic Record, 1960, vol. 36, p. 51-66.

analysis. Furthermore we assume a flexible exchange rate.[1]

The SS curves are sloping upwards because at a given nominal wage rate there will be diminishing returns to labour with a given capital stock.[2]

The D-D curves show aggregate demand curves at a given nominal money supply.

With a given world price level, the small country assumption, the initial exchange rate will set the domestic price level at O-P. With the supply curves S-S and S_t-S_t, output for nontradeables is set at O-Q, and output for tradeables is set at O-Q_t.

At a chosen initial money supply we get demand curves D-D and D_t-D_t for the nontradeables and tradeables sectors respectively. In the tradeables sector the level of absorption O-Q_t' implies a deficit on the current account of Q_t-Q_t'.

Now we introduce a monetary contraction which will shift the level of aggregate demand from D-D and D_t-D_t to D'-D' and D_t'-D_t' respectively.

Such a contraction of the money supply (M_o) will work through to the exchange rate via two channels mainly:

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1) In chapter 5 it was shown that the distinction between fixed and flexible exchange rates was highly arbitrary. Had we assumed a fixed exchange rate, increases in international reserves would, in this example, sooner or later have forced through an appreciation.

2) Dornbusch (1980), op. cit., p. 107, shows how increased productivity in the tradeables sector would be the right remedy, however productivity growth as a result of higher capital investments is difficult to imagine in an already squeezed sector.

a) the reduction in investment as a result of dearer money will reduce total consumption, and

b) the higher relative interest rate induces capital inflows, which, ceteris paribus, will appreciate the exchange rate.

The immediate effect is a fall in income in the tradeables sector which will work through to the nontradeables sector, thus reducing total aggregate spending.

In figure 2 this is shown to be from Ø to somewhere on the line segment Ø-M, and from F_t to $Ø_t$ and eventually to M_t.

The new equilibrium position is M_t, and still assuming a constant nominal wage rate, the size of the appreciation of the exchange rate is dependent on the actual fall in nominal expenditure. If we say that nominal expenditure is a function of money supply M_o times velocity V, then V play an important role.[1]

In an open economy with a high degree of financial integration a given contraction of M_o will result in a smaller rise in V than would have been the case in a closed economy. Hence the domestic interest rate will rise less for a given reduction of M_o, which in terms of the exchange rate, still assuming full capital mobility, will reinforce the appreciation.

So a given fall in M_o will have a greater effect on the exchange rate with capital mobility than without.

Accordingly, the exchange rate will appreciate more for

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1) As specially emphasized by Corden (1981), op. cit., p. 28.

a given reduction of M_o, because of foreign capital inflows.

In a situation with an appreciating exchange rate the deflationary effects of the appreciation will be seen in public and private savings propensities.

The public dissavings will increase because of automatic transfers, and the private savings will decrease as a response to the contraction in income.

The decrease in savings will in turn widen the deficit on the current account.

Points M and M_t are not necessarily permanent equilibria, although they are goods market equilibria.

In Corden's[1] original contribution, he notes that if the labour market was originally in equilibrium, and trade unions and individuals expect the contraction to last, then nominal wages will have to fall, thus moving the original S-S and S_t-S_t curves downwards.

Finally the aggregate supply curves will be S'-S' and S'_t-S'_t, and points L and L_t are new equilibria positions.

Here output and employment have recovered to the levels of $\emptyset$ and $\emptyset_t$.

The nominal wages are lower, but so is the price level, only the exchange rate which determines the price level has appreciated, which renders the real wage rate identical with the one at point $\emptyset$ and $\emptyset_t$.

7.2.1. Comparison of the effects of a monetary squeeze in the two sectors.

On which sector will the contraction of M_o have the

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1) Corden (1981), op. cit., p. 24.

strongest effect?

We still assume that the domestic demand elasticity for each good is unity.

Above we have established that the effects of the contraction of M_o would be felt through an appreciation of the exchange rate in the tradeables sector, and through a decline in investment in the nontradeables sector.

Corden[1] argues that a case could be made where investment is not interest elastic in the short run, which means that expenditure is not reduced immediately after a contraction of M_o, but where the exchange rate has appreciated as a result of the capital inflow.

In such a case the tradeable sector will feel the squeeze right away, while there would be no immediate reduction in expenditure in the nontradeables sector.

In figure 2 the exchange rate and output move to M_t, while nominal expenditure stays at F_t.

The level of real expenditure being F'_t, with a capital inflow of $M_t - F'_t$.

Below we shall see how such a capital inflow ultimately will change the initial set of relative prices.

To demonstrate this we use the Salter diagram[2] shown in

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1) Cf. W.M. Corden, op. cit., 1981.

2) The Salter diagram originates from Salter (1959), op. cit., but it has been used lately by R. Dornbusch, in his "Devaluation, Money and Non-traded Goods", American Economic Review, 1973, pp. 871-880, and more recently in his Open Economy Macroeconomics, 1980, in chapter 6, "Home Goods and Traded Goods: The Dependent Economy Model". Furthermore M. Michaely has used the approach in Capital Imports, Economic Structure and Dependence, Stockholm 1980. These contributions have been a primary source of inspiration for the author, although the usual caveats apply.

nontrade-
ables.

Figure 3.

Capital inflows and changes in relat
price

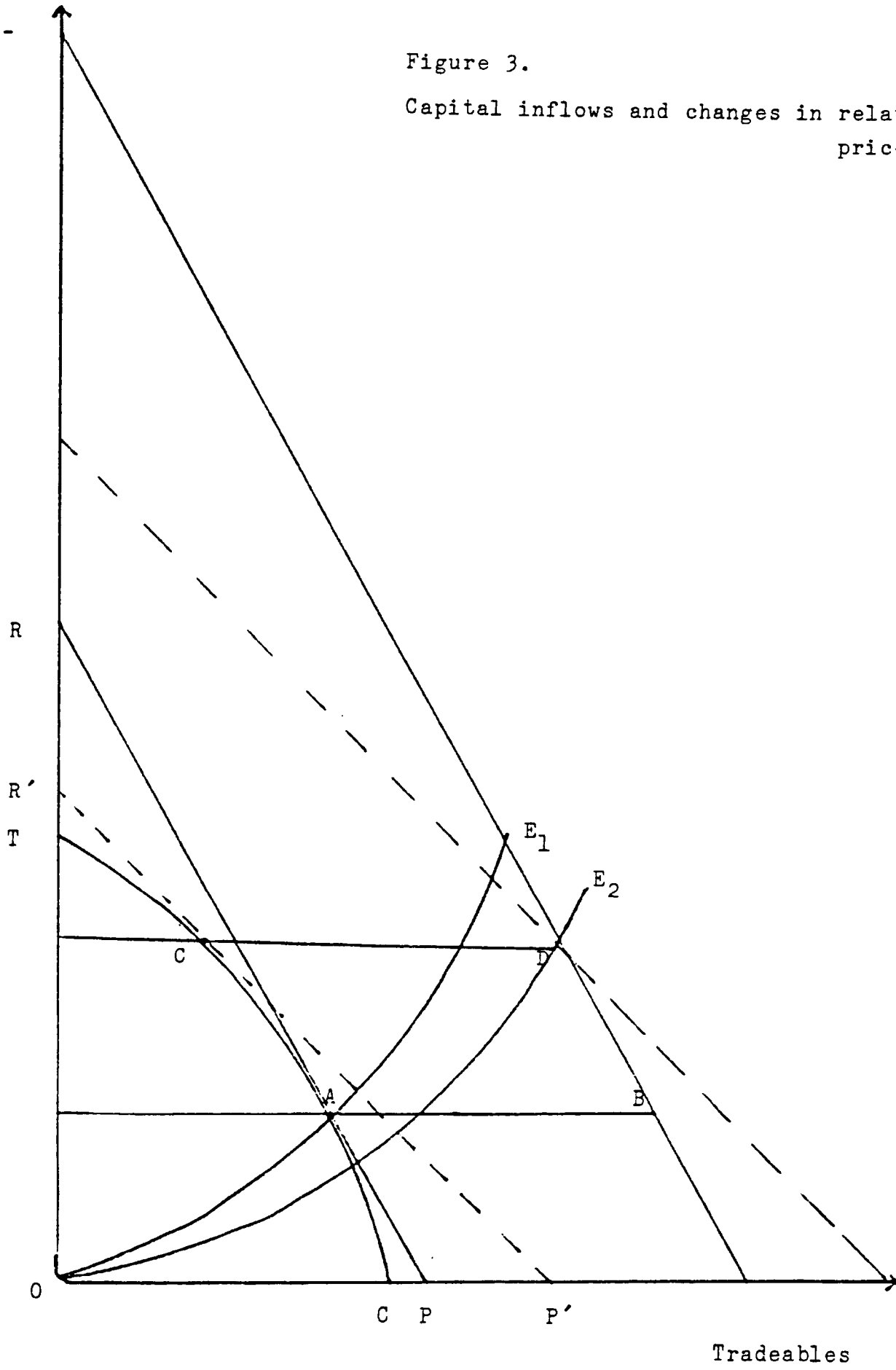

figure 3, and we relax the assumption of a demand elasticity of unity for the two sectors.

In figure 3, the transformation curve, T-C, between the two goods is concave from below based on the assumption of increasing relative costs. In point A we find the initial equilibrium point, which is both production and consumption locus.

Tangent to A is line R-P, which then gives the relative price between the two goods. The E_1 and E_2 curves are Engel curves, which point out the slope of indifference curves and the budget line between the two goods. The Engel curves are concave from the right. This is based on the assumption that the elasticities are not unity as assumed above, but that since tradeables to a large degree consist of commodities and nontradeables consist of services and construction, then income elasticity will be below unity for the former, and above unity for the latter.

We now introduce capital imports, A-B, which we for convenience say are equal to $M_t - F'_t$ in figure 2. Capital imports must, because of the simplicity of the model, be assumed to be in the form of tradeables.

The new consumption point is B. With the relative price of point A, there will be an excess demand for nontradeables, which will be determined by the marginal propensity to buy nontradeables times the capital import, and an excess supply of tradeables.

In order to reach a new equilibrium position the relative price of nontradeables must rise, while the relative price of tradeables must fall.

A new equilibrium position is found at a lower relative price for tradeables, point C on the transformation curve T-C.

The relative price change from R-P to R'-P', R'-P' being the tangent to C, will change production as well as consumption, although the effects on consumption are less clear than the effects on production, so we start looking at the latter.

The price increase of the nontradeable goods will shift the Engel curve E_1 to the right, and new equilibria positions are found in points C and D.

With line segments AB=CD, C will be, as previously mentioned, the new production locus, and D the new consumption point, as D is the intersection of E_2 and R''-P''.

With an unchanged transformation curve (i.e. holding productivity constant) the production of tradeables will fall, while the production of nontradeables will increase.

The effects on consumption of the initial capital imports are determined by the income elasticities of demand.

One may argue that the immediate effect of a decrease in the relative price of tradeables would create a surge in consumption, hereby aggravating the existing current accounts deficit. However let us briefly examine the following set of assumptions about the shape of the Engel curve:

If the elasticities of each good were unity, which implies a straight Engel income-consumption line, the move to the right would imply an increased share of tradeables in consumption. If the elasticity is above unity for tradeables and below unity for nontradeables, which would imply E_2 being convex from the right, the outcome would be similar, but with an even higher inclination to the tradeables sector. In figure 3

the Engel curve is concave from the right, because we assumed that tradeables, consisting mainly of commodities, would have a low elasticity compared to nontradeables.

The outcome of changed relative prices is thus difficult to predict because the trend in consumption towards tradeables is contradicted by the fact that the original capital inflow increases the total absorption capability of the economy, which, thanks to high income elasticity for nontradeables, will work against the original trend towards tradeables.

However, on the production side the effects of capital imports remain straightforward: Due to the change in relative prices of the two goods production of tradeables will fall, while the production of nontradeables will increase.[1]

7.2.2. Changes in relative prices, changes in the real exchange rate and monetary integration.

We can show in the following way that in an open economy relative prices and the real exchange rate are identical:

If the nominal price of nontradeables is given, at least in the short to medium run due to nominal wage rigidities, then the only way in which relative prices can change in a two goods model is when the nominal price of tradeables is changed. Being an open and small economy with given world prices, the exchange rate would have to adjust, which in turn amounts to seeing the relative price

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1) This is based on the assumption of constant productivity in the tradeables sector. We relax this assumption in the next section.

of nontradeables and the real exchange rate as the same thing.

So a rise in the relative price of nontradeables, as we have established in the example above, due to the introduction of capital inflows would call for a depreciation of the real exchange rate.

Let us briefly return to the issue of monetary integration, and focus on the role of changes in the real exchange rate for the process of monetary unification.

Vaubel[1] sums up two types of potential economic costs:

1) "It foregoes the possibility of using intra-group nominal exchange rate changes to exploit exchange rate illusion and, hence, to increase intragroup real exchange rate changes and the level of employment, and
2) it foregoes the possibility of reconciling those real exchange rate changes, which take place even in the absence of nominal exchange rate changes, with the maintenance of domestic price level stability in each of the prospective member countries."

The first point is, according to Vaubel,[2] irrelevant from a monetarist point of view, and is due to "Phillips curve illusion". However, on the second point both Keynesians and monetarists[3] agree that observed real exchange rate changes

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1) R. Vaubel, "Real Exchange Rate Changes in the European Community. A New Approach to the Determination of Optimum Currency Areas", Journal of International Economics, 8, 1978, 319-339.

2) R. Vaubel (1978), op. cit.

3) Still according to Vaubel, ibid.

indicate the economic cost of a currency union. And accordingly, changes in the real exchange rate should be used as a criterion for the desirability of currency unification,[1] understood in the sense that countries with only small deviations from relative purchasing power parity should engage in monetary integration.[2]

Summing up the effects of a monetary contraction we have shown that it primarily affects the tradeables sector, because the exchange rate reacts more quickly than the decline of investments in the nontradeables sector, and that the longer term effects of a continuous capital inflow in order to finance the deficit on the current account will affect the set of relative prices and hence the real exchange rate. This in turn will change the production pattern towards the production of nontradeables, which, ceteris paribus, will aggravate the "central" problem of external equi-

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1) In this study it is shown by Vaubel that by using the minimum deviation in the real exchange rate criterion over the two periods 1959-76 and 1971-76 a very changing membership of a potential currency area would have been envisaged.

2) The issue of real exchange rate distorsions has recently been commented on by Thygesen (1981), op. cit., p. 306: "If a group of countries succeed in maintaining stable exchange rates amongst themselves, but not, at least initially, in harmonising their national inflation rates, the real exchange rates, i.e. measures of relative national prices or costs expressed in a common numeraire will move. It appears plausible a priori that real rates could get more out of line and for longer periods in a system which emphasises nominal exchange rate stability than under alternative arrangements where exchange rate changes occur regularly because of either political decisions or market forces."

librium for participants in a currency area.

So we may conclude that a deflation with an over reliance on tight monetary policies will put the adjustment burden primarily on the tradeables sector.

7.2.3. Relieving the adjustment burden on tradeables.

How can then absorption be reduced without punishing the tradeables sector?

The obvious answer is to rely on fiscal contraction in concert with monetary contraction.

Improvements in productivity in the tradeables sector is another viable option.

A fiscal contraction, by cutting public expenditure, will, ceteris paribus, tend to reduce the interest rate, which in turn will work through to the exchange rate, thus in the first hand relieving the squeeze on the tradeables sector.

If a fiscal contraction is brought about by raising tax rates and keeping nominal government expenditure constant, the absolute level of absorption will decline, and with only the two sectors in mind and a lower income demand elasticity for the tradeables, the reduction will primarily hit the non-tradeables sector.

Another option for shifting away the squeeze on tradeables as a result of a monetary contraction is to improve productivity in the tradeables sector.

This is shown in figure 4, next page.

In order to simplify the exposition capital imports as shown in figure 3 are neglected in figure 4.

We have a transformation curve between the two goods T-C. The initial relative prices are shown by the tangent to

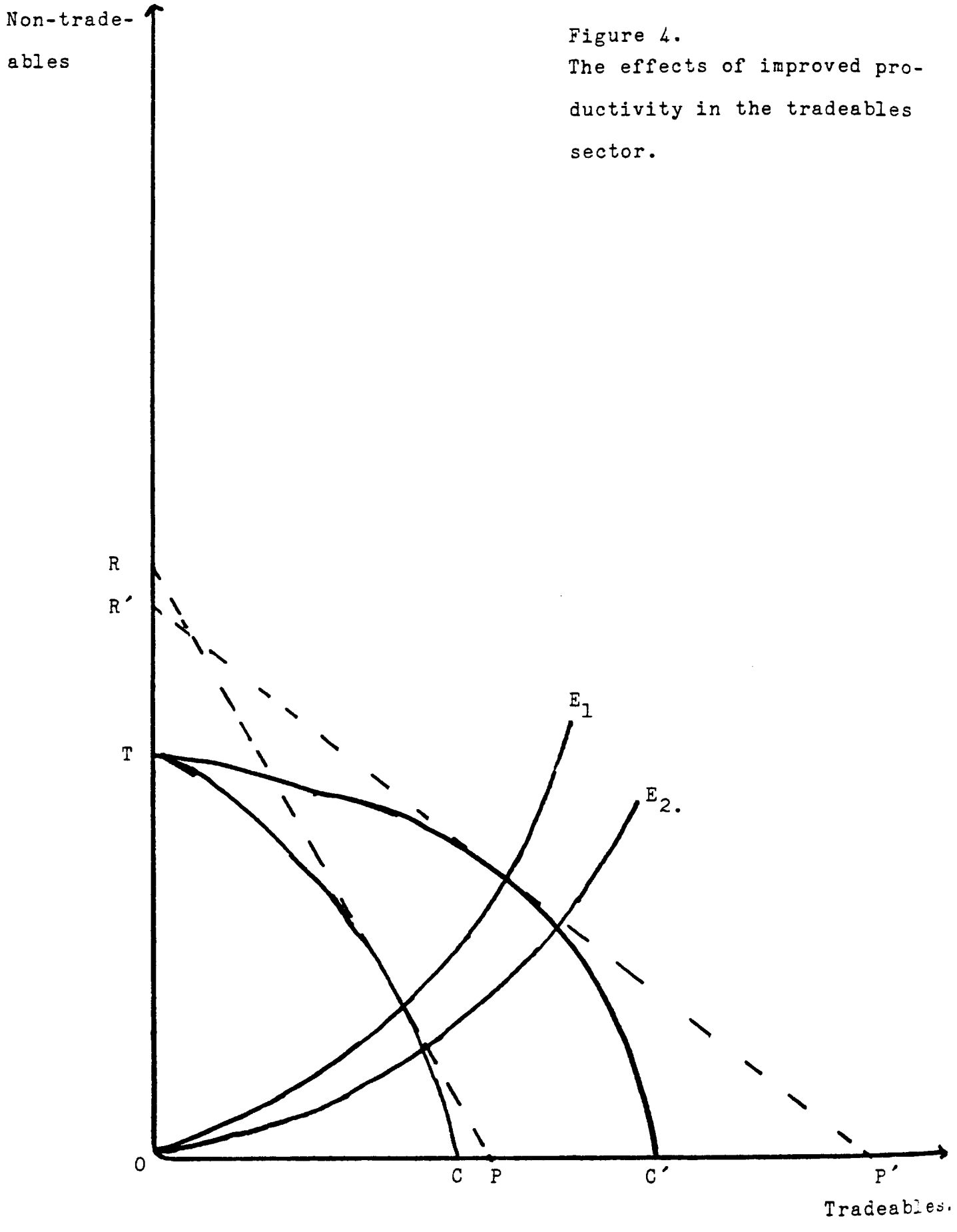

Figure 4.
The effects of improved productivity in the tradeables sector.

A, which gives the set of relative prices R-P.

Suppose now that productivity has increased, as a result of investments in improved technology, this will raise productivity at any level of employment.[1]

At the initial set of relative prices, as shown by point A, a growth in productivity in the traded goods sector implies that the marginal value product of labour will rise above the initial wage rate, and wages will increase.

Only the tradeables sector can afford the higher wage rate, because of the higher productivity, so labour will be absorbed by this sector. With increased productivity, and higher amounts of labour, total and relative output of T must rise.

A new equilibrium point will be A', where the new set of relative prices, shown by tangent R'-P', assure that the relative price of tradeables has risen compared to the example shown in figure 3.

7.3. Economic effects of non-accommodated budget deficits.

A tight monetary stance in order to reduce domestic inflation and to converge inflation rates inside a currency area at the lowest possible level will result in budget deficits for the more inflation prone countries, because of the increase in income transfers and the decrease in revenues trig-

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1) How capital can be available for the tradeables sector for productivity improvements in a period with high real interest rates is difficult to see, and the first option of combining monetary contraction with fiscal contraction is hence the more realistic option.

gered by the deflationary effects of the initial reduction in the money supply.

An economy belonging to a fixed exchange rates area is restricted in its choice of financing modes.

Monetary finance to cover the deficit is excluded because of its effect on the exchange rate.[1]

This leaves us with bond financing and increased taxation. The practicality of the latter is dubious in the light of the tight monetary stance, and hence we shall concentrate our analysis on the effects of bond financing on the composition of final demand and future economic structure.

According to mainstream economic theory bond financing of public expenditure will crowd out a roughly equivalent amount of private expenditure.[2]

In a closed economy at full employment capacity, this crowding-out hypothesis is perfectly logical.

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1) On the current account an increase in the money supply will add to total domestic expenditure, and will spill over into an increase in net imports, but in the short run the expansion will be primarily felt in the capital account, where the private sector will diversify its portfolio into foreign assets, because of the decrease in the interest rate. See J.A. Frenkel, T. Gylfason, J.F. Helliwell, "A Synthesis of Monetary and Keynesian Approaches to Short Run Balance of Payments Theory", The Economic Journal, 1980, Vol. 90.

2) Locus classicus is found in Gordon, R.J. (ed.), Milton Friedman's Monetary Framework: A Debate with his Critics, pp. 139-42, Chicago 1974, which refers to a magazine article of Friedman from 1967. Later elaborations of the crowding-out issue are found in resp. A.S. Blinder & R.M. Solow, "Does Fiscal Policy Matter", Journal of Public Economics, November 1973, and J. Tobin & W. Buiter, "Long Run Effects of Fiscal and Monetary Policy on Aggregate Demand", in J. Stein (ed.), Monetarism, North-Holland, 1976.

Apart from being mainly a monetary problem,[1] financial and portfolio crowding out as results of non-accommodated budget deficits seem likely in the small open economy, but should at most be taken as a resource or supply constraint.[2] Below it is argued that the more likely threat in the small open economy is crowding out via the exchange rate, which in turn could lead to real crowding out, or vice versa.

If the government sector uses the expansive thrust of a budget deficit primarily on consumption instead of on investments, and if private capital imports are discouraged because of expectations of an exchange rate realignment,[3] then future total capital stock will decline.

A higher future output is then only possible at a higher price, which, ceteris paribus, implies a contractive longer run effect of a non-accommodated budget deficit.

This is what we could call real crowding out, and this phenomenon has not been described widely in the context of

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1) Cf. T. Wilson (1979), op. cit., who showed that it was the monetary non-accommodation of the deficit by the central bank, and not the deficit in itself which has potential crowding-out effects.

2) Which is also the conclusion of a more recent study by J. Tobin & W. Buiter, "Fiscal and Monetary Policies, Capital Formation and Economic Activity", in G.M. v. Fürstenberg (ed.), The Government and Capital Formation, Cambridge, Mass., 1981, p. 79.

3) These assumptions are indeed realistic, as the investment component of public spending has decreased dramatically in most countries and, at least in the case of Denmark, private capital imports have decreased from around 50% of total capital imports to less than .5%.

the small open economy.[1]

Before substantiating the hypothesis of real crowding out and crowding out via the exchange rate, we shall discuss the validity of the more traditional crowding-out hypothesis.

7.3.1. Bond financed fiscal stimulus and the crowding-out issue.

The effects of a bond financed fiscal stimulus operate mainly through the following channels:[2]

i. Government borrowing in the credit markets puts enough upward pressure on interest rates to effect a transfer of funds from private lenders exactly equal to the size of the fiscal stimulus.

ii. Private expenditure must be reduced in view of this transfer of funds to finance government expenditure except to the extent that substitute sources of finance are available. Those expenditures most sensitive to interest rates are affected.

iii. Higher interest rates induce the private sector to economize on its holdings of money balances.

iv. The sales of government bonds may have effects on the size and composition of the private sector's overall wealth which may affect its expenditure intentions, the associated credit demands, and its demand for money balances.

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1) A notable exception in the context of the closed economy is W. Lachmann, "Crowding out und die Budgetrestriktion des Staates: Eine Kritik", Kredit und Kapital, vol. 1, 1982, pp. 112-133.

2) See OECD (1982), Budget Financing and Monetary Control, p. 32.

v. Government demand for credit is likely to attract capital from the rest of the world. If the exchange rate is allowed to fluctuate, the money supply will remain unaffected. With a fixed exchange rate money supply will expand or stay constant according to the degree of central bank open market operations. The end usage of the funds, consumption or investment, is of importance, as is the sector which imports the funds. The overall effect of a fiscal stimulus is determined by the simultaneous interaction of these above-mentioned channels.

Let us first consider the issue in the context of items i and ii, and use an abstract of the Blinder & Solow/Tobin-Buiter[1] model.

The assumptions:

Wages and prices are held constant during the period, and the overall production level is a function of demand.

Private wealth W^p, equals private capital, K, net public debt, D, and the money supply:

$W^p = K + D + M.$ (1)

Shares and bonds are perfect substitutes, and the level of interest is R.

The demand for money balances is a dependent variable of R, Y, the national product, and W^p.

G is total public consumption, and let A be net public claims on the private sector.

T is net taxes and transfers.

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1) Blinder & Solow, Tobin & Buiter, op. cit.

The public budget equation is then:

$M = G - T - RA + A$ (2)

M = dM/dt and A = dA/dt are the growth rates for the money supply and the public claims on the private sector.

If the public sector expenditure is constant over time, G' = G - RA, and taxes, T, a function of the national product Y, we can rearrange equation (2) to:

$M - A = G' + T(Y)$. (3)

From equation (1), we can define the LM-curve as:

$L(R,Y/W^P)W^P = M$ (4)

If the required capital intensity is determined by the level of interest, then the actual amount of capital will equal the desired capital intensity times the actual level of production. If investments are a proportion of the difference between actual and desired amounts of capital, we can define the investment function below:

$K = I = i(P(R)Y - K)$ (5), where P is net private investments.

Let the propensity to save be determined by the difference between actual and desired private wealth. Income and other taxes are T - aY, which shows that taxes are a constant proportion of Y.

Our savings function can then be defined as:

$W^P = S = s(Y - W)$ (6)

By assuming that the sum of private sector and public savings equals real investments, the closed economy assumption, we can formulate the following IS-curve:

$s(Y - W) + aY - G' - i(P(R)Y - K) = 0$ (7)

The resulting LM and IS curves, equations (7) and (4), will at any given time determine the level of demand, and the level of interest.

The intersection will gradually move over time, as changes in private wealth and real capital will shift the IS-curve, and changes in real wealth and money supply will affect the LM-curve.

The growth in real capital is determined by equation (5), and the growth of the sum of D and M, is determined in equation (3).

As there are nearly as many assumptions of the true slopes of the IS-LM curves as there are contributions in literature, we shall briefly discuss the relevance of some of the contributions.

Tobin & Buiter[1] show that their model has a stable stationary solution whichever financing mode is used. I.e. there is no crowding out, if the IS-LM curves have the usual shape, where the IS curve slopes downwards while the LM curve slopes upwards, and the demand for money increases when private wealth increases.

What happens in the Tobin-Buiter model is that a bond financed deficit can only be financed by the public if the interest rate is on a steady increase.

A higher interest rate will in the first hand influence the capital intensity in industry. This in the short term.

In the longer term the demand for goods will be independent of the interest rate, and in this way the gap be-

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1) Tobin & Buiter (1976), op. cit.

tween desired and actual capital intensity will at last be bridged.

The increase in the public spending and the corresponding deficit on the budget will in the end be covered by a similar increase in revenues.

The critical factor in the argumentation of Tobin & Buiter is the lack of empirical knowledge of the asset demand and supply functions.

In the short run IS-LM system the IS equation is actually the sum of the asset demand/supply equations.[1]

Infante & Stein,[2] in a model with vertical IS curve and horizontal LM curve, get, not unexpectedly, results contrary to those of Tobin and Buiter and Blinder & Solow.[3] According to the former, a bond financed deficit does not find a stable solution, or the fiscal multiplier is negative, or at least smaller than would be the case if the deficit had been financed by monetary measures.

The comparative statics of the IS-LM system and the limitations this causes when higher spending in each period is to be accounted for, was first commented upon by Silber,[4] who showed that the continuous financing of deficit spending

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1) For a discussion of this point see the newer contribution of J. Tobin & W. Buiter, "Fiscal and Monetary Policies, Capital Formation, and Economic Activity", in G.M. v. Fürstenberg (ed.), 1981, op. cit.

2) See E.F. Infante & J.L. Stein, "Does Fiscal Policy Matter", Journal of Monetary Economics, vol. 2, no. 4, Nov. 1976, pp. 473-500.

3) Tobin & Buiter (1976), op. cit., Blinder & Solow (1973), op. cit.

4) W. Silber, "Fiscal Policy in the IS-LM Analysis, a Correction", Journal of Money, Credit and Banking, 2, 1970, pp. 460-472.

would lead to a nonstable intersection of the LM-IS curves, whichever slope they may have. Only with mixed finance of the budget deficit can a stable solution be imagined.

The same point is expressed very precisely in a later contribution by Chick:[1]

> "The equilibrium solution of the IS-LM model is either transitory, dependent on very special conditions, or consistent only with the stationary state."

The main deficiency of the IS-LM model, in the present context of a small open economy tied to a strong currency at least, is the implicit assumption in these models that an equilibrium solution is dependent on a rise in real income. Such an assumption is in, especially, the case of the Blinder & Solow model[2] based on the belief that the short-term multiplier which we got from our IS-LM analysis is higher than the ordinary long-term multiplier.[3] That is, that the revenue per unit of new bonds is higher than the

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1) V. Chick, "Financial Counterparts of Savings and Investment and Inconsistency in Some Simple Macro Models", Weltwirtschaftliches Archiv, 109, 1973, p. 642.

2) Blinder & Solow (1973), op. cit.

3) In Blinder & Solow's terminology: $F_B \cdot T' \cdot dB$ stands for revenue per unit of new issued bond, and $(1 - T')dB$ are the costs.

costs of the increase in the budget deficit.[1]

If this is the case, an equilibrium solution can only be obtained after a rise in real income.

An outcome based on an assumption of a steady increase in real income is not compatible with the general scope of adjustment to the strong currency option, which, as stressed in the first chapters, includes a decrease in real absorption.

With a high degree of foreign indebtedness, where the debt service uses a high proportion of available foreign exchange,[2] the option of increasing real income in order to balance the budget is unrealistic,[3] in the case of a small

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1) Cf. the following quote:
"If $F_B < 0$ as the monetarists claim, fiscal policy does not work, but the system is unstable. The economy does not return to its initial equilibrium before the deficit spending, as monetarist doctrine holds, instead income falls cumulatively and without limit. If $0 < F_B < (1 - T')/T'$, fiscal policy works as Keynesians have always believed, but the increases in GNP are not sufficient to close the budgetary gap.
Only if $T'F_B$ exceeds $(1 - T')$ . . . will the budget deficit be falling, and thus only in this case will the system approach its new steady state equilibrium." A.S. Blinder & R.M. Solow, "Does Fiscal Policy Matter?, A Correction", Journal of Public Economics, vol. 5, Feb. 1976.

2) The implications of a foreign debt which has developed from 10% of GNP in 1973 to nearly 28% in 1981 is analyzed in the next three chapters. However, it should be obvious that the servicing of this debt will strain the future level of real income.

3) See the discussion in chapters 3 and 4 where it was concluded that the ability of a small open economy to "fix" its own level of real income was impeded by the linkages in the money, capital and commodity markets.

open economy like Denmark.

Furthermore, as Infante & Stein have pointed out, the main dubious assumption in the Blinder & Solow model is the assumption of a fixed price level, $P = 1$,[1] and the apparent negligence of an employment variable.

Another weakness in the IS-LM model is that bonds and claims to real reproducible capital are perfect substitutes in private portfolios, and there is no distinction between internationally traded and domestically traded assets.

7.3.2. The possibility of real crowding out in the small open economy.

As can be seen from the discussion above, the crowding-out issue has to a large extent been discussed in the context of the closed economy.

In an open economy financial crowding out can always be avoided by (private) capital imports, according to the

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1) See Infante & Stein (1976), op. cit., pp. 476-80. Only very rarely is the importance of changes in the domestic price level incorporated in the IS-LM analysis. An important exception is R.M. Mundell, "An Exposition of Some Subtleties in the Keynesian System", Weltwirtschaftliches Archiv, 1964, December, pp. 301-314. A newer contribution without explicit use of the IS-LM model is H. Hayakawa, "Does Fiscal Policy Really Matter in the Context of Variable Prices", Journal of Macroeconomics, 1979, p. 321.

traditional view.[1] In the Danish case a change in the pattern of foreign borrowing has taken place during the last five years. Where the public sector and the private sector used to import nearly similar amounts of capital, net private capital imports have virtually ceased and the public sector has accordingly stepped up its foreign borrowing requirement.

The immediate reason for this change, is that foreign interest rates started to reach the domestic level of interest, but another reason, which has until now been neglected in the debate, is that expectations of future exchange rate stability for the Dkr have been pessimistic, in the light of continuing inflation differentials and continuing budget deficits.

A depreciating currency, or expectations in the short to medium term of a depreciating currency, will tend to equalize the real costs of imported and domestic capital,

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1) Cf. the following conclusion of the Danish section in OECD, Budget Financing and Monetary Control, Paris 1982:
"To the extent that ex post crowding out has been observable, the process has worked through borrowing costs resulting from disintermediation rather than through outright availability effects. In particular, heavy government borrowing requirements have not been offset in any systematic way by lowering the permitted rate of increase in bank lending commitments to the private sector. Alternative sources of finance, foreign and domestic, appear to have offset some part of the crowding out effects of continued high government borrowing. But since some of the reduced--and more costly--volume of funds borrowed by the private sector has financed the acquisition of high yielding government debt, the net effects may have been a crowding out of private fixed investments of larger proportion than that of private credit."

which in turn is a, somewhat, new interpretation of the interest parity theorem.

Let us below consider a simplistic model[1] of potential real crowding out.

Let us assume that the public sector uses its increased spending on consumption instead of investment,[2] and let us assume that the private sector either abstains from capital imports expecting imminent depreciations of the exchange rate, or reinvests the proceeds in higher yielding domestic government bond issue. The effect will be a future decrease in relative capital stock. Such a decrease in available capital will, ceteris paribus, decrease overall aggregate productivity. A future higher output can then only be produced by increasing the price-level. Such a price increase will have a contractionary effect on the overall economy, which again will imply a future real crowding out as a result of the initial deficit spending.

This hypothesis can formally be shown in the following way:[3]

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1) Following Lachmann (1982), op. cit., and reaching similar conclusions as M. Feldstein, "Fiscal Policies, Inflation and Capital Formation", American Economic Review, Sept. 1980, and H. Hayakawa (1979), op. cit.

2) Such an assumption in the case of Denmark is justifiable. See chapter 2.

3) Although the following formal presentation is slightly different from the one presented by Lachmann (1982), op. cit., the present model is in substance identical with the one used by Lachmann. However the usual caveats apply.

Let $Y^d = C(Y^p) + G + I$ (a)

where Y^d is total aggregate demand for money, and

- $C(Y^p)$ is total consumption shown as being a function of disposable income, and
- G is public demand for money, and
- I is gross monetary demand for investments.

Disposable income is defined as $Y^p = Y^d - T(Y^d)$, where $T(Y^d)$ represents aggregated tax revenues. (b)

On the supply side $Y^A \cdot P = Y^d$, where Y^A represents total potential output, and where A stands for disposable production factors, and P is the price level. (d)

Total output is: $Y^A = K/\beta \ , \ L/\alpha$ (c)

If we assume unemployment we can rewrite the above equation as: $Y^A = K/\beta$

The deficit on the budget is defined as the difference between tax revenues and total government spending:

$G - T = \Delta D$

Total income can be used on consumption, government spending and private investment. Between savings and investment we find the difference ΔD.

Hence we get the well-known budget identity:

$Y = C + T + I + \Delta D$

If all gross investments are assumed to equal the total amount of reinvestment, we get

$\Delta K = \Delta I^r$ (e)

We then differentiate Y totally, but first equation (b) is substituted into equation (a):

$\partial Y^d = (\partial G + \partial I)/\mu$ (f)

where $\mu = 1 - C'(1 - T')$.

If the private investments are dependent on government spending, G, we get the following multiplier:

$$\partial Y^d/\partial G = (1 + (\partial 1/\partial G))/\mu \qquad (g)$$

If now I/G = -1, we find the situation of perfect crowding out, i.e. a situation where government and private investments are perfect substitutes.[1]

In the case of perfect crowding out, the only result of increased public spending will be an increased price level.

We now include the supply side from equation (d):

$$Y^A = \frac{\partial G + I\partial}{\mu \cdot P} - \partial P\frac{Y^A}{P} \qquad (h)$$

Furthermore assuming a one sector model, where the price of investments equals the price of consumption, we get:

$$\partial I = \partial P \cdot I^r + P \cdot \partial I^r = P\partial \cdot I^r + P \cdot \partial K = \partial P \cdot I^r + P \cdot \beta\, \partial Y^A \qquad (i)$$

Substituting equation ( ) into equation ( ) we now get the <u>real government expenditure multiplier</u>:

$$\frac{\partial Y^A}{\partial G} = \frac{1}{\mu_1}\frac{\partial P}{\partial G}/\mu_2 \qquad (j)$$

We can also solve the equation system for $\partial P/\partial G$, i.e. which kind of effects increased government expenditure will have for the price level, P, hence we get the <u>price multiplier</u>:

$$\frac{\partial P}{\partial G} = \frac{\beta - (\mu - \beta)(\partial I/\partial G)}{\mu(\beta Y^A - I^r)} \qquad (k)$$

The derivative of main importance for our task is, not unexpectedly, $\partial I/\partial G$, which, if negative as shown on the preced-page would ensure a perfect crowding out.

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1) See Lachmann (op. cit., 1982), p. 128.

From equation (g) we see that as long as the derivative $\partial I/\partial G > -1$, the demand for money will increase, and taking equation (f) into account we see that the effects on employment of increased G can be interpreted in basically two ways:[1]

If increased government expenditure and increased nominal GNP lead to a decline in relative capital stock, because of our assumption that gross investment equals reinvestments, $\Delta K = \Delta I^r$, we reach a state where real capital will become scarce, and hence the result of increased expenditure will be "classical" unemployment.

The other way of interpretation is in essence contradictory of the first and is dependent on the price effect of the increase in government expenditure.

If there is an increase in the price-level, real consumption will, ceteris paribus, fall. If real consumption falls, there will be increased room for real capital formation.

Which one of these contradictory effects will be the strongest is difficult to determine, but from equation (k) we can see the immediate effects of increased expenditure on the price level. However[2] a preliminary conclusion is that increased government expenditure and simultaneous efforts of combating inflation through tight monetary policies will in-

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1) Cf. Lachmann, op. cit., and Feldstein, op. cit.

2) Ibid.

fluence capital formation negatively, and in this way contribute to "classical" unemployment.

In equation (k), the denominator is positive, which implies an increase in the price level as the direct result of the increase in G.

In the nominator, the indirect effect is dependent on the value of $\partial I/\partial G$.[1]

From equation (g) we see that a positive value of $\partial I/\partial G$ increases demand, and equation (k) shows that also the price level will increase.

A negative nominator will increase unemployment.

Again there is a reasonable set of hypotheses: One hypothesis involves a crowding-in effect, and the other is determined whether there are free resources of production factors, especially capital, and as before it is difficult to reach a truly clear-cut conclusion.

In the first hypothesis we can assume that if there are free resources available, then an increase in (G - T) does not necessarily increase the steady-state real deficit, seen as a percentage of national product.

If there is a rise in inflation, then this ratio will decline, and although the fiscal policy will look expensionary,[2] it will absorb less rather than more private savings.

The likely outcome is then that available savings will

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1) Cf. Lachmann (op. cit.), 1982.

2) See Tobin & Buiter in G.v. Fürstenberg (ed.), op. cit., 1981, p. 133, who makes a similar point.

be shifted into equity, thus causing a crowding in.[1]

The causal chain is then likely to be the following: The accelerator effect caused by the higher level of expectations of potential future demand will increase the present level of investment, when private wealth and savings are shifted into the now more attractive asset, equity.

Hence we get a crowding in by asset substitution, and ex post we will see a decrease in the real public sector deficit per unit of output, even though the overall level of private savings is constant or decreasing.

However desirable such an outcome is, it is highly dubious. In the original contribution of B. Friedman on the crowding-in issue,[2] he assumes a high elasticity of substitution between bonds and capital, i.e. a shift to the right of the LM-curve. Plainly speaking, such an assumption is questionable, because the high elasticity of substitution between bonds and capital will influence the preannounced tightness of the monetary policy. If budget deficits are financed outside the banking system at very short maturities, i.e. with treasury bills, and treasury bills are considered a sufficiently good "near-money",[3] then the intended anti-inflationary impact of a tight monetary stance will be sacrified.

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1) See B. Friedman, "Crowding out or Crowding in? Economic Consequences of Financing Government Deficits", Brookings Papers on Economic Activity, 1978, p. 593.

2) Cf. B. Friedman (1978), op. cit.

3) Cf. OECD, Budget Financing and Monetary Control, Paris 1982, which, in footnote p. 37, makes a similar statement.

The "crowding-in" possibility is therefore not so much a product of budget deficits as it is a direct product of an easing of the tight monetary policy, by creating more liquidity. In the context of the open economy, internationally traded assets should be introduced. The crowding-out effect of increased credit finance will then diminish because savings from foreigners will be made available through the difference between domestic and foreign interest rate levels.[1]

If, as argued earlier, budget deficits have a direct bearing on the external balance, consistent budget deficits and hence balance of payments deficits, will affect expectations about a potential exchange rate realignment.

Such expectations will obviously reduce the incentive to import capital and/or make the financing of the capital account difficult with the existing interest rate differential. Accordingly the domestic rates will have to increase, which will promote financial crowding-out, or exchange rate realignments will increase the real value of domestically held foreign debt, hereby increasing the chances of a crowding-out via the exchange rate.[2] Such an outcome is not sur-

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1) The crowding-out issue in the concept of the open economy has been dealt with only rarely. A notable exception is H. Lehment, "Internationale Aspekte der Staatsverschuldung", in Beihefte der Konjunkturpolitik: Probleme der Staatsverschuldung, Heft 27. In a later contribution, Zur Neuorientierung der Staatlichen Schuldenpolitik, Kiel 1982, mimeo, Lehment discusses the concept of crowding out via the exchange rate.

2) In an analysis of investments and profitability in the Danish fisheries 1978 made for the "Jutland Institute of Technology", it was shown how long-term borrowings in Swiss Francs in the early seventies dramatically changed profitability prospects for a large part of the Danish fishing fleet. Details can be obtained from this author.

prising, it is merely a reinterpretation of the interest rate parity theorem, which then in accordance with the hypothesis about IPRT presented in chapter 3, finally will have a potential crowding-out effect of private investments. There will be a time lag, which will be a function of the degree of robustness of the exchange-rate system.

According to the second hypothesis, an increase in government expenditure will lead to a general increase in the price-level, see equation (k), because the amount of capital is seen as the bottleneck. A general price increase and a stagnant level of private investment will lead to a situation of real crowding out.

The causal chain is as follows:

If the government expenditure is primarily spent on government consumption, then the ratio of real capital will decline.[1] Total aggregate productivity will fall, which indicates that increased output only can be produced at a higher price. This will have a contractive effect on the economy and it implies the formerly mentioned degree of real crowding-out, as the indirect result of the increased level of deficit spending.

The above results are hardly surprising. The conclusion

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1) This is very like the results found by A. Ostrofsky, "An Empirical Analysis of the Crowding Out Effect of Fiscal Policies in the US and Canada", Kyklos (1979), No. 32, vol. 4, which was a comment on an article with the same title by R.J. Cebula in Kyklos 1978, No. 31, vol. 3.

is the same common sense as the one first formulated by Wilson,[1] that prolonged deficit finance and tight monetary policy in order to combat inflation are incompatible.

This in turn calls for a clearer formulation of a medium-term financial target, as proposed in the preceding chapter, so that monetary and fiscal targets can be set in concert with one another, instead of competing with each other.

7.4. Stabilization policies and public sector growth.

In the present chapter we found that a tight monetary policy, which fixes the exchange rate at a (too) high level, with resulting balance of payments deficits and corresponding capital imports, tends to shift the production pattern in an economy towards the production of nontradeables, which in a small economy consist mainly of public services.

In this way a link between anti-inflation policies and public sector growth is established.

Below we shall show that deficit spending which partly can be seen as a result of increased income transfers stemming from the recessionary impact of the initial monetary contraction, in itself can contribute to an increased growth in the public sector if a misconception prevails

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1) T. Wilson, "Crowding Out, The Real Issues", BNL, Quarterly Review, 1979, No. 130.

about the nature of unemployment.[1]

If, following our previous line of argument, a real crowding out is the result of extensive deficit spending, and if the capital/labour ratio is decreasing, then a classical type unemployment can very easily be confused with a Keynesian type unemployment.

If the unemployment is of the classical type, additional deficit spending will only produce a marginal result, as[2] wage increases soon will catch up with the rising price level.

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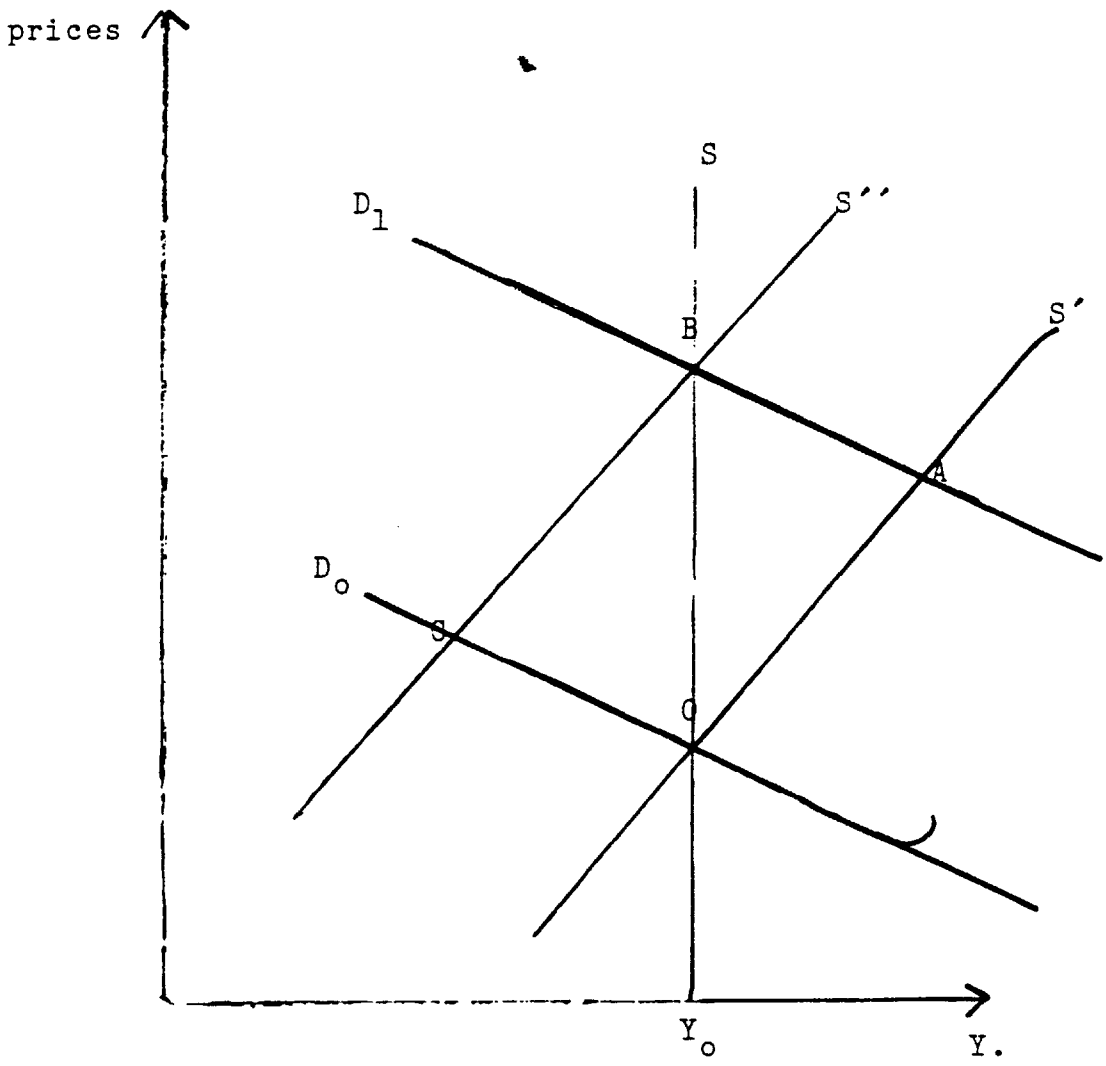
1) This point has been made by H. Lehment, Stabilization Policy and the Expansion of the Public Sector, Paper prepared for the conference on "Allocational and Structural Consequences of Short-Run Stabilization Policies in Open Economies", Stockholm 1981.

2) The view that public sector growth is inflationary is widely held; cf. the following two quotations: "The more fundamental source of inflation in all our countries and our economic difficulties has been the change in philosophy that occurred sometime in the 1930s and earlier from the belief of the individualistic society towards a belief in the welfare state . . . And as government has expanded its scope it has become increasingly difficult to finance the activities of government by direct taxes and therefore has made the implicit hidden tax of inflation an ever more attractive strategy." M. Friedman, quoted from J.W. Nevile, "Government Expenditure and Inflation", Bank of New South Wales Review, No. 17, 1976, and "If workers are frustrated by rising taxation either inflation will accelerate (if the money supply is allowed to expand) or unemployment will rise (if the money supply is controlled)." R.W. Bacon & W.A. Eltis, "How Growth in Public Expenditure has contributed to Britain's Difficulties", in The Dilemmas of Government Expenditure, IEA, 1976. In the present chapter the main point is less ambitious than proving that tax cost push is a main explanatory variable for inflation; we merely set out to see whether there is a link between the relative size of the public sector and stabilization policies.

Figure 6.

Deficit spending and crowding out in the demand-aggregate supply schedule.



In figure 6 this point is illustrated.[1] If we start from a position with a balanced budget, the fiscal expansion will shift the demand curve from D_o to D_1.

A new position is reached at point A, where demand curve D_1 intersects the supply curve S'. Here both the price level (P) and real output (Y) have risen.

If we now introduce an increase in nominal wages in order to catch up with the initial level of real wages, the supply curve will move upwards towards S''.

A new intersection on the long-run supply curve S with S'' and D_1 will show a position where output has returned to its original level and where the price level has been pushed upwards. If tax rates in reality are proportional or only mildly[2] progressive, there is good reason also to expect a budget deficit in this position B.

Position B is clearly not desirable, and different strategies can be devised to push the demand curve back into its original position, all of which will involve increased unemployment unless, cf. the previous Bacon and Eltis quote, the money supply is increased.

A permanent increase in public sector spending via the ratchet effect[3] is then a very plausible outcome.

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1) Following Lehment (1981), op. cit.

2) Ibid., p. 15.

3) Cf. A.T. Peacock & J. Wiseman, The Growth of Public Expenditure in the United Kingdom, Princeton 1961.

Chapter 8

Exchange rate movements, competitiveness and public sector deficits. A comparative analysis.

In this chapter we intend to support the old Keynesian dictum that long-term real exchange rate equilibrium depends on real as well as monetary factors.

An analysis of the variations of nominal effective and real effective exchange rates shows that the smaller EMS countries, Denmark and Belgium, have experienced very unsatisfactory trade-offs between changes in nominal and real exchange rates. In this way profits in the tradeable sectors have been squeezed, which is shown by comparing variations in unit labour cost indices with variations in export unit cost indices, GNP-deflators and the nominal effective exchange rate index.

Examining the changes in the structure of GDP uses, by comparing an average from 1968-72 with the actual pattern in 1982, we see how public consumption in Denmark has risen the most, while the decline in gross capital formation has been the highest amongst the EMS countries. These findings support our hypothesis of a squeeze on the tradeables sector as a result of tight monetary policies, while public sector consumption has risen thanks to expansive or accommodating fiscal policies.

Finally we show that there are no uniform trends between the EMS countries when economic performance and the expansion of public sector spending are compared.

However we conclude that public sector growth, and hence changing relative prices between tradeables and non-tradeables should be taken into account when an equilibrium between purchasing power and the nominal exchange rate is focused upon.

A strong or an appreciating currency will, according to new monetarist integration theory, put a brake on inflation and strengthen the home country's terms of trade, at least in the short run.[1] A lowering of inflation and hence a strengthening of the terms of trade will, ceteris paribus, improve competitiveness and in this way influence the adjustment process for monetary unification in a positive way. We recall that the acknowledged view is that a long-term exchange rate equilibrium exists inside an exchange rate area when changes in real exchange rates are minimized, and following from this, that real exchange rate changes are a comprehensive and operational criterion of the comparative costs, or comparative desirability of monetary unification for groups of countries.[2]

Keynes[3] was first to argue that arriving at a long-

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1) In contrast to the traditional view that an appreciation will be accompanied by a loss of competitiveness which will last several years.

2) Cf. R. Vaubel (1978), Real Exchange Rate Changes in the EC, op. cit.

3) J.M.A. Keynes, A Tract on Monetary Reform, vol. IV in the Collected Writings of J.M. Keynes, London 1971.

term real exchange rate equilibrium depended on real, as well as monetary factors.

In his "Tract on Monetary Reform" Keynes noted that if disturbances are monetary ". . . then we may expect that purchasing power parity and exchange value will come together again before long".[1] If on the other hand the disturbances are real, i.e. reparation payments or changes in the relative efficiency of labour, ". . . then the equilibrium point between purchasing power parity and the rate of exchange may be modified permanently".[2]

So if a long-term PPP is supposed to hold, which in reality is identical to the equilibrium value for the real exchange rate, then disturbances must be mainly monetary.

In the previous chapter it was demonstrated that real structural changes tend to change relative prices internally, which will cause substantial deviations of the equilibrium real exchange rate from its PPP level.[3]

The aim is to see how movements in the effective exchange rate have affected the real exchange rate in order

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1) Ibid., p. 95.

2) Keynes (1923), op. cit., p. 97.

3) Which in some way tend to reinforce the previous findings by L.H. Officer, "The Purchasing Power Parity of Exchange Rates: A Review Article", IMF Staff Papers, 23, March 1976, and P.A. Samuelson, "Theoretical Notes on Trade Problems", Review of Economics and Statistics, 46, May 1964.

to evaluate the degree of real adjustment stemming from movements of the effective exchange rate. We use data from the EMS countries and learn that movements in the effective exchange rate have only limited effects on real adjustment in the smaller open economies, and when the concept of efficiency wages is introduced[1] as a measure for real exchange rates and competitiveness, then the "true" level of the Danish efficiency wage, based on relative unit labour costs, seems to have been badly underestimated in previous surveys on international competitiveness.

If only judging the degree of competitiveness from the departure point of efficiency wages, then the apparent success from linking the DKR to an external strong currency should be reconsidered. As the problem is to assess the implications of currency movements for balance of payments trends, we cannot solely rely on measurements of efficiency wages.

It is not a hidden secret that many commentators in the past and in the present have picked the indices which seemed best to suit the purpose at hand. If somebody wants to advocate a depreciation of a currency, an index showing only a small, or no depreciation is often chosen, etc.

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1) Nicolas Kaldor introduced this term originally in a newspaper article "Economic Crisis, Exports and the Sinking Pound", The Times, 9th November 1976.

So before we risk falling into the same trap, we shall briefly explain the fundamental differences between the major published indices, a task very rarely performed, taking into account the huge supply of literature on competitiveness, which has been published during the last decade.[1]

And it is worth keeping in mind that it is not only the actual present values of the indices which are of importance, but the trend over the past decade, which is useful. There is a time lag before a (too) strong currency will affect the level of inflation and the effect on competitiveness. And furthermore, according to the theory presented in the previous chapter, a temporary overvaluation will via the ratchet effect, contribute to an increase in government expenditure. In the second half of this chapter we shall make an exhaustive comparison of the deficit spending patterns of the EMS countries.

8.1. Nominal and real effective exchange rate indices for the EMS countries compared.

Let us start by summing up the objectives of an index

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1) A very thorough survey on the computation and usage of PPP was published in Journal of International Economics, vol. 8, May 1978, with contributions of a.o. Thygesen, Vaubel and Frenkel. In these articles the focus was on which kind of national indices should be used in the computation of PPP. The aim here is to compare the basics of some already published indices for real exchange rates, the Morgan Index, the IMF Merm, but not the Fed. Reserve Boards, where esp. the Danish Krone is excluded.

of nominal and real effective exchange rates.

According to Morgan Trust[1] there are basically four ways in which the indices can be used:

a) To describe day-to-day exchange rate movements in a summary fashion.
b) To estimate the effects of exchange rate changes on a country's balance of payments, trade, current account and even capital flows.
c) To appraise the interaction of exchange rate changes with inflation.
d) To derive exchange rate implications on the assumption that over time nominal exchange rate changes tend to offset inflation differentials.

On the next page we have compiled a table of Morgan Trust and IMF indices for the EMS countries. The aim is on the basis of these sources to assess the changes in nominal and real exchange rates and then try to point out the deficiencies of this way of measurement when using the indices according to especially criteria c and d, but before starting on this task, some fundamentals about the construction of the two indices should be briefly mentioned.

The two indices have different base years, so they

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1) See Morgan Trust, World Financial Markets, April 1979. Another interesting discussion of the problems of measuring changes in price levels and exchange rates is found in M. Crawford, "Currencies in a Floating World", EIU Special Report No. 35, The Economist Intelligence Unit LTD., April 1977.

Table 1. Nominal and real effective exchange rates based on IMF and Morgan indices[1]
Exchange rate data from the EMS countries.[2]

		1975		1976		1977	1978		1979		1980		1981		1982	
Denmark	N		100		94.9		95.5	102.0	104.1	94.6	109.0	89.4	101.9	86.4	80.9	81.8	66.4
	R	96.9	100	97.4	101.3	98.5	101.8	104.4	103.9	101.4	105.3	94.1	97.9	89.7	88.1	85.8	81.7
Belgium	N		100		95.2		102.4	111.2	116.6	110.4	125.2	87.5	125.6	83.7	99.2	78.5	77.4
	R	98	100	97.9	101.4	99.8	107.1	99.5	111.1	94.7	113.7	90.6	114.0	85.0	106.3	78.5	94.5
Germany	N		100		97.6		105.8	135.0	122.4	140.2	134.0	133.9	135.3	137.0	109.0	143.3	98.1
	R	100.5	100	101.2	104.8	102.5	113.0	103.2	120.1	104.2	127.5	98.2	128.8	98.6	119.3	100.1	124.7
France	N		100		89.7		87.1	90.3	95.0	91.2	100.7	88.7	101.4	82.4	79.2	75.7	61.9
	R	102.6	100	100.1	95.6	96.2	91.3	97.1	91.3	98.7	93.4	101.2	94.4	97.6	84.4	92.6	74.0
Italy	N		100		78.7		73.9	55.2	76.9	54.4	78.5	51.4	76.3	46.0	57.8	45.0	46.9
	R	97.8	100	92.6	82.3	95.6	75.5	93.8	71.1	90.7	69.4	93.1	67.1	91.2	58.2	90.1	53.6
Netherlands	N		100		95.5		102.8	119.2	116.8	119.4	125.8	117.0	127.1	118.8	101.6	123.7	92.5
	R	100	100	101.7	102.3	103.8	109.2	103.6	114.4	100.2	118.3	97.5	119.6	93.1	111.4	97.0	116.1
United Kingdom	N		100		81.3		78.6	68.8	86.4	73.9	95.5	84.8	104.7	77.7	91.3	79.1	77.7
	R	104.4	100	96.7	85.6	101.6	81.2	106.3	81.5	118.8	87.2	138.5	96.1	140.9	94.9	137.2	91.3

Footnotes:

1) This table has not been constructed for direct comparison, see text, as the base years are different. The aim is to see the effects stemming from multilateral and bilateral computations, as well as from different base years. Morgan base year: March 1973, IMF base year: 1975.

2) Although not a member, Britain is included.

are not directly comparable. The Morgan index measures each currency's movements against fifteen other currencies, using as weights the relative bilateral shares of trade. The trade weights used are based on 1976 bilateral trade in manufactures.

The IMF's multilateral exchange rate model (MERM) is the basis for the IMF index. This model was designed specially for the study of exchange rate effects on trade flows and includes several minor currencies in addition to the ones included in the Morgan index.

A comparison made by "World Financial Markets" in 1979[1] showed that the two ways of computing indices do not make any difference. The main point is the problem of different base years, but that only influences the absolute level of the numbers. So with these limitations in mind, we can turn to the actual interpretation of the results.

Figure 1 points to the surprisingly weak degree of correlation between loss of competitiveness and effective nominal[2] appreciation. The countries to the left of the 45-degree line in the 1st quadrant do not follow this trend. They have a higher nominal appreciation than real appreciа-

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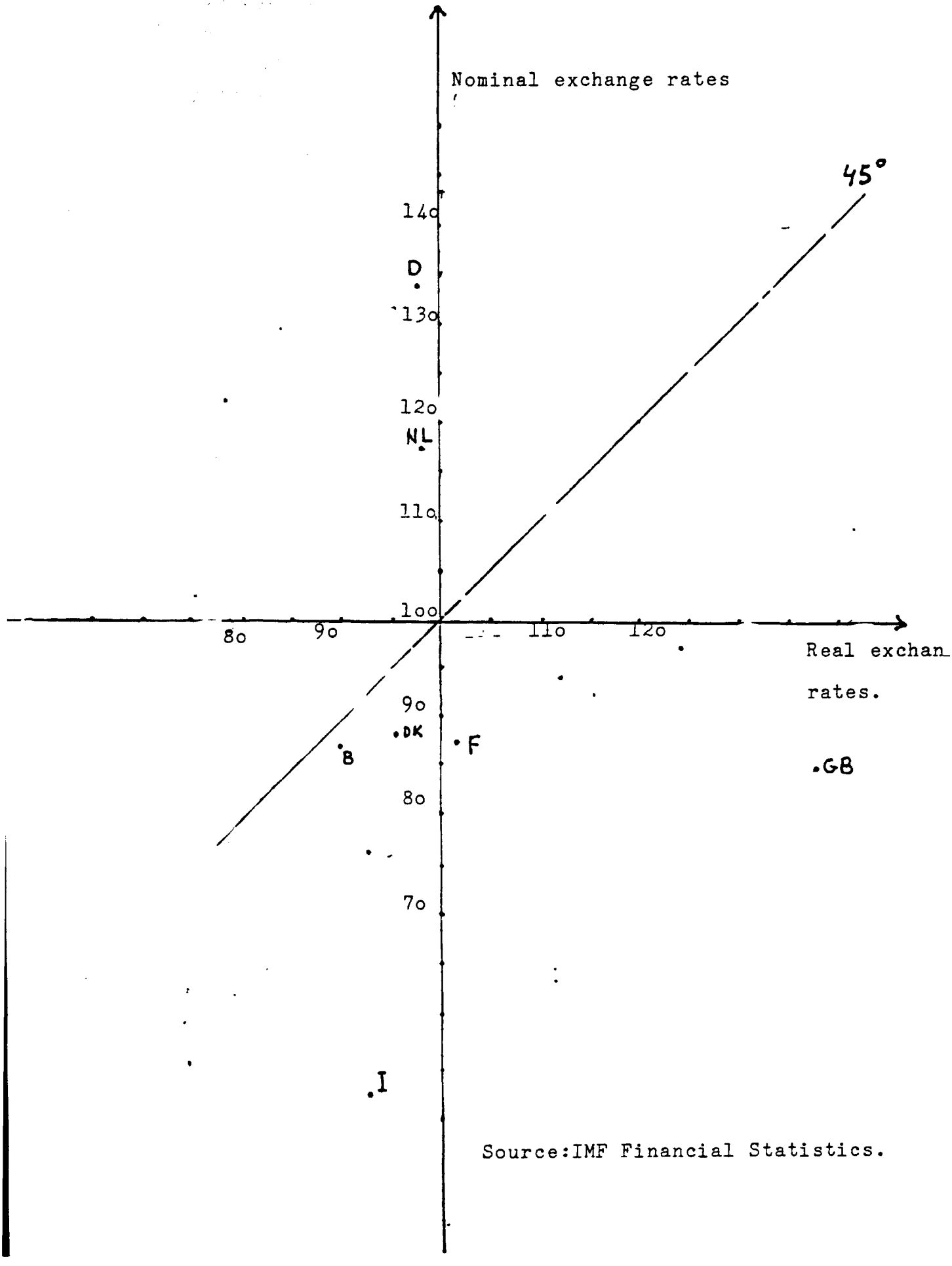
1) Morgan Trust, World Financial Markets, April 1979.

2) In contrast to the results from R. Dornbusch, Issues in International Finance, Who and What Controls the $, MIT 1979, here quoted from L. Katseli-Papfstratiou, The Reëmergence of the PPP Doctrine in the 1970s, Princeton 1979, p. 28.

1980.(1975=100)

Fig.1.



Source:IMF Financial Statistics.

Fig. 2

Nominal and real exchange rates.1982.August.

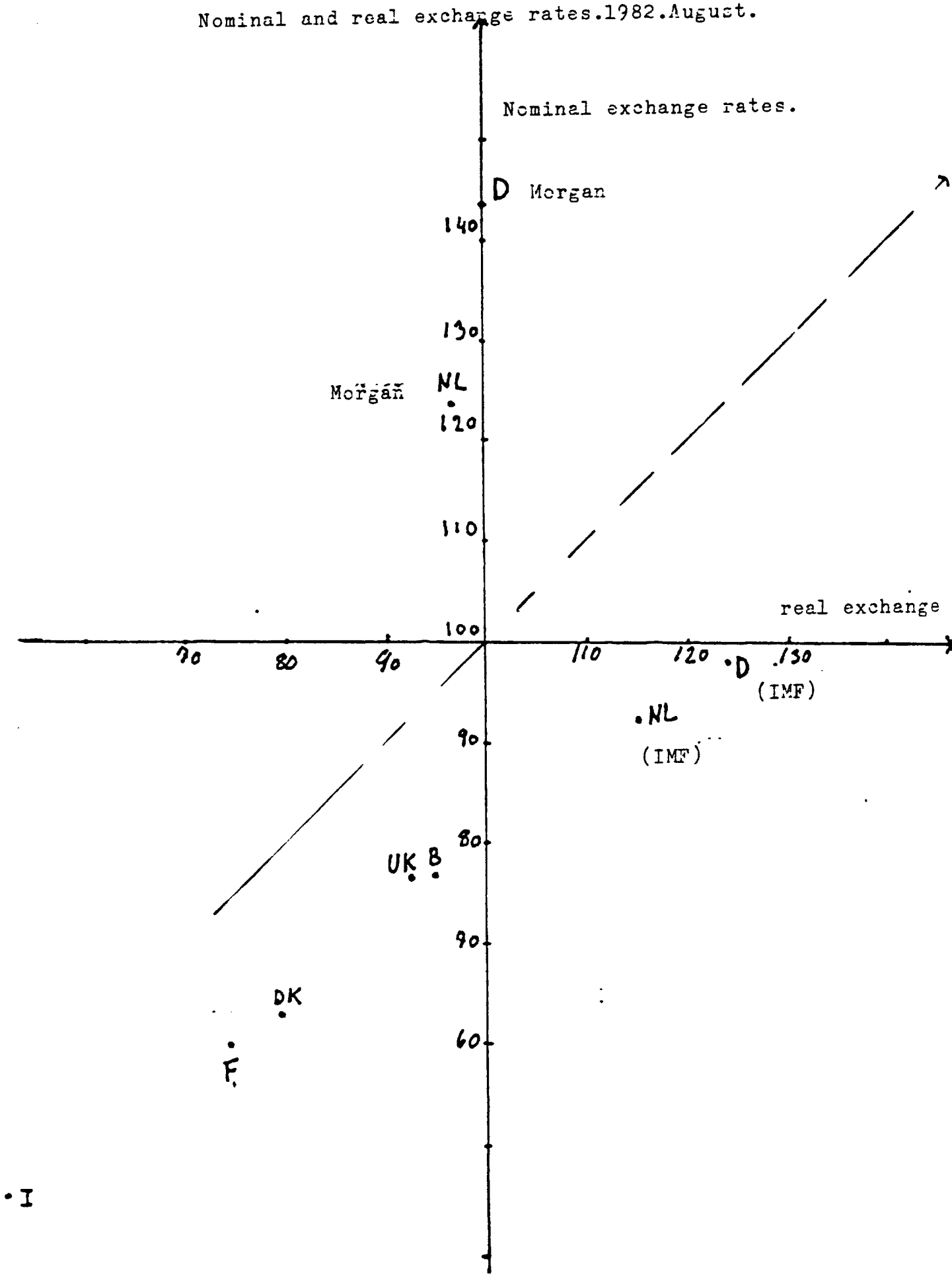


Table 2. Changes in central rates within the Snake and the EMS from 1975 to June 1982.[1]

	DM	H.fl.	B.fr.	D.kr.	F.F.	Lit.
Oct. 1976	+2	-2	-2	-6		
Apr. 1977				-3		
Aug. 1977				-5		
Feb. 1978[2]						
Oct. 1978	+4	+2	+2			
Dec. 1978[3]						
Sep. 1979	+2			-2.9		
Nov. 1979				-4.8		
Mar. 1981						-6
Oct. 1981	+5.5	+5.5			-3	-3
Feb. 1982			-8.5	-3		
Jun. 1982	+4.25	+4.25			-5.75	-2.75

1) Realignments of central rates, percentage change against the group of currencies whose parities were not changed.

2) Norway devalues 8%.

3) Norway withdraws from the system.

Table 3. Annual rates of change in prices within the EMS countries.[1]

	68/60	74/68	78/74	79/78	80/79	81/80	82/81
	Consumer prices						
Belgium	3.2	5.9	7.9	3.9	6.5	7.6	10.2
Denmark	5.3	8.6	9.9	9.6	11.5	10.7	10.1
Germany	2.9	5.4	4.5	4.0	5.2	5.9	4.7
France	3.9	7.2	9.8	10.9	13.2	12.5	13.3
Italy	3.8	8.7	16.7	15.0	20.4	19.0	15.0
Netherlands	3.9	7.8	7.4	4.3	6.6	6.7	5.8
Britain	3.5	8.7	15.6	14.3	15.5	10.7	9.5
	GDP-deflator						
Belgium	3.2	6.8	7.6	4.3	4.4	5.0	8.2
Denmark	5.7	9.2	10.2	7.7	8.4	9.6	10.6
Germany	3.0	6.1	4.3	3.9	4.7	4.3	4.4
France	4.0	7.2	10.5	10.6	11.5	11.8	12.7
Italy	4.3	9.0	17.1	15.7	20.4	17.6	15.8
Netherlands	4.9	7.9	7.9	4.2	5.3	6.0	6.2
Britain	3.7	8.7	16.5	15.1	18.9	11.8	8.5

1) Excluding Ireland and including Britain.

Sources: Eurostat and forecasts from commission departments, European Economy, vol. 12, 1982.

tion. The three countries in the third quadrant gained only very little in competitiveness despite relatively large depreciations of the nominal rate. France even seems to have depreciated and lost competitiveness. The result for Britain is difficult to explain from this simple figure. However it is clear that Germany and the Netherlands gained in competitiveness despite a drastic appreciation of their currencies.

That currency indices sometimes can create more confusion than clarity can be seen from figure 2, where IMF Merm figures have been plotted in our diagram. These figures are the most recent figures autumn 1982.

In the case of Germany and the Netherlands the IMF figures suggest a high degree of overvaluation, while the Morgan figures show the results which we would expect. Because of these countries' much lower domestic inflation rates, the drastic appreciation in nominal terms has not been followed by a similar loss of competitiveness.

The French franc, sterling, the Danish krone and the Belgian franc are all overvalued.

Let us return to tables 1 - 2 - 3, and let us see how adjustment for especially the small countries has succeeded by relying on the strong currency option.

Has there been only a transitory loss of competitiveness by fixing the currency to the value of an external currency, which is considered to be more stable in the future, in terms of purchasing power?

Or has the loss of competitiveness been more permanent as observers of a more Keynesian persuasion would suggest?

If we look at the national differentials of inflation rates in table 3, divergence seems to be increasing rather than decreasing. Though not a fault which can be attributed solely to the EMS, it should be kept in mind that the convergence of inflation rates is a prerequisite for the proper functioning of the fixed-rate currency area the EMS was planned to become.[1] And if indeed there has been a relatively high state of calmness on the exchange markets in EMS member states, it should also be kept in mind that the costs are very high real interest rates for some of the weaker currencies, and high premiums in forward markets (see tables 4 & 5).

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1) It seems that monetary unification finally is growing from being a mere issue of coordinating domestic credit creation into becoming the more complex exercise it rightly deserves (see chapter 1), cf. "Accordingly the strengthening of convergence is a prerequisite for any significant future development of the EMS. Such strengthening of convergence should apply to all economic policy areas (in particular budgetary policy) and be achieved by implementing coordinated domestic and community policies . . ." Oral statement from the committee of governors of the central banks of the member states of the EEC to the council of 15th March on the future of the EMS, 1982.

In table 1, we see that Denmark and, especially, Belgium experienced an appreication of the nominal exchange rate in the late 70s, which was not based on any particular strength in these countries' economic performance.

Despite having the highest frequency of exchange rate realignments, these frequent devaluations have not yet had their impact on the real exchange rate, which has been remarkably stable both for Belgium and for Denmark, and the logic of letting nominal rates move so much when the trade-off between nominal and real rates is only slight, can indeed be questioned. Domestic policy measures could perhaps have accomplished the same?

If we look at the costs of having diverging inflation rates and fixed exchange rates,[1] table 4 shows the differences in real interest rates.

The first lines show annual changes in consumer prices minus money market rates, which is the normal way of computing real interest rates.

However, in a small open economy with the documented

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1) Cf. the point made by Vaubel, that the costs of belonging to a currency area are exemplified by the divergence between nominal and real effective rates; it could be added that these costs only apply for deficit countries, because they have to borrow externally when the stock of international reserves needs replenishment.

implications for domestic macroeconomic policies, see chapter 3, a more illustrative way of deriving real interest rates is to look at government bond yields and then subtract the change in consumer prices.

Assuming that the government is running a budget deficit, this measure shows how much the government is willing to pay depositors to keep their money in the country,[1] when exchange-rate illusion no longer exists. The cost for future Danish taxpayers is not discounted.

In table 5, the three-month forward exchange rate for the EMS currencies against the dollar is compiled for the last five years.

In a way this table shows the same story although from a different angle. The Danish krone has consistently been at a discount through the last five years. The forward exchange rate should not be taken as a predictor of the future rate of exchange generally, but under certain assumptions it is logical to see the forward rate as a trend setter.

Under a fixed exchange rate system, the monetary authorities hold the spot rate constant until they are forced to change it. Any expectations in the markets about the future stability of a currency is likely to have effects on the forward rate, via the interest rate.

A high discount on, say, Danish Kroner reflects the

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1) The very low real rates for Italy and France are due to exchange controls.

Table 4. Real interest rates in the EMS countries.
Annual changes in consumer prices minus money market rates (a)
Annual changes in consumer prices minus government bond yields (b)

		79/78	80/79	81/80	82/81
Belgium	a	4.03	4.72	3.86	2.15
	b	5.61	4.44	6.11	3.52
Denmark	a	3.03	5.43	4.07	8.89
	b	6.22	6.16	8.22	11.12
Germany	a	2.69	4.24	6.21	4.56
	b	3.4	3.3	4.48	4.27
France	a	-1.22	-1.0	2.76	2.84
	b	-1.42	-0.21	3.16	2.74
Italy	a	-3.14	-3.23	0.6	5.88
	b	-0.95	-4.29	1.58	6.12
Netherlands	a	4.73	3.53	4.31	2.68
	b	4.48	3.61	4.85	4.48

Source: Changes in consumer prices: Table 3.
Changes in money market rates and government bond yields: IMF
Financial Statistics.
Calculated from lines 60b, 60bs and 61.

interest rate differential between the costs of borrowing Kroner in Copenhagen and dollars in the dollar market. However, with the experience in mind that central banks, with a currency which has hit the floor, tend to use an increase of the discount rate as their first option, it is coherent to see the forward rate as a predictor of kind.

If we turn the picture, then the premium on dollar will increase the very transaction costs, a currency area is supposed to minimize.

So it then turns out that departures from PPP, because goods and labour markets only react slowly, as simplified by the sluggishness of the real exchange rate to adjust to changes in the nominal rates, are compensated by variations in the real interest rate, which in turn affects international transaction cost in a way not very different from exchange rate uncertainty.

Table 5. Three months' forward exchange rates, discounts (-) and premiums on the currencies of the EMS measured in dollars.

	77	78	79	80	81	82
Belgium	-4.1	2.36	0.11	5.11	-6.03	-1.47
Denmark	-15.40	-2.36	-3.02	-2.56	-0.14	-5.31
France	-2.55	5.26	2.19	5.85		-2.52
Germany	4.75	7.88	5.66	8.17	3.16	3.73
Italy	-11.01	-2.41	-4.71	-3.14	-9.83	-7.87
Netherlands	1.40	2.23	2.41	8.17	2.84	3.62
Britain	3.21	0.39	-2.01	4.48	1.22	-1.08

Notes: End of period, figures from 82 are from September.

Source: International Financial Statistics, November 1982.

8.2. Trade competitiveness, squeeze of profits in the tradeables sector and changes in effective exchange rates.

As the measurement of international competitiveness has been the subject of a heated debate in recent years,[1] this section will analyze competitiveness using relative unit labour costs in a common currency.

This measure is in essence the same as Kaldor's "efficiency wages", and is widely used.[2]

If we assume that factor prices are sticky also in the longer term, then exchange rate overshooting as an effect of a too restrictive monetary policy/too high real interest rate, will affect firms in mainly two ways:

Firstly their variable costs will increase. This will result in a decrease in competitiveness, both in home markets as well as in foreign markets.

Secondly, if the firms do not want to lose markets they have to lower their prices. A lowering of price will first be felt in profits. This will eventually filter through to the investment rate.

So in order to see whether exporters have been squeezed on their profit margins to preserve market shares, cf. the hypothesis presented in the preceding chapter, the variations in cost competitiveness are com-

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1) A survey of the arguments for the various measures of competitiveness is contained in "The International Competitiveness of Selected OECD Countries", Economic Outlook, Occasional Studies, July 1978.

2) N. Kaldor (1976), op. cit.

pared with an estimate for profitability in the tradeables sector.

For this task the unit value index for manufactured exports was selected.

When compared with the GDP deflator, a measure for "squeeze" in the tradeables sector is derived.

Such a way of measuring competitiveness is not entirely new. Buiter & Miller used it in a slightly different context.[1] To use this way of measurement in the case of Denmark brings some startling results.

The reason for this is that the unit labour costs in Danish manufacturing industry have been clearly underestimated for the last ten years, due to incomparability of Danish national account data to those of other countries. In this way the degree of competitiveness of the Danish industry has been consistently overestimated for the last decade, which in terms of real exchange rates means that the current estimates are too low.[2]

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1) See W.H. Buiter & M. Miller, "The Thatcher Experiment, The First Two Years", Brookings Papers on Economic Activity, 2, 1981.

2) This standard error in the use of Danish National Accounts by the US Department of Labor, Bureau of Labor Statistics (BLS), was first discovered by V. Puggard from the Federation of Danish Industries, whom I thank for valuable help and information. The BLS figures for labour costs are used by the OECD, IMF and other international organizations. In this way an error in the compilation of data seems to have had widespread consequences when comparing national economic performances.

Table 6. Relative unit labour costs in a common currency.

	France	Germany	Italy	U.K.	Belgium	Netherlands	Denmark
1970	100	100	100	100	100	100	100
1971	96.3	103.7	103.3	104.1	100.9	100.3	99.7
1972	98.3	107.0	104.2	101.0	102.7	103.0	97.7
1973	102.5	117.7	99.0	89.1	102.2	107.2	107.8
1974	96.5	116.5	93.0	92.7	105.6	108.8	110.0
1975	104.2	107.0	105.2	98.3	106.7	112.0	103.0
1976	101.4	108.0	92.4	89.8	107.4	109.6	105.5
1977	96.5	112.8	93.8	88.8	111.0	111.9	105.7
1978	96.2	117.9	92.7	96.6	109.1	111.1	107.5
1979	99.4	120.3	93.5	113.8	106.7	109.6	110.5
1980	106.2	118.5	91.7	141.7	101.8	103.3	108.0
1981	105.2	109.8	90.2	143.1	94.8	92.9	107.0

Source: Unpublished data from the OECD, Indusriradet Kobenhavn, recently published new national account data from Danmarks Statistik, own calculations and IMF International Financial Statistics.

Table 7. Estimates of price competitiveness based on relative unit labour costs, unit export costs and GDP deflator. EMS countries. Period 1979-81.

	Effective e. (a)	Ulc. (b)	Exp. u.c. (c)	GNP def. (d)
Denmark	-25.7%	-3.17%	-4.25% (-11.34)	+24.67
Belgium	-20.7%	-11.15%	-3.9% (-13.7)	+14%
Germany	-18.6%	-8.73%	-6.85% (-8.90)	+9.3%
France	-21.4%	+5.83%	-1.44% (-7.19)	-11.32%
Italy	-26.3%	-3.53%	+8.39% (+2.79)	+12.1%
Netherlands	-19.2%	-15.21%	+4.72% (+2.7)	+0.03%
United Kingdom	-4.4%	+25.7%	+11.6% (+6.1)	-20.7%

Sources: IMF, International Financial Statistics, Nov. 1982.
European Economy, No. 12.82., and tables 1 - 3 - 6.

Abbreviations: a = effective exchange rate, IMF figures from table 1. Growth rates in %.

b = relative unit labour costs from table 6, in a common currency.

c = relative export unit costs from IMF data, growth rates in %. Figures in brackets are June or August 1982 figures.

d = GNP deflator, Eurostat from table 3.

Table 7 shows the variations in the effective nominal exchange rate in the (a) column. For this the IMF effective rate index was chosen.

Column (b) shows the variations in relative unit labour costs; this measure gives the change in competitiveness, which can be interpreted as the real exchange rate.

Column (c) shows the variations in export unit costs, as compiled by the IFS. Lastly, column (d) brings for comparison the change in GNP deflators.

The period chosen was 1979-1981. The reason for this was that 1979 seems to be the year where nearly all the currencies reached their highest score on the effective exchange rate index. See table 1.

For Denmark the decrease of 25.7% in the effective exchange rate, brought only modest results on the downward movements of unit labour costs. Had factor prices been more flexible, a much higher decrease in ULC's would have been expected.

If we assume that ULC's are an adequate predictor for the state of the real exchange rate, then we can see that a decrease of 25.7% in the effective rate only brings a 3.17% decrease in the real rate.

This is obviously a very bad trade-off, but it does not surprise as it corresponds with the result obtained in the preceding section. This large deterioration in cost competitiveness was and is being absorbed by the exporters to a considerable degree.

The unit value index for manufactured exports fell

4.25% from 1979 to 1981, and measured from 1979 to August 1982, the export unit cost index fell even more, 11.34%. With a decreasing effective exchange rate one should have expected the opposite result. However the sharp rise in the GNP deflator indicates the stickiness in factor prices, while the decrease in export unit costs and the relatively smaller decrease in ULC's compared to the effective rate, shows the degree to which exporters have been squeezing their profit margins in order to stay competitive and keep market shares.

The only country which has had a worse trade-off between decreases in nominal and real exchange rates is Italy. Surprisingly Italy has also experienced a real increase in export unit costs. With the modest response in the ULC to the decrease in the real rate, it is not unexpected that this advantage is eroding.

The Netherlands is the country which, from these figures, has had the best performance in terms of holding nominal and real rates steady. With a low increase in the GNP deflator it has remained highly competitive, and now only Denmark and to a lesser degree Belgium suffer from the "Dutch disease".

The loss of competitiveness did not lower demand for Danish exports, only the UK and Italy experienced lower volumes of exports. This decrease was countered in both cases by an increase in the export value unit costs. (See tables 7 & 8).

Table 8. Changes in export volumes. 1979-1981.

Denmark	Belgium	Germany	France	Italy	Netherlands	UK
+14.33	+3.8	+10.8	+5.16	-3.3	+1.6	-14.6

Source: Derived from Eurostatistics, Data for Short-Term Economic Analysis, No. 9, 1982.

The concept of unit labour costs as being a close proxy for the real exchange rate has been attacked by, amongst others, Thygesen,[1] who claims that measuring competitiveness by ULC's may lead to an underestimation of the changes in relative competitive positions, because changes in output per manhour are endogenous responses to changes in hourly earnings, and moreover, changes in output per manhour could be offset by changes in the price of capital.

With a tight monetary policy such an outcome is very plausible.

The reason why the concept of ULC's plays an important role in the present work is the assumption that the adjustment required for the strong currency option was very weak in the smaller countries, and especially in Denmark.

1) Following Thygesen (1979), op. cit., p. 9.

In order to maintain the competitiveness of industry, and thus reduce the unemployment rate, a reduction of marginal factor costs was required. This never happened, instead the effect of a tight monetary policy was countered by an expansive fiscal policy, which exacerbated, and further squeezed the profitability of the tradeables sector. So in this way variations in unit labour costs give a measure of the degree to which the needed adjustment has succeeded.

And if the hypothesis of Minford, that it is long-run rather than current competitiveness which determines export performance,[1] is considered valuable, then the trend of the ULC's is highly significant.

The real appreciation, which we have observed in the case of Denmark is then equivalent to the rise in the real manufacturing wage rate.

Why did the real manufacturing wage rate then increase when a decrease was needed?

Let us turn to the now familiar framework of the small open economy with prices for tradeables given. With a deficit on the current account, capital imports are needed in order to support the fixed exchange rate, and the budget deficit, cf. chapter 3. The capital inflows

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1) P. Minford, "A Rational Expectations Model of the United Kingdom Under Fixed and Floating Exchange Rates", in K. Brunner & A.H. Meltzer (eds.), On the State of Macroeconomics, Carnegie-Rochester series on public policy, vol. 12.

cause real appreciation, or alternatively maintain an already overvalued currency rate.

It was demonstrated in the previous chapter that capital inflows will alter the production and consumption pattern of the economy.

So the resulting increased demand for nontradeables, which is mainly services, public and private, and the change in relative prices is equivalent to a relative wage increase in the tradeables sector as labour is drawn out of manufacturing.

As exporters in the manufacturing industry expect the loss of competitiveness to be transitory, they accept profit margins being squeezed, which has a repercussion on the future investment rate. With a time lag manufacturing output will decline, and so will exports.[1]

It was shown above that PPP did not seem to prevail, at least not in the short to medium run. The solution could be that equilibrium relative prices are changing all along, which we demonstrated in chapter 7 would change the real exchange rate.

This trend of squeezing the tradeables sector in countries where real exchange rates adjust to changes in effective rates only very slowly could have been arrested, perhaps, if a part of the proceeds from the capital im-

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1) Cf. Minford (1980), op. cit., and J. Niehans, The Appreciation of Sterling - Causes, Effects and Policies, SSRC Money Study Group discussion paper, Social Science Research Council 1981.

ports had been used by the tradeables sector for investment purposes in order to improve competitiveness.

8.3. Cost/price intra-EMS competitiveness.

A point could be made, that the methods used in the previous sections for comparing changes in competitiveness do not take changes in intra and extra EMS competitiveness into account. This is a valid point, but the question about trade creation or trade diversion in a fixed exchange rate system is somewhat outside the scope of the present task, although table 11 may suggest a diversion. However it is a logical outcome that small open inflation-prone economies maintain competitiveness more easily in third markets, where direct price competition with goods from low inflation countries must be supposed to be less tense than is the case in second markets.

Table 10 shows the differences between competitiveness of the EMS countries, when an index including 17 partner countries is compared with an index of pure intra EMS trade. In the former index the effects of a strengthening dollar rate should be taken into account.

The general trend in the indices does not surprise, and the conclusions from the previous sections still stand.

The indices have as base year 1970, and an index number greater than 100 indicates an increase in relative prices.

In the index of intra-EMS competitiveness the Dan-

Table 10. Cost/price competitiveness in intra and extra EMS trade.

	Belgium	Denmark	Germany	France	Italy	Netherlands
Index of competitiveness, 17 partner countries						
1978	109.9	120.1	108.2	97.0	82.1	123.5
1979	106.7	113.3	108.0	98.8	84.3	120.3
1980	101.1	104.9	103.8	101.3	89.9	116.9
1981	96.2	96.6	96.1	100.0	88.5	111.4
Index of intra-competitiveness						
1978	105.6	110.2	104.0	92.9	77.6	119.1
1979	102.9	107.9	103.6	95.2	79.7	116.8
1980	99.6	100.6	100.1	99.0	86.0	115.5
1981	97.3	101.1	97.5	102.8	89.3	113.9

Source: EC Commission.

Notes: See text.

Table 11

Per cent distribution of Danish imports and exports. 1975-1981.

EXPORTS							IMPORTS							
75	76	77	78	79	80	81	75	76	77	78	79	80	81	
80.7	82.6	80.6	81.8	83.0	82.6	79.7	80.7	81.7	82.2	84.2	82.6	82.3	83.9	Industrial countries
13.2	14.3	15.1	16.9	17.4	18.8	16.6	19.6	19.5	19.6	20.7	19.7	18.3	18.5	Germany
4.0	4.2	4.7	4.9	3.9	4.3	5.6	7.0	5.8	4.2	3.1	3.6	3.3	3.3	Oil exp. countries
11.3	9.9	11.2	10.4	10.7	10.8	12.7	7.7	8.2	9.3	8.2	8.9	9.2	9.1	Non oil LDC's
1.8	1.6	1.8	1.6	1.4	1.5	2.3	0.9	0.9	1.2	0.9	1.1	1.4	1.7	Africa
1.6	1.3	1.7	2.1	2.1	2.2	2.0	1.7	2.3	2.9	2.4	2.6	2.7	2.7	Asia
3.0	2.7	3.1	3.2	3.1	2.9	3.1	1.9	1.7	1.5	1.5	1.5	1.5	1.4	Europe
0.9	1.0	1.1	0.9	1.0	1.0	1.3	0.4	0.2	0.2	0.2	0.3	0.2	0.2	Middle East
4.1	3.3	3.5	2.5	3.0	3.1	4.0	2.8	3.2	3.5	3.2	3.4	3.4	3.2	West. hemisphere
3.6	3.0	3.1	2.5	2.2	2.0	1.6	4.6	4.2	4.2	4.3	4.6	5.0	3.4	USSR, Comecon, etc.

Note: Percentages derived from IMF, Direction of World Trade, 1975-82.

ish score of 101.1 in contrast to the German 97.5 indicates the effects of divergent inflation performances, when intra EMS trade is considered, which in the case of Denmark accounts for half of total foreign trade.

It should be noted that the Danish February devaluation of 3% in 1982 has not been taken into account, but with the persistent inflation differential between the two countries, see table 3, this trend has probably been accentuated rather than diminished since.

The two indices have been prepared by the Commission,[1] and they are both based on GDP-prices, annual averages and export weights are changed from year to year until 1979.

Judging from table 11, where the per cent distribution of Danish imports and exports is calculated, the aforementioned time lag between effective appreciation of a currency and loss of market share seems to hold true.

The Danish exports to Germany seem to follow the same trend as the one for all industrial countries (where Germany is included) and the same pattern can be found in the distribution of imports.

However, with the deficit on the current account in mind, it should be noted that this pattern does not ap-

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1) European Communities, Monetary Committee, Twenty-third report on the activities of the Monetary Committee, Brussels, 15 May 1982.

ply when real value terms of imports and exports are accounted for.

8.4. Real exchange rate and the level of domestic demand.

In the preceding three sections it has been argued that differences in relative economic performances amongst the EMS member states, however measured, may justify changes in real exchange rates.

The difficulty in choosing the right indices, and the relevant base years for comparison of potential national economic divergences is acknowledged, as are non price determinants and structural differences.[1]

If adjustments are deferred for too long, serious distortions in the allocation of resources will eventually follow.

Let us briefly repeat the chain of argument:

With an appreciating currency, in real terms, firms in the open sector will experience a decline in profit margins, and a decrease in the investment rate will follow.

If domestic demand is kept sufficiently strong by, say, lax financial policies, these cost increases in the tradeables sector will be translated into higher output prices in the non-tradeables sector.

The relative price of tradeables/non-tradeables will

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1) See especially R. Vaubel, Strategies for Currency Unification, Kieler Studien, 156, where the author shows that even if inflation rates were fully converged inside the EC, real exchange rate adjustment would be required because of structural differences.

decline, which again will result in a reallocation of production factors between the two sectors.

Table 12, where changes in the structure of GDP uses from the pattern of 1968-72 to 1982 have been calculated, gives evidence of such a reallocation of production factors.

Again the case of Denmark is the most extreme. Here private consumption declined -0.8, while public consumption increased a record of 8.0% of GDP, where the weighted EC average was 3.1%.

When looking at the increase in total consumption, Belgium and Denmark scored the highest increases respectively. The dramatic decrease in fixed gross capital formation of 8.7% in Denmark compared with the average EC score of 2.3%, weighted, would suggest a squeeze in profits followed by a decrease in the investment rate.

The Danish investment rate being distinctly lower than those of her EMS partners could indeed aggravate structural differences, thus making a hypothetical reflation difficult, as such a reflation would be hindered by the resulting weaknesses in the productive capital.

This trend can also be seen when examining the shares of total general government expenditure in the EMS countries, as shown in table 13.[1]

The quite substantial rise in government expenditure of 16.51% from 1975 to 1980 in the case of Denmark, which again shows the highest rise, is not the result of in-

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1) See table 13 for exact definitions.

Table 12. Changes in the structure of GDP uses.
A comparison of average 1968-72 figures with the structure of GNP in 1982. EMS countries.

		Consumption			Gross capital formation		
		Priv.	Publ.	total	fixed	stocks	total
Belgium	a	61.4	14.1	75.5	21.4	1.3	22.7
	b	64.8	19.6	84.5	19.5	0.3	19.8
	c	3.6	5.5	9.0	-1.9	-1.0	-2.9
Denmark	a	56.9	20.0	76.9	24.3	0.7	25.0
	b	56.1	28.0	84.1	15.6	-0.3	15.3
	c	-0.8	8.0	7.2	-8.7	-1.0	-9.7
Germany	a	54.8	16.4	71.2	24.8	1.5	26.3
	b	55.4	21.0	76.4	22.8	-0.1	22.7
	c	0.6	4.6	5.2	-2.0	-1.6	-3.6
France	a	60.7	13.4	74.1	23.5	2.1	25.6
	b	65.1	15.8	80.9	21.1	-0.1	22.7
	c	4.4	2.4	6.8	-2.4	-2.2	-4.6
Netherlands	a	56.8	16.3	73.1	25.3	1.5	26.8
	b	60.5	17.9	78.4	19.0	-1.3	17.7
	c	3.7	1.6	5.3	-6.3	-2.8	-9.1
UK	a	62.5	17.8	80.3	18.5	0.7	19.2
	b	60.3	22.1	82.4	16.2	-1.8	14.4
	c	-2.2	4.3	2.1	-2.3	-2.5	-4.8
Italy	a	63.4	15.3	78.7	20.6	0.7	21.3
	b	64.2	18.1	82.3	20.3	0.9	21.2
	c	0.8	2.8	3.6	-0.3	0.2	-0.1
EC, Average	a	60.8	14.6	75.4	22.5	1.4	23.9
	b	62.6	17.7	80.3	20.2	-0.3	19.9
	c	1.8	3.1	4.9	-2.3	-1.7	-4.0

Notes: a = average 68-72, b = 1982, c = b - a.

Sources: Eurostat/European Economy, National Accounts. Figures from 1982 = estimates from commission departments, published in European Economy, 12.

Table 13. The shares of total general government expenditure. In GDP/GNP in the EMS countries.

	1975	1976	1977	1978	1979	1980	Change in %
Germany	47.1	46.4	46.5	46.5	46.4	47.0	0.2
France	43.5	44.0	44.2	45.1	45.3	46.2	6.2
U.K.	46.9	46.1	44.1	43.7	43.3	45.5	5.7
Italy	43.2	42.2	42.5	46.1	45.5	45.5	5.3
Belgium	44.5	45.1	46.7	47.9	49.7	49.5	11.23
Denmark	44.8	44.1	45.0	45.8	48.7	52.2	16.51
Netherlands	55.9	55.9	56.0	57.5	59.5	60.4	8.05

Source: National Accounts of the OECD countries, 1962-79. Figures for 1980 are OECD estimates.

Total government expenditure = Current disbursements (capital consumption incl.) + gross capital formation.
This equals the sum of lines 23, 28, 29, 30 minus line 26 in vol. 2, ibid.

creased transfers in the form of social security in order to remedy the effects of high unemployment.

Table 14 shows that the increase in share of social security transfers in Denmark from 1975 to 1980 was negative, and most other EMS countries show identical trends.

The significant changes are found when examining the share of general government debt interest payments in total government spending.

This is shown in table 15, and the high increases in interest payments must be the main culprit in the stagnating figures for the shares of social security transfers.

The giant step in indebtedness in the case of Denmark can also be seen from table 16, where the GNP/debt ratios have been calculated.

Not surprisingly, the Danish ratios show the highest degree of change. Due to a lack of recent figures, it was not possible to complete this table, but columns A, B and C show the significant increase in the Danish indebtedness. The repercussions of this on domestic parameters are in the case of Denmark analyzed in chapter 9.

Of particular importance is the increase in the level of externally held debt.

Why the level of foreign debt weighs heavier than the amount of debt held domestically is because the "inflation tax" can reduce the real level of domestic debt, while financial assets held abroad either must carry a substantial premium in terms of interest, or be denominated in a foreign currency, which has a better prospect of maintaining future purchasing power.

Table 14. Share of social security transfers in total general government current spending and the change in % from 1975/80.

	75	76	77	78	79	80	change in % 75/80
Germany	39.1	39.1	39.0	38.5	37.8	37.3	-5.4
France	51.2	51.1	51.5	52.1	52.7	52.7	2.9
U.K.	24.7	25.9	27.4	28.2	28.1	27.6	11.7
Italy	40.8	40.4	39.2	39.2	38.0	38.3	-6.1
Netherlands	48.0	48.4	48.5	48.6	48.7	45.4	-5.4
Belgium	45.6	46.3	46.1	45.4	45.1	44.1	-3.3
Denmark	34.3	33.7	34.2	34.4	34.1	33.2	-3.2

Sources: Economic Outlook/National accounts of the OECD countries. Unpublished OECD Secretariat figures.

Table 15. The share of general government debt interest payments/total government spending and the change in % from 1975/80.

	75	76	77	78	79	80	Change in % 75/80
Germany	3.3	3.8	4.1	4.1	4.2	4.7	42.0
France	3.3	3.1	3.3	3.4	3.7	3.8	15.6
U.K.	10.1	11.0	11.6	11.4	12.0	12.2	20.8
Italy	10.4	11.7	12.7	14.0	14.0	14.9	43.3
Netherlands	6.3	5.9	5.8	5.8	5.8	6.1	-3.2
Belgium	8.7	8.9	9.5	10.1	11.0	12.8	47.1
Denmark	3.1	4.5	6.2	7.1	9.6	11.7	277.4

Sources: Economic Outlook/National Accounts of the OECD countries.

Table 16. Central government debt and interest payments in the EMS countries. 1975-80.

	A		B		C		D		E	
	75	80	75	80	75	80	75	80	75	80
Germany	10.8	13.9	0.1	1.5	0.5	1.0	3.9	5.4	4.1	4.7
France	7.8	8.8	0.4	0.5	0.7	0.9			4.4	
U.K.	42.3	40.1	8.8	5.2	2.7	3.7	15.2	13.1	30.0	34.1
Italy	40.9	50.1	0.5	0.7	4.0	6.2			12.7	18.2
Belgium	40.0	47.7	0.6	2.6	2.7	5.1			9.9	11.4
Denmark	3.6	24.9	3.6	12.1	1.5	8.9				
Netherlands	22.3	26.8	-	-	3.2	3.8				

Notes: A = Domestically held debt ratio of GNP. B = Externally held debt ratio of GNP. C = Total interest payments ratio. D = Interest paid abroad of C. E = Non bank private sector financial assets held as public sector debt.

Souroes: National statistics. See annex a & b for exact data sources.

8.5. Financial policies and public sector growth.

An overvaluation of a currency is in theory of a temporary nature. On the demand side the resulting current account deficit will have deflationary effects. Interest rates will increase and/or the money supply will decline. This again will reduce the level of aggregate demand, which again will reduce the growth of prices and wages. In this way the initial overvaluation of a currency will automatically adjust to a more realistic equilibrium level. However expansionary financial policies can halt this adjustment mechanism, as was shown in chapter 3. With a direct link between budget deficits and current account deficits, expansionary financial policies will maintain inflationary expectations, initially in the non-tradeables sector and later also in the tradeables sector. In this way the adjustment burden will, as previously shown, fall mainly on the sector exposed to the exchange rate.

In order to explain the explosion of government expenditure in Denmark, we shall in the following analyze financial policies in the EMS countries and try to formulate a common denominator for expansionary and contractionary policies respectively.

Basically two ways exist for doing this:

a. By focusing on the ratio of government borrowing to that of the changes in annual money supply, and[1]

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1) This approach could be coined the more monetarist oriented, and has been used recently by the EC Commission. See European Economy, 12/82.

b. By focusing on government borrowing and the yield curve[1] which is short-term interest rates divided by long-term rates.

Tables 17 and 18 represent the first approach. We see (in table 17) that the strong currencies Hfl's and DM's have reduced their money supply considerably after the first oil-price hike. Also Belgium had a very tight policy. Denmark tried to restrict the money supply in 79/80, but it seems that this trend has been broken since.

Looking at the liquidity ratio, there are erratic trends for the weaker currencies, but in spite of relatively high levels of the money supply, there have been stable or even declining liquidity ratios.

What is really amazing are the money supply per unit of output ratios. For a country like Germany the trend is quite stable despite the variations in the money supply, while figures for Denmark do not seem to follow a trend. If we now include the budget deficits we get a slightly different picture (table 18).

Although the ratios presented in this table by their very nature cannot be directly comparable, they

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1) Looking at the interest rate structure is the more traditional, Keynesian approach. An analysis using this approach for a comparison of UK and US financial policies is R. Coglan, "The Conflict Between Monetary and Fiscal Policy", The Banker, Oct. 1981.

Table 17. Monetary aggregates/annual changes %

		68/60	74/68	78/74	79/78	80/79	81/80	82/81
a		8.3	11.8	12.7	7.9	4.3	5.4	7.4
b	B	0.4	-0.6	2.9	1.0	-2.5	1.6	-1.2
c		3.6	6.1	10.7	5.4	1.8	6.6	6.9
a		10.3	10.9	9.2	9.6	5.3	6.5	5.6
b	D	2.7	0.1	2.2	1.1	-1.4	2.1	0.2
c		5.8	6.2	6.7	5.0	3.2	6.5	4.6
a		8.5	13.7	10.6	4.8	8.0	6.6	6.8
b	NL	-1.4	0.3	0.2	-1.1	2.0	2.0	0.0
c		3.5	8.3	8.1	3.0	7.4	8.1	6.2
a		10.5	9.8	13.6	9.3	8.4	11.8	12.0
b	DK	-0.5	-2.6	0.8	-1.6	0.2	2.2	-1.6
c		5.2	6.3	11.1	6.1	8.6	12.0	8.8
a		13.7	14.1	14.9	13.5	11.8	12.6	14.1
b	F	3.8	0.9	1.0	-0.4	-1.0	0.5	-0.8
c		7.9	8.1	11.6	10.1	10.4	12.4	11.8
a		13.6	16.2	22.4	22.8	19.9	17.9	15.8
b	I	3.0	2.0	2.8	1.2	-4.2	0.5	-1.8
c		7.4	11.1	20.4	17.1	15.3	18.1	13.7
a		5.4	13.7	9.9	12.8	14.9	15.6	12.4
b	GB	-1.4	2.1	-7.3	-3.4	-2.0	4.7	2.3
c		2.3	11.0	7.9	11.2	16.5	17.0	11.0

Notes: a = Money supply (DK, F, NL: M2, D, I: M3, B: M2H, GB: UKL M3.

b = Liquidity ratio.

c = Money supply per unit of output.

Sources: Commission/European Economy, 12/82.

Table 18. Budget deficits and changes in money supply.

1975	1976	1977	1978	1979	1980	1981	1982		
41.2	60.5	81.2	86.7	170.7	515.9	297.8	244.6	a	
4.3	5.1	5.3	5.7	7.0	9.4	13.1	12.4	b	B
10.6	8.6	6.7	6.8	4.2	1.9	4.5	5.2	c	
19.9	16.1	40.3	78.7	77.5	130.4	163.8	171.2	a	
2.0	0.8	1.7	2.2	3.1	5.9	7.2	8.8	b	DK
10.0	4.9	4.3	2.9	4.0	4.5	4.4	5.2	c	
154.6	97.6	49.2	54.5	106.8	118.9	189.1	151.1	a	
5.8	3.6	2.4	2.8	3.0	3.5	4.5	3.9	b	D
3.7	3.7	5.0	5.1	2.8	2.9	2.4	2.6	c	
27.1	8.1	12.4	31.2	12.4	-9.9	36.7	47.9	a	
2.2	0.5	0.8	1.8	0.8	-0.5	-1.9	-2.9	b	F
8.3	6.0	6.5	5.7	6.6	4.5	5.2	6.1	c	
60.2	48.3	40.4	46.0	46.1	56.3	84.3	84.7	a	
11.7	9.0	8.0	9.7	9.5	8.4	11.9	11.1	b	I
19.4	18.6	19.7	21.2	20.7	14.9	14.1	13.1	c	
144.5	34.5	16.7	160.1	139.3	248.7	288.0	261.9	a	
2.7	2.4	1.4	2.2	3.1	3.4	4.6	4.2	b	NL
1.9	6.8	1.3	1.4	2.2	1.4	1.6	1.6	c	
223.9	172.9	18.7	103.8	94.1	72.9	62.6	65.8	a	
4.9	5.0	3.4	4.3	3.3	2.5	2.4	1.9	b	GB
2.2	2.9	2.9	4.1	3.4	4.9	3.8	2.9	c	

Notes: a = Government borrowing requirement (as defined by the Commission; note the differences from standardized OECD figures)/ Change in money supply (see preceding table). NB: (-) = financial surplus.

b = Government borrowing requirement/GDP.

c = Change in money supply/GNP.

Sources: Table 17, Eurostat/European Economy, 12/82.

show the restrictiveness of monetary policy in relation to changes in the fiscal balance.[1]

In Denmark and in Italy monetary expansion slowed down less, despite high deficits, than was the case in other countries.

Generally the now well-known trend emerges. Germany and the Netherlands experience a high degree of monetary stabilization because of their stable level of budget deficits, while the high increases in budget deficits in Denmark and Italy are partly offset by monetary expansion.

Only France has followed, consistently, a strategy of monetary accommodation of budget deficits, which theoretically should limit the chances of financial crowding out, but render the currency more impotent.

An analysis along the lines as presented above has obvious lacks. Firstly, small open economies engaged in monetary integration efforts use, by definition, an exchange rate target for their monetary policies instead of relying on a pure monetary target. Denmark's monetary performance, using the method above, is hardly impressing.

Yet the level of the real interest rate is the highest amongst the EMS countries (see table 4), which points to a very tight monetary policy.

The explanation can be found when looking at table 16 again. Here the high rate of foreign indebtedness in Denmark, column B, suggests that the high level of money supply has been neutralized by an extra inflow of high-

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1) Cf. European Economy, op. cit.

powered money, thus maintaining a high level of real interest and a high level of the nominal money supply.

This expansion of the money supply by adding to the monetary base, supports the exchange rate, supports the high level of interest and prevents the work of the automatic adjustment mechanism as devised by the newer monetarist theories.[1]

Approach B, which focuses on the yield curve between the long and the short rates of interest, is depicted on charts 1 - 2 - 3. On the horizontal axis the budget surplus or deficit is shown, and on the vertical axis we have the yield curve. The logic behind this curve is that money can be said to be really tight when short rates rise substantially above long rates.

So in the charts first quadrants represent easy monetary and easy fiscal policy, second quadrant represents tight monetary and easy fiscal policy, third quadrant means tight monetary and tight fiscal policy, while easy monetary policy and tight fiscal policy is shown in quadrant 4.

In the three charts Denmark and Belgium represent the weaker currencies while Germany is an example of the strong currency. The Belgian performance is, at first sight, easily dismissed as lax, but in the case of Denmark and Germany an interesting pattern emerges.

Germany seems to have gone from relatively easy monetary and fiscal policies in the seventies to tight monetary and easy fiscal policies in the 80's. An exception is

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1) Cf. chapters 3 and 5.

Monetary and fiscal policy in Belgium.

Chart 1.

yield curve=short bank rate/ government bond yield.

Line 60b/61.IFS.

(i)

(iv)

0,5

1,0

(iii)

(ii)

1,1

1,2

Budget surplus(+) or deficit(-)

1 2 3 4 5 6 7 8 9

Chart 2

Monetary and fiscal policy in Germany

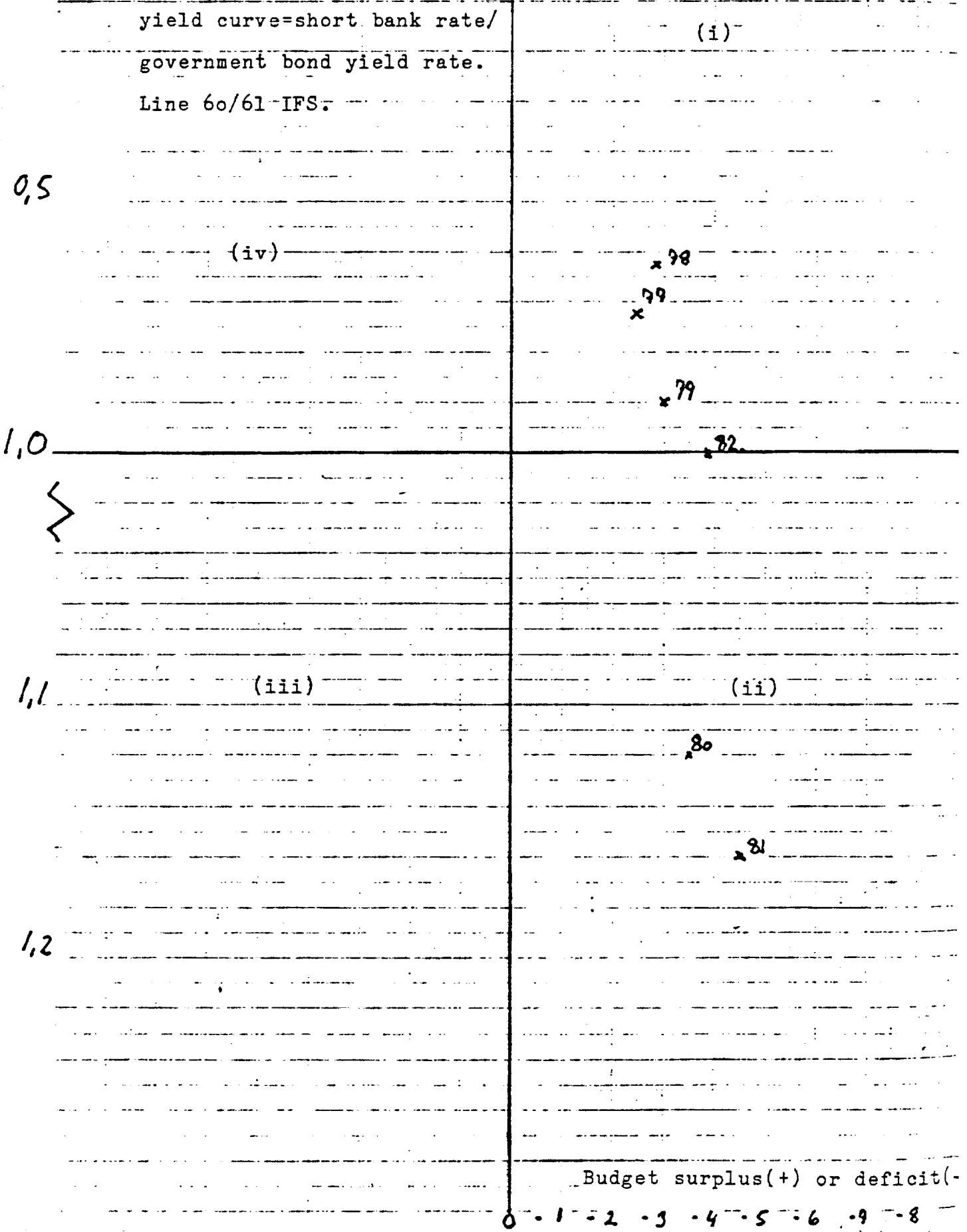


Chart 3.

Monetary and fiscal policy in Denmark

0 yield curve=short bank rate/ government bond yield rate.

Line 60/61 .IFS.

(i)

(iv)

0,5

82

81

79

1

80

98

97

1,1

(iii)

(ii)

1,2

Budget surplus(+)or deficit(-)

3 2 1 0 1 2 3 4 5 6 7 8

1982. In the case of Denmark the pattern is nearly identical while the direction is the opposite. From tight monetary policies in the 70's, 79 being an exception, and easy fiscal policies, the 80's seem to be dominated by both easy monetary and easy fiscal policies.

This observation seems to explain the previous observation that the effective nominal exchange rate eclipsed in 79, i.e. after the tight monetary conditions in 77 and 78.

This way of measuring the "tightness" of monetary policy has two obvious drawbacks.

Firstly, having unity as an arbitrarily chosen dividing line between easy monetary and tight monetary policy overrepresents the "true" level of tight money.

To call money tight, short rates should rise considerably above the level of long-term rates.

Secondly the government bond yield rate which has been used here as a proxy for the long rates is invariably a function of the need to finance the budget and/or the deficit on the current account. Hence the loosening of monetary policy in the 80's as shown in chart 3 for Denmark is a result more of an increase in the long rates than a fall in the short rates. From this angle of reasoning it could be argued that monetary policy in Denmark still is tight, because of the real cost of short-term funds, while the long-term rate is set too high by the central bank.

8.6. Economic performance and the expansion of the public sector in the EMS countries. 1970-1980.

How did the small trade-off between variations in nominal and real exchange rates and the expansion of the public sector affect economic performance in the EMS countries?

The following nine charts show scattergrams where economic performance initially was correlated to selected indicators for the expansion of the public sector, inflation and employment. As can be seen in most cases, the dispersion of observations is so massive that the original correlation coefficients did not have any meaning. They have therefore been left out of the analysis.

Charts 4 and 5 show the lack of a Phillips curve effect and inflation/real GNP growth respectively.

Chart 4 indicates that the UK, Italy and Denmark seem to have the smallest trade-off between inflation and employment, while chart 5 shows that UK and Denmark experienced the lowest degree of real GDP growth, while, together with Italy, scoring highest in inflation performance.

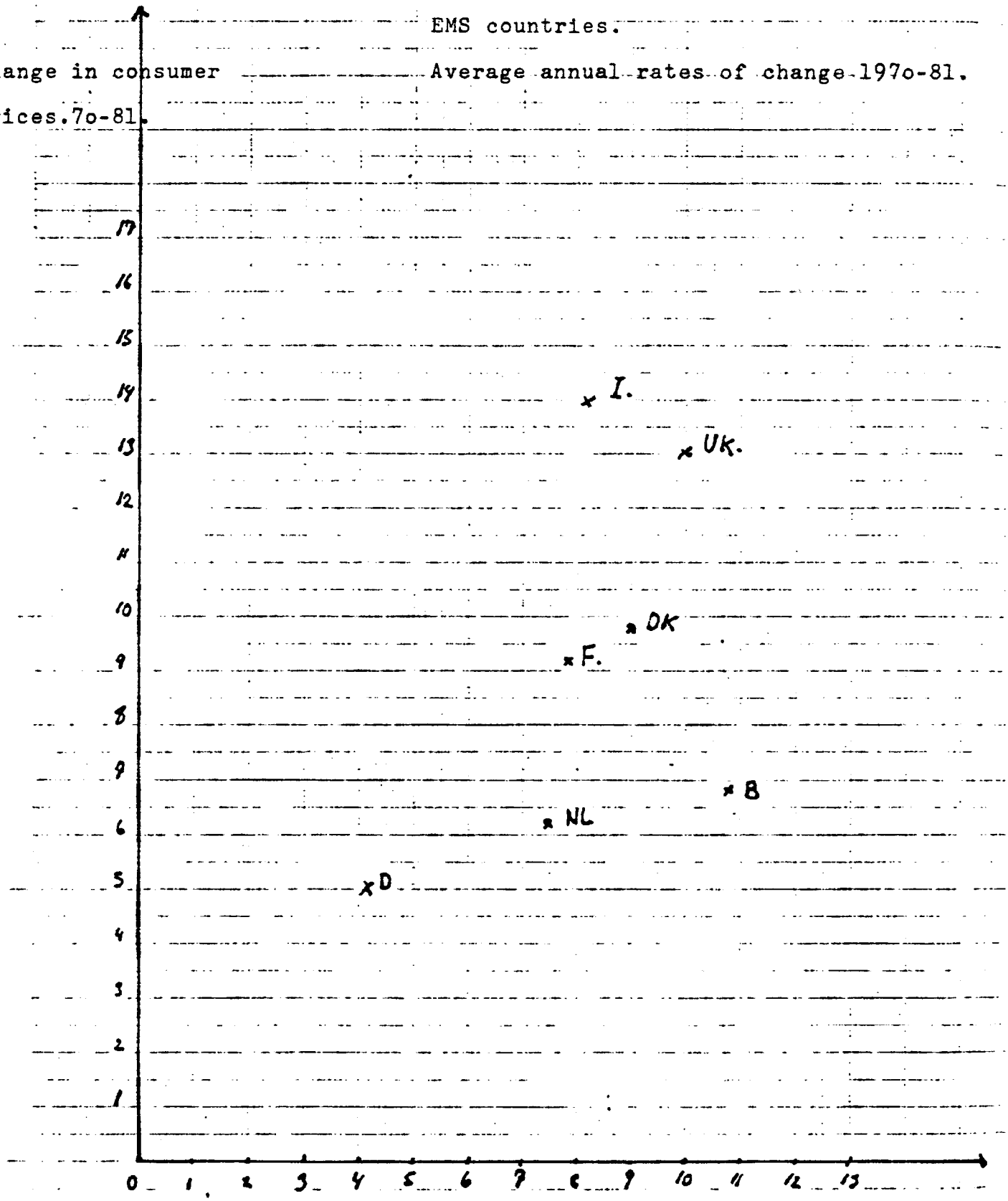
The remaining seven charts focus on the effects of variations in indicators for the size of the public sector.

Chart 6 gives the overall picture. Denmark has by far the highest increase in the ratio of public sector debt held by the private sector to GDP from 1970 to 1980. At the same time scoring second lowest in GDP growth suggests

Chart 4.
The unemployment rate and the inflation in EMS countries.

Change in consumer prices.7o-81.

Average annual rates of change 197o-81.

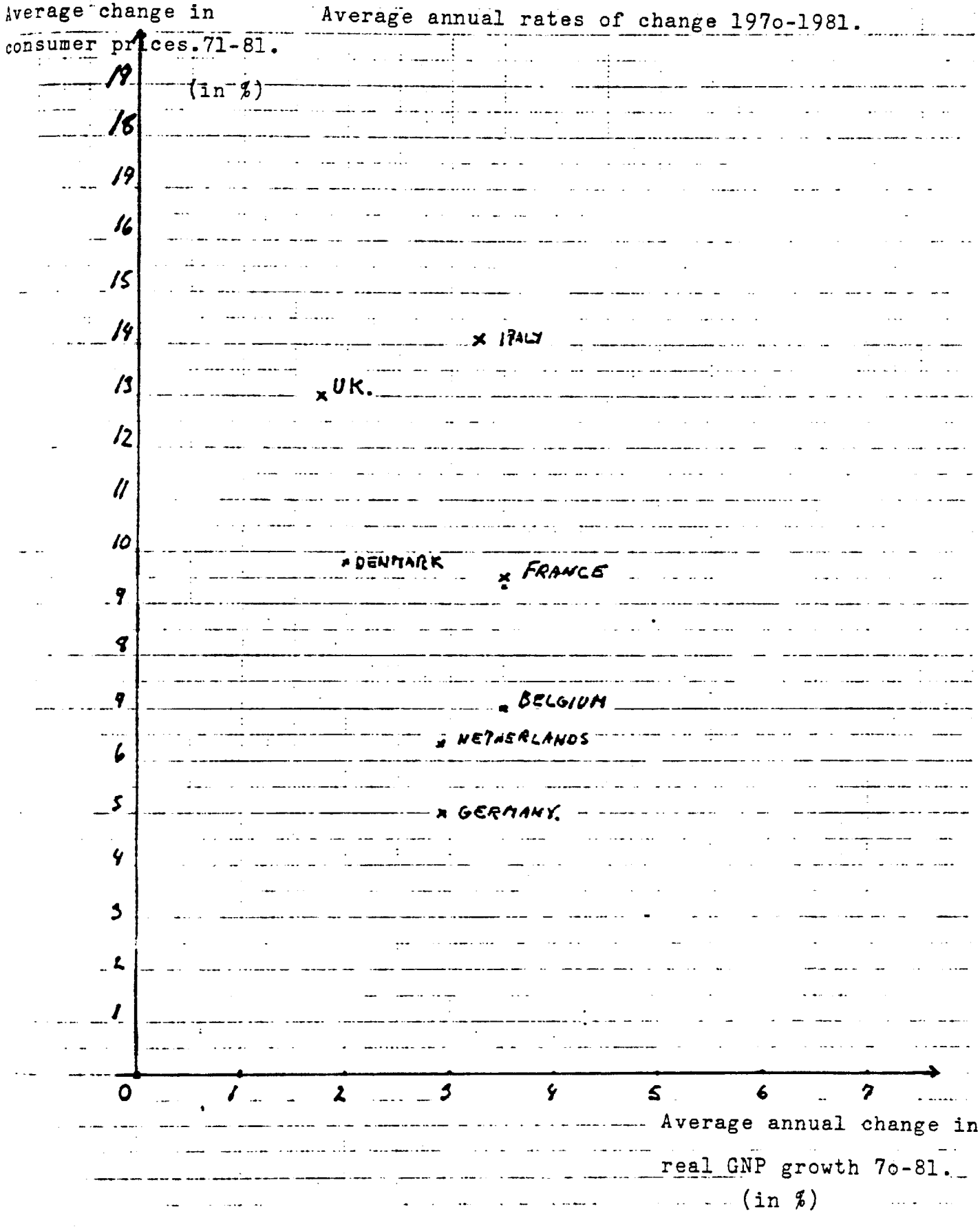


Unemployment ra

1981.

Sources:As in chart 1.

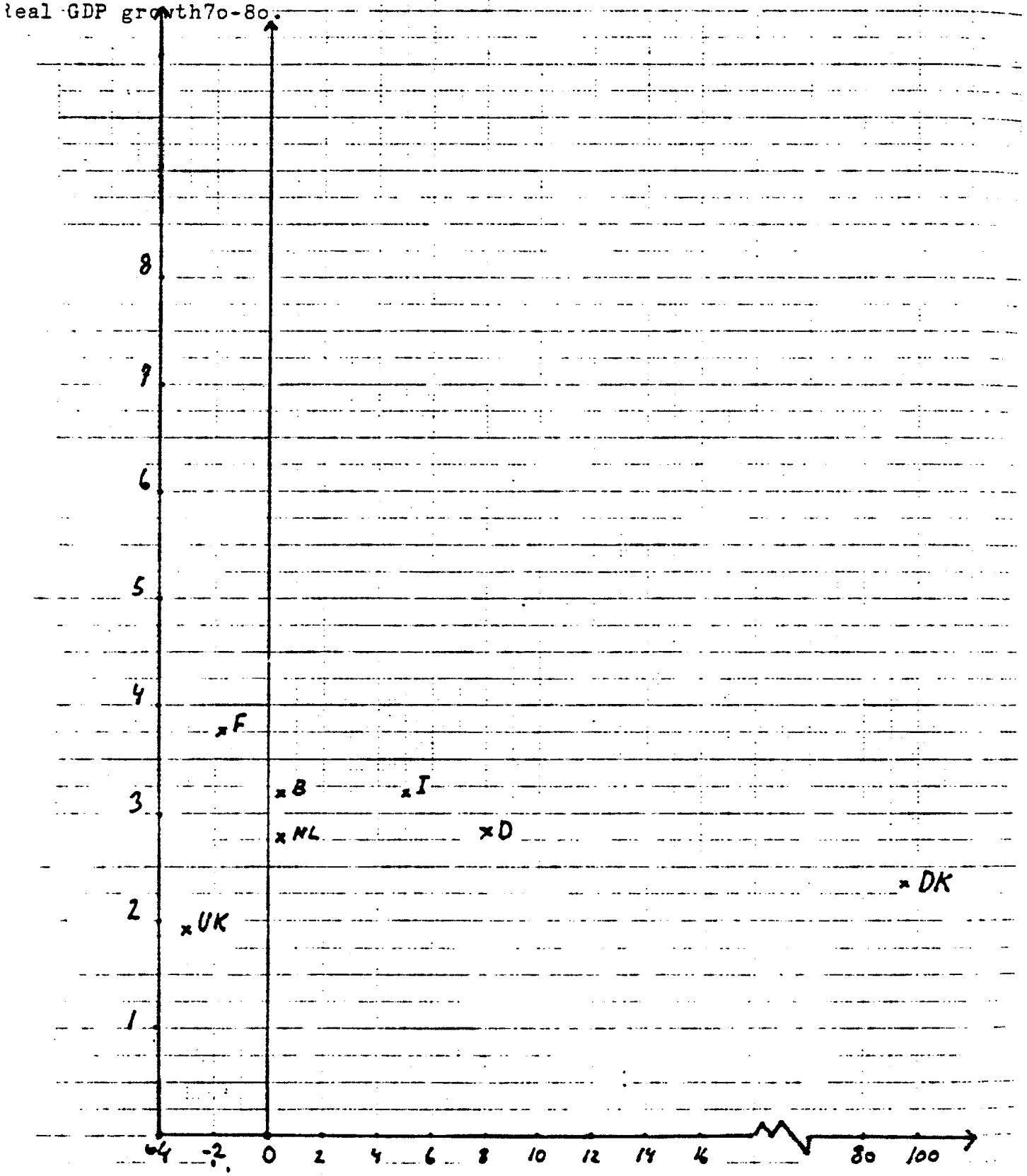
Chart 5.
Real GDP growth and inflation in EMS countries.



Sources: OECD Economic Outlook, table r.12.(no 32)
and OECD Main Economic Indicators, November 1982.

Chart 6.

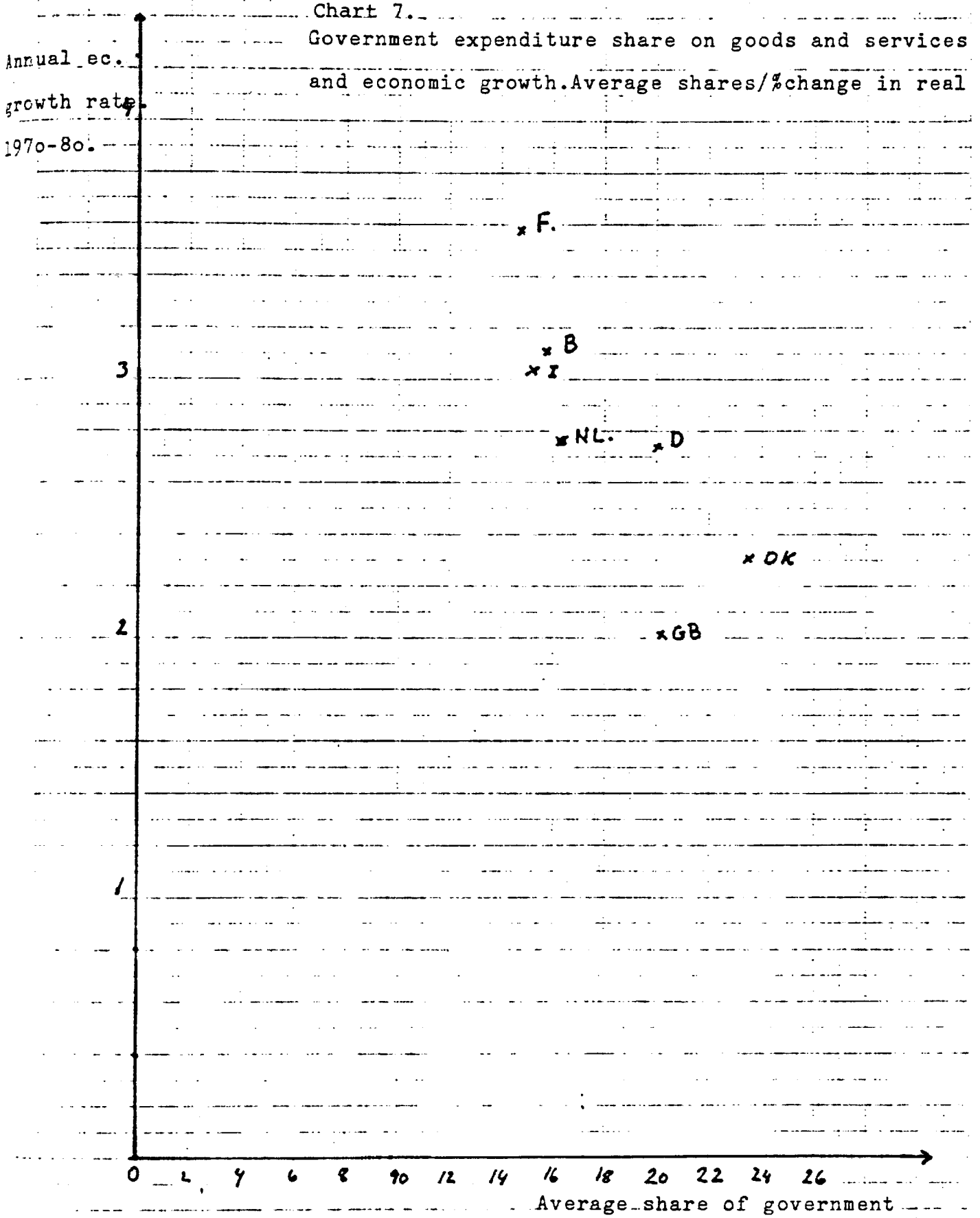
Real GDP growth and public sector debt.



NOTE:GNP growth calculated from OECD Main Economic Indicators.The change in the public debt ratio has been derived from tables:

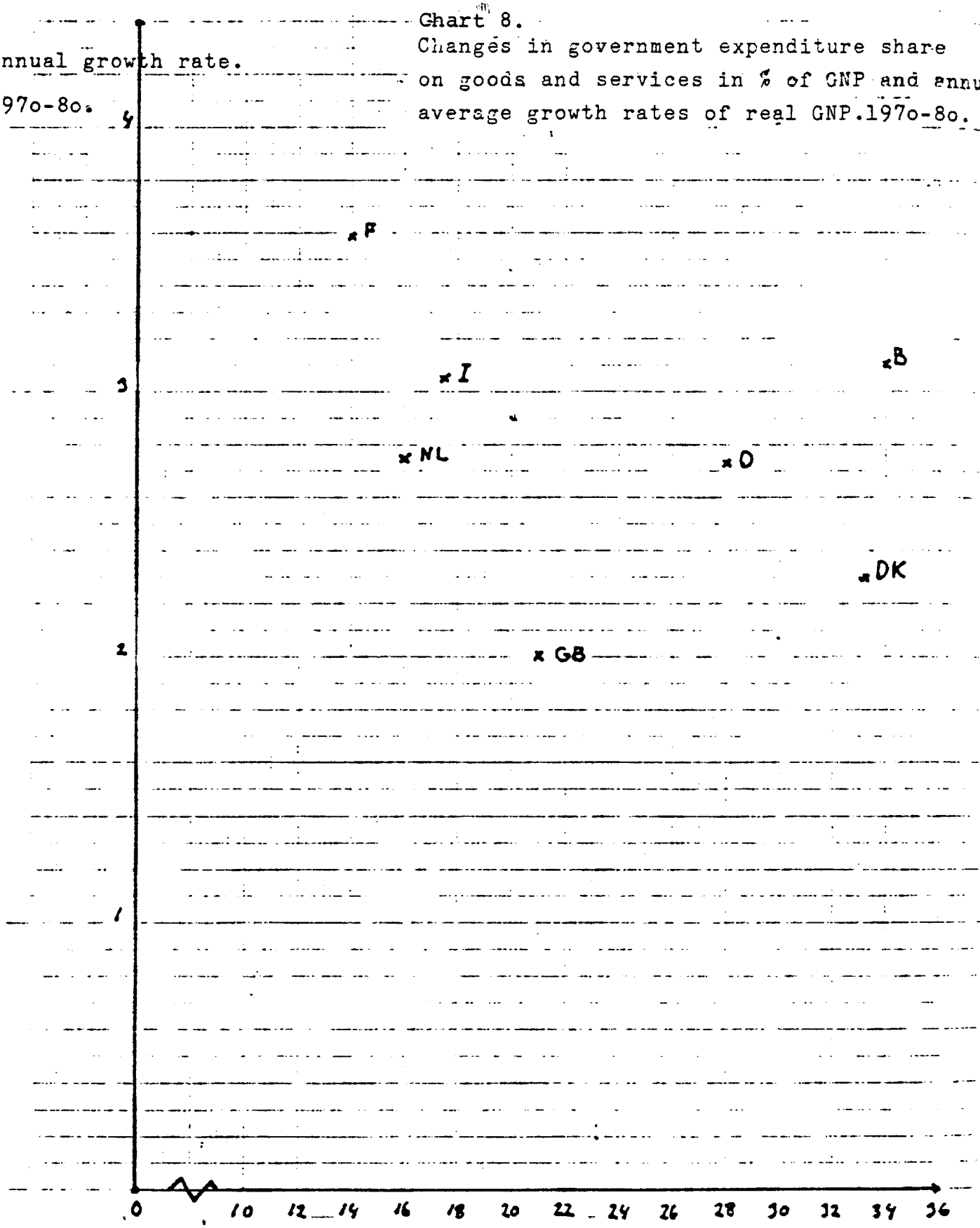
Chart 7.

Government expenditure share on goods and services and economic growth. Average shares/% change in real



Note: Government expenditure on goods and services = general government final consumption, table R6 in OECD Economic Outlook. 30.
The growth rate in real gnp has been calculated from figures published in OECD, Main Economic Indicators.

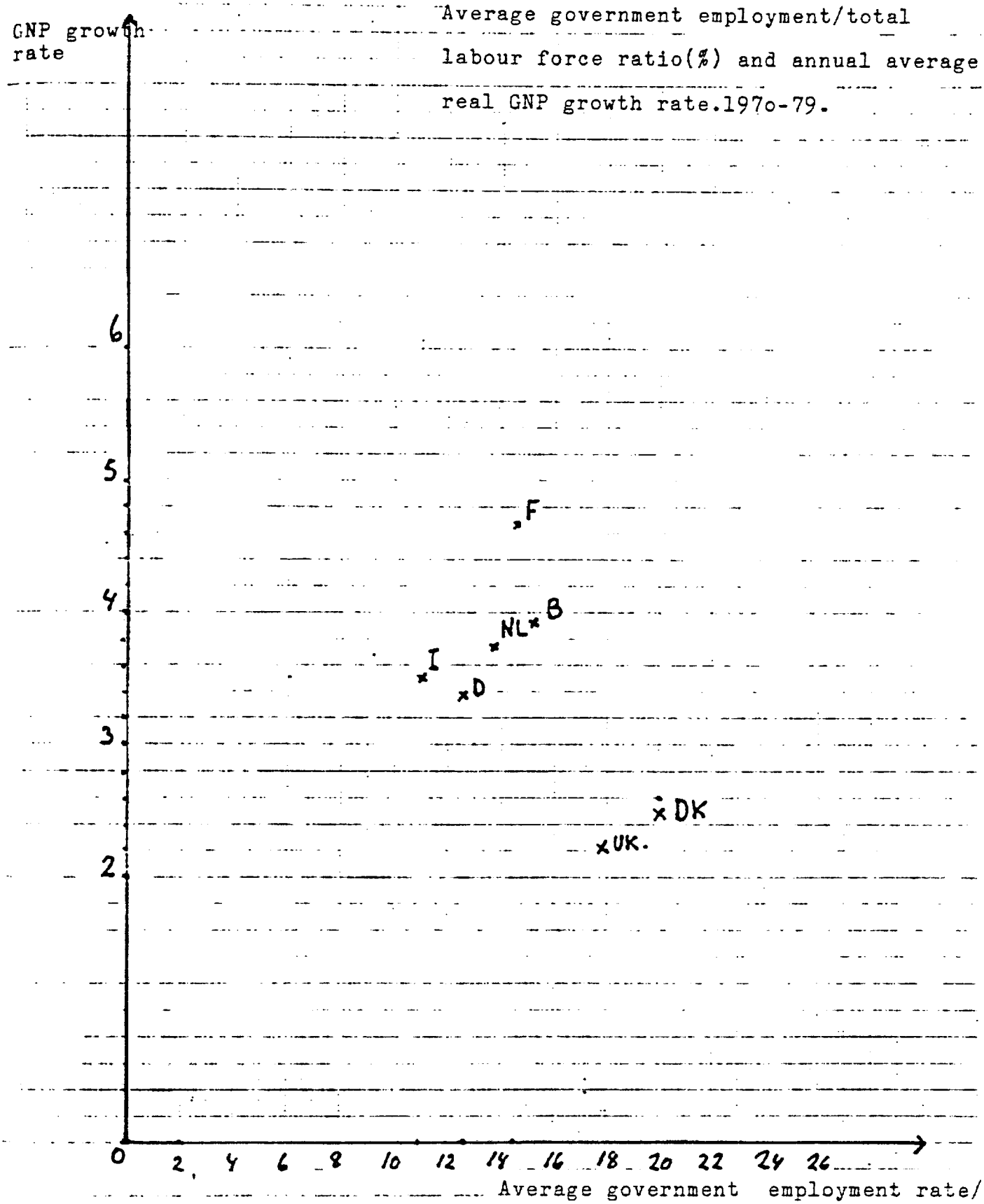
Chart 8.
Changes in government expenditure share on goods and services in % of GNP and annua average growth rates of real GNP.197o-8o.



NOTE:Change in government expenditure share calculated from table R6 in OECD Economic Outlook,GNP real growth rate calculated from OECD Main Econom Indicators.

Chart 9.

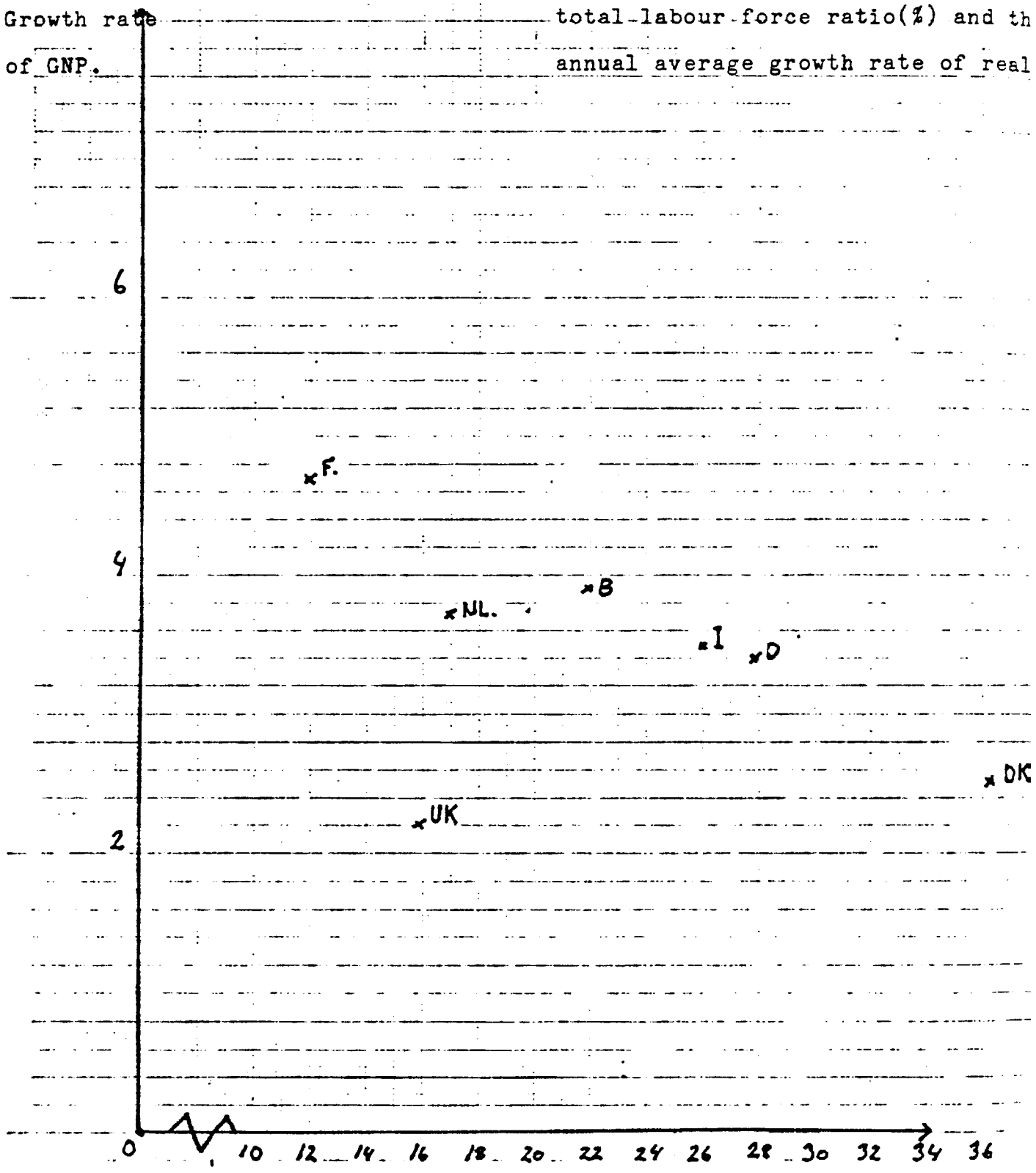
Average government employment/total labour force ratio(%) and annual average real GNP growth rate.1970-79.



Note:Annual gnp growth rates have been calculated from OECD Main Economic Indicators.The government employment/total labour force rates have been calculated from OECD,Labour Force Statistics and OECD,National Accounts of the OECD countries.

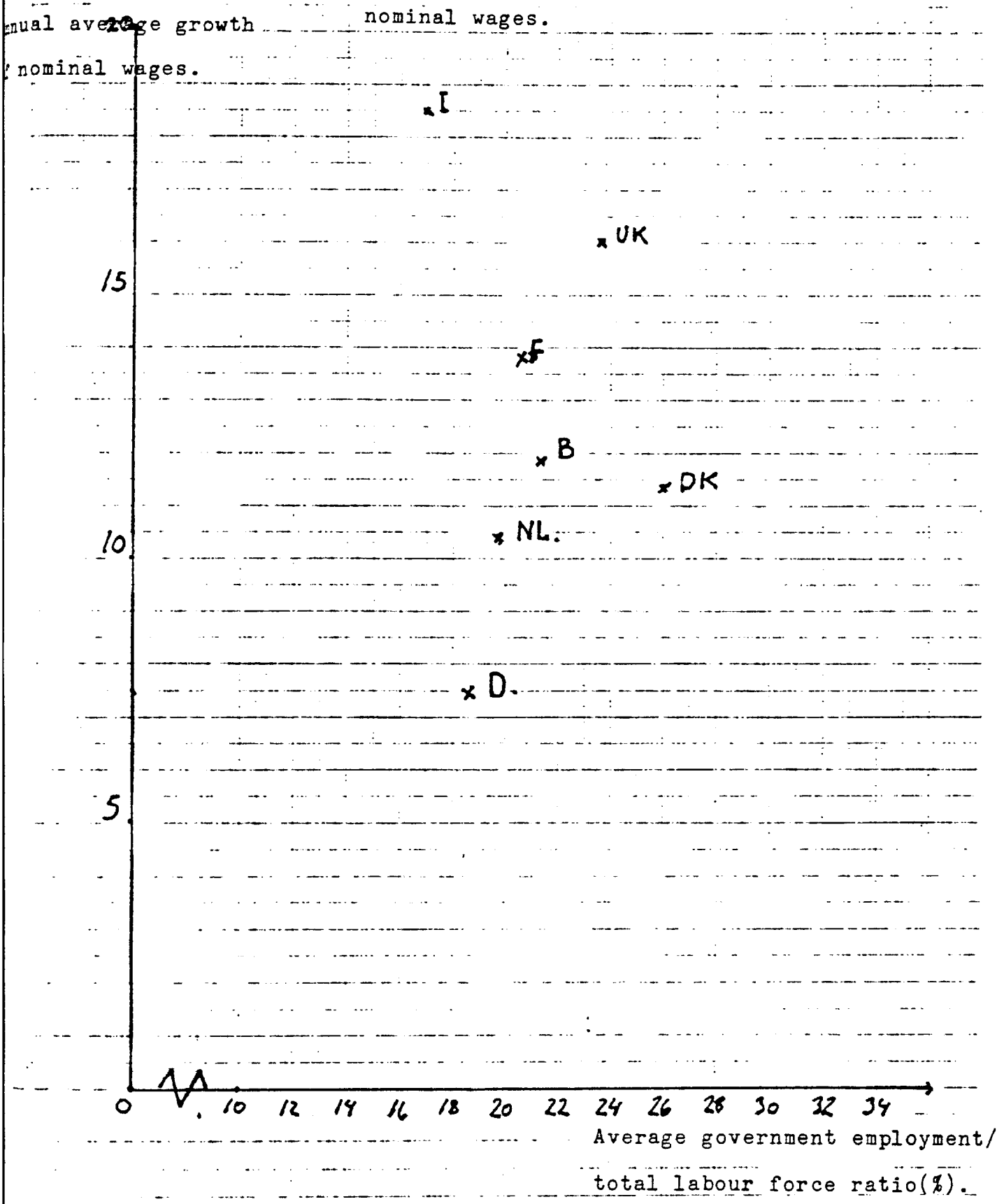
Chart 10.

Change in government employment total-labour-force ratio(%) and th annual average growth rate of real



Note:The change in government/total labour force ratio is calculated from statistics in OECD,National Accounts of OECD countries,and OECD, Labour Force Statistics.The GNP growth rates (in real terms) have been calculated from statistics in OECD,Main Economic Indicators.

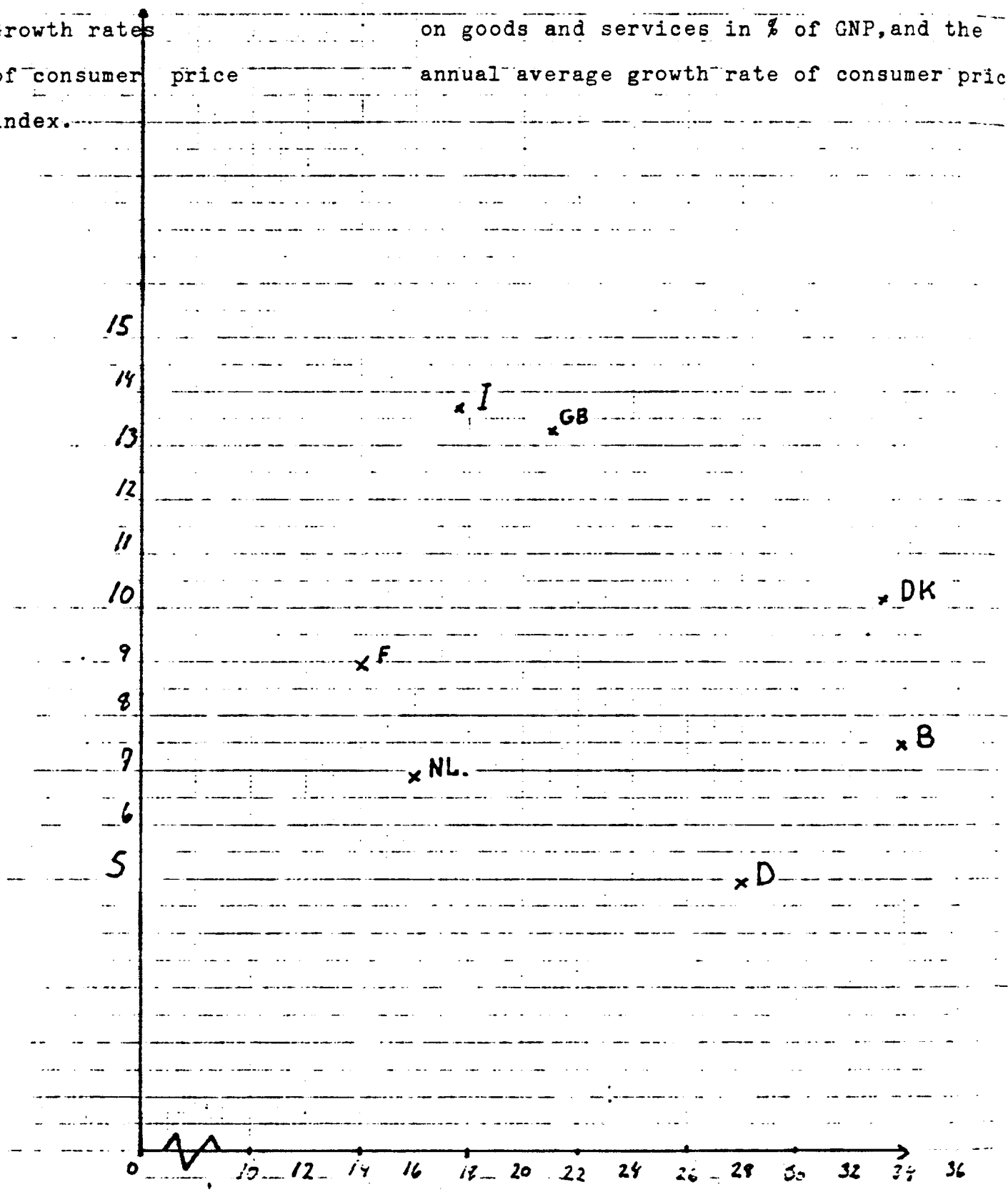
Chart 11.
Average government employment /total labour force ratio (%) and annual average growth of nominal wages.



Note:The government employment/total labour force ratio is calculated from statistics in OECD,National Accounts of OECD countries and OECD, Labour Force Statistics.
The growth in wage rates is from Main Economic Indicators.

Chart 12.

Change in share of government expenditure on goods and services in % of GNP, and the annual average growth rate of consumer price index.



NOTE: Calculated from OECD Main Economic Indicators and OECD Economic Outl
No.30.

that the multipliers in public spending in Denmark have been very small indeed. France, with the lowest level of public sector debt has the highest GDP growth rate.

Charts 7 and 8 show economic growth compared to:

a) Average share of government expenditure in the EMS countries, and
b) The change in the share of government expenditure.

In both cases Denmark is scoring the extreme values. The big change in government expenditure shares shows that Denmark got a very modest result out of the effort. Even Belgium, with nearly the same change, fared better in terms of economic growth.

Charts 9 and 10 look at the employment side. Does a high proportion of government employment coincide with a high degree of GNP growth? In order to answer this question the ratios for average government employment and changes in government employment/total labour force have been calculated, and not unexpectedly, Denmark has the highest government employment ratios on both accounts together with the lowest economic growth rates.

In charts 11 and 12 the same indicators for government employment have been compared to annual growth of nominal wages and the growth rates of the consumer price indices. These charts do not seem to give very much information. By comparing growth rates of nominal wages the Danish and Belgian scores are on the average, while Denmark together with Italy and Britain as previously mentioned scored highest in consumer inflation.

The wide dispersion shown in these charts between national trade-offs, GDP growth/public sector debt and other indicators and the previously examined difficulties for the smaller countries in arriving at a long-term real exchange rate equilibrium supports the original Keynesian thesis that if disturbances partly are real "then the equilibrium point between purchasing power and the rate of exchange may be modified permanently".

The influence of an expansive public sector on the relative price of tradeables and non-tradeables should therefore be taken into account in monetary integration theory.

Balance of payments on current account (as % of GDP)

The EMS countries

	1974-78	1979	1980	1981	1982
Belgium	-0.7	-2.9	-5.2	-6.3	-4.8
Denmark	-3.2	-4.5	-3.4	-3.1	-3.5
France	1.3	-0.6	-1.8	-1.0	0.6
Italy	-0.8	-0.1	-1.3	-1.5	-1.9
Netherlands	-0.6	1.6	-2.5	-2.3	-1.6
Great Britain	1.6	-1.2	-1.4	2.5	4.4
Weighted average EC 10	-1.6	0.0	1.4	2.9	1.0

Sources: OECD National Accounts, for 1981 and 82, Economic Budgets (May 1982), European Economy, 12/82.

Chapter 9

Towards a reinterpretation of the "central problem" of monetary integration. The balance of payments as a fiscal phenomenon. The case of Denmark.

In the following chapter we try to consider the balance of payments as a fiscal phenomenon, as opposed to the more established view that the balance of payments is a pure monetary phenomenon. If a devaluation of the current account, which is equal to a revaluation of the capital account, did not seem to have had an effect on the overall balance of payments due to price stickiness in factor markets, as shown in the previous chapter, then the role of devaluation in a small open economy is indeed ambiguous for solving the "central problem" of external equilibrium. However we find that a devaluation can promote domestic debt sales, which in turn tend to hold down the real level of domestic interest rates, because more and more of the budget deficit could be financed domestically.

By examining Danish balance of payments data, we find that the chronic external imbalance originates in accounts which cannot be directly affected by exchange rate realignments. In this way, the tool which could most effectively be assigned the external equilibrium target would be more cautious budgetary policies compared with improved Danish competitiveness. In the last section of the chapter we show how demand and consumption patterns, as predicted by our hypothesis, have changed after a decade of a rather ambitious

Danish exchange rate policy. Finally we analyze the placement and maturity structure of the Danish internal and externally funded debt. We conclude that the room for maneuver for Danish monetary policy indeed is narrowing, and that the "strong currency option", not unexpectedly, contains the seeds for its own destruction.

A significant feature of the Danish economy during the 1960's and 1970's has been the remarkably stable structure of the balance of payments. The current account has been in the red for the last twenty years, with an annual deficit which is now 3.5% of GNP. In section 3.3.5 we found that the government budget deficit (expression B) equals private savings, public savings and the deficit on the current account.

In the present chapter we shall, on the background of the two-sectors model, suggest that the balance of payments in a small open economy with a fixed exchange rate is more a fiscal phenomenon than a pure monetary phenomenon as the monetary approach to[1] the balance of payments maintains, thus assuring budgetary policies their proper place in the contemporary theories of monetary integration.

And following from this, if the position on the balance

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1) In the monetary approach to the balance of payments (see J.A. Frenkel & H.G. Johnson (1976), op. cit.), Johnson noted that a balance of payments problem was "a monetary phenomenon, representing a disequilibrium in the demand for money", shown by net in- and outflows of international reserves.

of payments can be seen to have fiscal origins, then exchange rate realignments should be seen not merely as a "switch mechanism",[1] but also as a way of shifting finance for the budget deficit from external sources to internal sources. Below we shall elaborate on this point, but let us first return briefly to the tradeables/non-tradeables sector model. Later we shall see how this theory fits with German and Danish investment and savings data from the last decade. In the last part of the chapter actual changes in employment structure in Denmark are analyzed as are the borrowing requirements of the two sectors, in order to see how a decade of quite ambitious Danish exchange rate policy has changed vital domestic parameters.

9.1. Changes in gross investment, government financial savings in Denmark and Germany. A fiscal approach.

Let us assume that the private sector output is pure tradeables and the non-tradeables sector is largely dominated by the public sector.

We recall from chapter 3 that a current account deficit could be seen as composed of two components: the private sector deficit and the public sector deficit.

And as suggested by Corden,[2] a private sector deficit is mainly attributable to private firms' short-term borrowings from one another, and such behaviour is supposedly determined by some sense of commercial logic. And if it is not, a country's public sector cannot be blamed if commercial commitments

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1) See section 3.3.4 in the present text.

2) Cf. Corden (1977), op. cit.

are not honoured.

Another explanation for a private sector deficit could be if the central bank initially had set the real interest rate too low, and hence induced companies to borrow too extensively, which again would result in private sector deficit.

If on the other hand, assuming no public sector, savings exceed investment, an accumulation of foreign claims will occur because of the resulting current account surplus.

However the main point is that, in a market economy, a private sector deficit or surplus should be seen as a result of credit transactions between domestic and foreign economic agents, and as such this need not be a matter for public policy concern. If we now look at the part of the current account deficit which "belongs" to the public sector, the picture understandably gets different. The public sector, narrowly defined, does not produce tradeables, and hence foreign transactions will per definition become a one-sided affair.

The public sector's part of the current account deficit can thus be seen as equalling the public sector's financial dissavings minus sales of public debt instruments to the private domestic sector and the central bank. This implies that changes in the current account deficit can be seen as being a function of the increase in governmental dissavings minus that part of the increase which has been covered by domestic savings. The residual must be financed by the central bank. Still assuming an open economy en-

gaged in a currency area, the central bank can only meet the financing requirements by running down official reserves, this in turn will emerge as a deficit on the official settlements account. In this way the monetary approach to the balance of payments seems to have an important fiscal dimension, which again supports the conviction that fiscal variables are of central importance in monetary integration,[1] and it can further be argued that the accepted stance in "mainstream" monetary integration theory--"that monetary integration does not require fiscal integration, since governments can finance budget deficits by borrowing on the community's capital markets"[2] seems to be on somewhat shaky foundations.[3]

In order to illustrate the hypothesis that the "central" problem of monetary integration, i.e. external equilibrium, has fiscal origins, consider now savings, investment and current account data from Denmark and Germany from the last decade as well as the movements in the nominal value of DM in terms of Dkr. (tables 1, 2 and 3).

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1) See above section 2.3.

2) This is the early Corden statement, see his Monetary Integration, Princeton 1972.

3) There are two strains in this argument. The first argument was based on changes in relative prices, as shown in chapter 7, and secondly, continuing budget deficits will accordingly prolong the adjustment process to "the strong currency option" and hence aggravate the "central" problem of monetary integration, namely the external equilibrium problem.

In the foregoing section we found that the DKR in terms of real exchange rates was overvalued relatively to the DM. From table 3 we see that the DM has been appreciating nearly 50% in nominal terms vis-à-vis the Dkr.

From the Danish data, table 1, we see that there has been a rather constant decline on the current account from 1.8% in 71 to 8% in 1980. The very low result in 1981 should be taken "cum grano sale", because it is the current account we are looking at. If we include the invisibles account, 3-4% should be added for the last 3 years in order to correct for net interest payments on the foreign debt.

The investment rate of 25% approx. in the years before the first oil price hike falls, not unexpectedly, down to 21% in 75. It then picks up in 76, 77 and 78, where it starts falling to a historical low of 16% in 1981.

When investment recovered in 76, the government budget deficit did not budge. Indeed the quite unique, in an EMS context, shift from a budget surplus of 2.2% in 73 to a 6% deficit in 75 has repercussions on the current account, when the Danes used the savings of, amongst others, the Germans (see table 2) which had a current account surplus through all the years except 1980.

However these savings were not used to finance a return to the "historical" investment rate from before the first oil price rise. The deterioration in the investment rate can be seen as complementary with the increase in governmental financial dissavings.

There is some evidence that private savings, mostly in Germany though, constitute a fairly stable share of GNP, if we see private savings as the sum of gross domestic investments + balance on the current account - government savings.

Looking at the private sector deficit which in the last three years has decreased in Denmark drastically, see next section where the Danish balance of payments is analyzed, it is evident that the foreign component of domestic investments is decreasing because of the overvaluation of the DKR. Foreign investors must be assumed to be profit maximizers, at least in the longer run when direct investments are concerned, and when plants and capital apparatus are articially overpriced because of the overvaluation of the currency, and hence high real interest rates, investments will decline.[1]

In Germany, which relative to Denmark has an undervalued currency, we see not unexpectedly the opposite trend. From a low investment rate in 75, the trend is generally improving, although the historically high investment rate from before the oil-price increases has not yet been reached.

The governmental financial dissavings ratio reaches its highest level in 75, and is then gradually declining (except 1981). So what we see, is that a change in investments seems to offset changes in the governmental (dis)savings ratio. Below we shall discuss the effects of nominal and real

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1) This point has been extensively elaborated upon by R.I. McKinnon, "Dollar Stabilization and American Monetary Policy", American Economic Review, Papers and Proceedings, May 1980.

exchange rate realignments in such an environment.

9.2. Devaluations on the current account and on the capital account.

As can be seen in table 1, the current account deficit in Denmark did not seem to budge (except in 1981) by the very large nominal devaluation vis-à-vis the DM in the period under review. On this background we shall try to question the traditional view that the exchange rate is a useful instrument for determining the rate between domestic savings and investment, as the more traditional adjustment approaches would suggest.[1]

In an open economy where the state of the public finances plays an important role, a devaluation of the current account will obviously be sterilized by the complementary appreciation of the capital account. For the public sector share of the deficit on the current account, a devaluation of the domestic currency will nominally increase net interest payments on the invisibles account, hereby increasing the debt-servicing burden.

For the private sector part of the deficit on the current account the merits of devaluation are indeed ambiguous.[2] However, focusing on how exchange rate changes may influence the rates of public savings and private invest-

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1) See chapter 6, where different adjustment strategies were discussed.

2) As can especially in the discussion of J-curve effects. See i.e. E. Spitaller, Short-Run Effects of Exchange Rate Changes on Terms of Trade and Trade Balance, IMF, Staff Papers, June 1980.

ment, we can hypothesize the following:

Assume that the law of one price holds, as described in chapter 2 in the section of commodity market linkages, and the devaluing economy is small, then the domestic price level will increase with the full amount of the devaluation, which again in terms of cash-balances will imply that these will decrease in real terms. If now inflationary expectations are static, as suggested by Michaely,[1] then private savings will increase, as will private investments. If we still assume that the sum of gross domestic investment plus the balance on the current account minus government savings constitute a stable share of GNP, as is shown in tables 1 and 2, then a real exchange rate realignment would diminish the public sector deficit and increase gross domestic investment.[2]

Another way of argument, which has recently been used by Congdon,[3] is that the higher price level following a devaluation is accompanied by an increased demand for holding debt instruments from both the commercial banks as well as from the central bank. In this way the banking system can increase assets without changing monetary equilibrium.

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1) M. Michaely, "Relative Prices and Income-Absorption Approaches to Devaluation: A Partial Reconciliation", American Economic Review, March 1960.

2) Cf. McKinnon (1980), op. cit.

3) See T. Congdon, "A New Approach to the Balance of Payments", Lloyds Bank Review, Oct. 1982.

Table 1

Government financial savings, gross investments in Denmark as proportions of GNP

	71	72	73	74	75	76	77	78	79	80	81
Private gross domestic investments (1)	0.25	0.25	0.26	0.25	0.21	0.24	0.23	0.22	0.21	0.19	0.16
Governmental financial savings (2)	-0.002	0.012	0.022	-0.018	-0.06	-.05	-0.06	-	-0.11	-0.13	-0.16
Current account surplus (3)	-0.018	0.006	-0.019	-0.03	-0.009	-0.047	-0.036	-0.022	-0.03	-0.08	0.0006

Source: Derived from IMF, International Financial Statistics.

1: lines 99a/93

2: lines 80/99a

3: lines 90c-98c/99a

Table 2

Government financial savings, gross investments in Germany as proportions of GNP

	71	72	73	74	75	76	77	78	79	80	81
Private gross domestic investments (1)	0.27	0.26	0.25	0.22	0.21	0.22	0.21	0.21	0.22	0.23	0.23
Governmental financial savings (2)	-0.002	-0.004	-0.003	-0.010	-0.033	-0.026	-0.019	-0.019	-0.019	-0.019	-0.026
Current account surplus (3)	0.016	0.022	0.032	0.044	0.028	0.025	0.025	0.029	0.009	-0.002	0.008

Source: Derived from IMF, International Financial Statistics, using the following lines:

1) 93e/99a

2) 80/99a

3) 90c-98c/99a

Table 3

Lowest intervention rates Dkr/Dm.

From May 1972 to October 1981.

May 1972	211,775
March 1973	218,135
June 1973	230,132
Oct. 1976	244,520
April 1977	252,080
Aug. 1977	265,345
Oct. 1978	275,960
Sept. 1979	289,760
Nov. 1979	304,230
Oct. 1981	320,980

Source: Danmarks Nationalbank, Beretning og regnskab, 1981.

The effect of this for the central bank is that more public sector debt can be taken on without engaging in open market operations.

The chain of argument is the following:

If economic agents are more willing to hold more monetary assets after a devaluation because of the higher price level, then more government debt instruments can be sold domestically. If we, for this purpose, define money as consisting of solely notes and coins and bank deposits, then the former represents claims on the central bank, which are matched by the central bank by claims on government, while the latter are liabilities which then are matched by the banks by investing in government debt instruments.

In this way an exchange rate realignment seems to promote domestic debt sales, which as mentioned in chapter 8, would tend to hold down the real level of domestic interest rates.

9.3. Public and private sector foreign indebtedness. The case of Denmark.

The conclusion to draw from this fiscal approach to the balance of payments is, as Corden was first to point out,[1] that only the foreign debts incurred by the governmental sector is a matter for public policy concern, and hence budgetary policies become a tool of primary importance for solving balance of payments problems. It is in this context that the need for a well formulated medium-term financial target aris-

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1) W.M. Corden (1977), op. cit., p. 51.

es, as was discussed in chapter 6.

Below we shall analyze the growth of private and public sector foreign indebtedness in Denmark, and from this try to draw some policy conclusions.

Tables 4, 5, 6 and 7 show the Danish balance of payments for the last 5 years, broken down on the capital accounts in order to focus on the distribution of capital imports between the public and the private sector, as well as stocks of debts. On a flow basis table 4 shows how the current account deficit has been financed. We see how private capital imports topped in 1979 and decreased in 1981 to a mere 16% of public capital imports.

In table 5 where private capital imports are broken down into types of credits, the decrease in trade credits is remarkable. From 2319 millions of DKR in 1977 to Dkr. 201 millions, this decrease is partly a result of the reduction in imports. When this decrease is compared with the similar fall in financial loans, it could very well give an impression of a growing unwillingness to participate in the financing of the balance of payments deficit.

This because the interest differential vis-à-vis the Euro-markets is diminishing, and also because many Danish firms with the diminishing interest differentials and expectations of future exchange rate realignments are afraid of being crowded out via the exchange rate.

The breakdown of public capital imports shows, not unexpectedly, the rapid growth in redemptions and interest pay-

ments.[1] Examining the stocks of debt, table 7, it is significant that the public sector net foreign debt now has superseded the private debt.

The main conclusion to draw from this brief examination of Danish balance of payments data, is that it is not so much the trade account which is in chronic disequilibrium. The disequilibrium originates in accounts which cannot be directly affected by an exchange rate realignment.

On the contrary, only more cautious budgetary policies together with some improvement of Danish competitiveness, see preceding chapter, will remedy the present external payments difficulties. Another point, if private capital imports more or less have been substituted by public capital imports, the old dictum of the central bank, that the high real interest rate in Denmark is an incitement for the private sector to finance (part of) the balance of payments deficit,[2] seems also to lose its validity. If there is only a very low level of private capital imports the very high real interest rate seems to be unjustified.[3]

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1) If budget deficits remain growing at the present rate, total public debt (external and internally held) will grow to 110% of GNP in 1985 from the present 60%. See Dansk Industri, 12/82.

2) The theory behind this dictum originates from Ohlin et al. proposals about high interest areas.

3) The Danish central bank has already been caught in the dilemma of high interest differentials, when exports of Danish domestic state bonds were suspended in 1979.

Table 4

The Danish balance of payments (net)

	77	78	79	80	81
1. Current account	-10661	-8230	-15315	-12545	-12790
trade account	-8132	-5627	-3925	7332	15138
energy	-11353	-10917	-15553	-21049	-26011
services	9739	10105	11075	12365	14255
net interest payments	-3290	-4825	-6865	-9975	-14100
EC balance	3520	4355	3560	2410	1730
unilateral payments	-1145	-1320	-2245	-2270	-2805
residual			-1362	-1358	-997
2. Change in int. reserves (1)	-5812	-5488	-499	2025	5391
1 + 2	-16473	-13718	-15814	-10520	-7399
Financed by:					
public capital imports	8376	7368	4903	9537	8291
private capital imports	10814	6630	12757	4715	1333
non-registered movements	-2717	-280	-1846	-3732	-2225
Capital imports net	16473	13718	15814	10520	7399

(1) = increase in reserves.

Source: Danmarks Nationalbank.

Table 5

Breakdown of private capital imports. 1977-1981.

(millions of Dkr.)

	77	78	79	80	81
Borrowing by Danish export credit corp.	642	517	802	488	589
Foreign direct investments	895	593	1180	599	714
Danish direct investments abroad	-758	-508	-879	-1108	-1009
Financial loans	4743	2939	4990	1600	1703
Trade credits	2319	236	2351	1042	201
Ships credits	-504	685	715	182	-319
Export credits for use abroad	-109	-361	-309	-234	-696
Other loans and credits	1523	382	385	2383	2197
Foreign short-term portfolio inv.	1157	2279	3051	-391	635
Danish short-term portfolio inv.	-34	-280	-36	-66	-124
Equity in Danish banks	1404	87	293	212	1063
Other payments	-464	61	214	8	-215
Total	10814	6630	12757	4715	1333

Source: Danmarks Nationalbank. Div. Arsberetninger.

Table 6

Breakdown of public capital imports. 1977-1981 (millions of DKR)

	77	78	79	80	81
Government capital imports	9069	8725	7694	9439	9818
Local councils and utilities	1102	1664	1697	2989	2979
Gross capital imports	10171	10389	9391	12428	12797
Redemption and interest	1221	2283	4312	2177	3751
Loans to less developed countries	574	738	409	714	755
Net capital imports	8376	7368	4670	9537	8291

Source: Danmarks Nationalbank. Various annual reports.

Table 7

Stocks of foreign debts for private and public sector. Net liabilities.

The central bank and the banking system (1)	-17	-22.5	-25.5	-23.5
Public sector	39	47	60.5	77.5
Private sector	41	53	59	63
long	28	38	42	48
short	13	15	17	15

1) Already counted as international reserves.

Source: Derived from various issues of Danmarks Nationalbank, Arsberetning.

9.4. Capital imports and changes in economic structure.

In chapter 7 we demonstrated that an overvalued currency, i.e. a currency which depended on capital imports for supporting the central rate, would have repercussions on domestic structure. Via a change in relative prices, demand and consumption patterns would change as would the relative size of the tradeables and non-tradeables sector respectively.

Tables 8 and 9 give evidence which supports our theory. In table 8 figures have been compiled from the Danish ATP statistics[1] which try to show the degree of job creation and job destruction in the two sectors.

It is of course difficult to judge arbitrarily which sectors are sheltered and which sectors are unsheltered from the influence of a high real exchange rate.

A conservative way of dividing would be to say that only columns 9 and 10 could be said to be pure non-tradeables sectors. This division is in accord with our previous definition of openness.

That construction industry has lost jobs in a recession is no wonder (column 3), but that manufacturing (column 2) has decreased 8% while central government jobs have increased 8.6% and local government jobs have increased a record 28% from 1978 to 1982.

The change in relative prices, which according to our theory should take place, is difficult to measure. However

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1) The construction of the ATP statistics and the principles of compilation are presented in S.E.B5-111/1981, Danmarks Statistik.

Table 8

Job creation and job destruction in tradeables and non-tradeables sectors.

Compiled from ATP statistics. Number of (full time equivalence) employees.

1978-1982 (3rd quarter) in thousands

	1	2	3	4	5	6	7	8	9	10	11	12
1978	35.6	383.9	134.0	135.1	122.3	128.8	122.6	171.1	127.4	348.8	2.0	1711.6
1979	35.3	389.9	133.6	135.5	125.1	131.8	126.5	172.9	130.7	383.9	4.1	1769.2
1980	34.7	386.2	126.1	135.4	121.2	135.1	129.6	173.7	135.2	404.5	1.9	1783.7
1981	34.2	364.6	107.3	127.2	114.6	134.4	129.9	173.8	137.3	420.9	2.7	1746.9
1982'	36.5	352.3	104.3	123.2	111.8	136.0	133.4	180.4	138.4	448.8	5.5	1770.7

1982': 3rd quarter.

1: agriculture, fishing, etc. 2: manufacturing. 3: construction industry. 4: wholesale trade. 5: retail trade. 6: transport. 7: financing and business services. 8: private services. 9: central government. 10: local government. 11: residual category. 12: total, not seasonally adjusted.

Source: Statistiske Efterretninger Serie A+B, various issues. ATP Statistics.

Table 9

Consumer price index, index of net retail prices, and the rate of change 1977-1982

1977	129	122	115	126	118	118	114	116	115	122	121.1	122.9
1978	140	135	126	136	130	131	123	127	128	138	133.3	132.1
1979	148	144	136	147	181	140	130	141	138	151	146.1	142.1
1980	163	155	144	158	258	155	143	162	150	168	164.1	157.4
1981	182	164	152	171	332	173	164	183	165	184	183.3	175.1
1982'	208	179	165	197	403	195	190	212	191	211	210.3	201.2
weights	190	96	59	183	58	88	17	152	84	73	1000.	
	A	B	C	D	E	F	G	H	I	J	K	L
Rate of change	61.2	46.7	40.9	56.3	241.5	65.3	66.6	82.7	66.1	73.0	73.7	63.7

Symbols: A: food, B: beverages and tobacco, C: clothing, D: rent, E: fuel and power, F: furniture household equipment, G: medical care and health, H: transport and communication, I: leisure and entertainment, J: miscellaneous services, K: total, L: index of net retail prices including energy items.

Source: Derived from Statistiske Efterretninger, various issues.

NB: 1982 figures are for November.

by disaggregating the consumer price index into all the sub-indices (see table 9) we see that the highest price increases have been in fuel and power, column C. This increase has its origins elsewhere and is not a pure Danish phenomenon, but the sharp price increases in column J, miscellaneous services, column I, leisure and entertainment, column H, transport and communication, and column G, medical care and health are valuable indicators of a trend towards a change in the relative price of tradeables/non-tradeables.

The change in the composition of demand and output which has taken place in Denmark during the last decade where the exchange rate policy has been based on the strong currency option has traditionally been defended on the basis that public sector jobs have an import content below that of private consumption and investment.

However by focusing on the important role of budgetary policies for the balance of payments such a belief seems to be inconsistent with simultaneous participation in a monetary integration scheme.

9.5. Budget financing and debt management. Domestic and external government debt. The case of Denmark.

Below we shall briefly discuss the role of government budget deficits, and in the case of Denmark we shall see how the structure of domestic as well as external debt and the need for refinancing of the existing stock of debt, severely limit the range of options in domestic financial policies.

It should be noted that it is not the aim to discuss the validity of debt neutrality[1] or other doctrines from the "new classical macroeconomics",[2] i.e. that financing modes of government deficit do not matter, which in fact is only an extension to the field of public finance of the well-known Modigliani-Miller theorem. Instead we shall assume a degree of public debt illusion or asset illusion,[3] and/or an optimistic belief in the capability of the capital markets to refinance the debt in the future.

We shall start by analyzing first the structure of the public external debt, then the public domestic debt, and in the last section we shall try to draw some policy conclusions.

9.5.1. Danish governmental external borrowing.

As mentioned earlier the Danish balance of payments has for the last 20 years been in deficit, which has meant a steady increase in the net foreign indebtedness, which in late 81 was 117 billion kroner, see table 7.

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1) Cf. i.e. Barro, Robert, "Are Government Bonds Net Wealth?", Journal of Political Economy, vol. 82, 1974. O. Gandenberger, "Public Debt Illusion and Time Preference Rates", The German Economic Review, 12, 1974. J.M. Buchanan, "Barro on the Richardian Equivalence Theorem", Journal of Political Economy, 84, 1976. D. Ricardo, "On the Principles of Political Economy and Taxation", London 1817, in P. Sraffa (ed.), Works and Correspondence of David Ricardo, Cambridge, Mass., 1951.

2) See chapter 6 for a discussion of these doctrines.

3) The locus classicus for a clear debate of different forms of debt illusion is A. Puviani, Teoria dell'Illusione Finanziaria, Roma 1903.

This balance of payments deficit has traditionally been financed by private and public capital imports, but as is shown in table 4, this pattern has changed, so that in 1981 a private capital export took place. If we define non-registered movements as private flows, what else, then the actual outflow was in the range of DKR 892 million.

This outflow was a clear demonstration of the dilemma of following the strong currency option and at the same time running persistent balance of payments deficits.

When the Eurodollar interest rate rose drastically in the first quarter of 1981, hereby decreasing the difference between domestic and foreign interest rate levels, the domestic rate, already being the highest real interest rate in the EMS (ch. 8, table 4), could not be further increased in an already depressed economy.

With an already very low level of private investments (see table 12, chapter 8) and hence no pressure on the domestic rate, and turbulence on the exchange markets, domestic borrowing became a realistic alternative for private borrowers. The consequence of this is then that the gross borrowing for financing the external deficit will be public for the next couple of years. Table 10 shows the borrowing requirements.

From table 4 it is seen that the trade account has improved drastically the last couple of years.

So it is the total interest and redemption of the public external debt in 82 and 83, see table 11, which creates the deficit.

Table 10

	1981	1982	1983
Balance of payments deficit	12.7	18	20
Loans to developing countries	0.7	1	1
Redemption of public debts	4.0	8	11
Gross financing requirements	17.4	27	32

Source: Finansredegørelse 1982. Ministry of Finance.

The ordinary yearly debt service, interest and amortization of public external debt taken up during the 70's is substantial.

Whether the international capital markets are capable of honouring this commitment is indeed doubtful if worldwide economic activity increases.

The real dilemma is what to do with the private foreign debt, table 7.

If the internal level of interest cannot be pushed up further because of political repercussions, the private sector will use the domestic markets for funds. Foreign debt commitments will then induce a decrease in international re-

TABLE 11.

Ordinary yearly debt service (interest and amortization) of public external debt outstanding as of December 31, 1981

Millions of kroner	Interest on central government debt	Interest on other public debt	Total interest	Redemption of central government debt	Redemption of other public debt	Total redemption	Total interest and redemption
2	6.411,4	2.159,9	8.571,3	6.622,3	1.461,6	8.083,9	16.655,2
3	5.573,9	2.062,3	7.636,2	7.805,7	2.224,9	10.030,6	17.666,8
4	4.614,2	1.899,4	6.513,6	7.924,1	2.225,8	10.149,9	16.663,5
5	3.588,3	1.724,2	5.312,5	7.189,2	3.774,7	10.963,9	16.276,4
6	2.590,3	1.459,5	4.049,8	5.854,0	1.856,2	7.710,2	11.760,0
7	2.074,6	1.303,1	3.377,7	5.560,3	2.352,2	7.912,5	11.290,2
8	1.560,0	1.053,0	2.613,0	5.612,2	2.207,5	7.849,7	10.462,7
9	927,8	834,1	1.761,9	3.552,8	1.818,3	5.371,1	7.133,0
0	612,8	645,9	1.258,7	3.516,9	3.709,6	7.226,5	8.485,2
1	331,0	355,1	686,1	1.076,5	2.275,8	3.352,3	4.038,4
2	266,3	166,4	432,7	814,3	775,3	1.589,6	2.022,3
3	203,1	112,7	315,8	126,7	424,7	551,4	867,2
4	192,2	73,5	265,7	124,8	200,5	325,3	591,0
5	182,3	51,3	233,6	107,9	190,1	298,0	531,6
6	173,6	35,4	209,0	102,4	132,7	235,1	444,1
7	165,4	13,4	178,8	98,8	53,3	152,1	330,9
8	157,4	8,9	166,3	98,8	53,3	152,1	318,4
9	149,4	4,3	153,7	98,8	36,2	135,0	288,7
0	142,9	1,2	144,1	14,8	7,4	22,2	166,3
1	141,3	0,2	141,5	–	2,0	2,0	143,5
2	141,3	–	141,3	–	–	–	141,3
3	141,3	–	141,3	–	–	–	141,3
4	141,3	–	141,3	–	–	–	141,3
5	141,3	–	141,3	1.052,5	–	1.052,5	1.193,8
6	4,5	–	4,5	–	–	–	4,5
7	4,5	–	4,5	–	–	–	4,5

ce: Danske Statslan 1981, Ministry of Finance, Copenhagen.

serves. A move in this direction has already started in 1980 and 1981, see table 4. A decrease in the international reserves contradicts the very notion of the strong currency option.

If there is a steady decrease in the level of international reserves it will not be impossible for the central bank to stick to the external commitments in the form of participation in the EMS. And it will signify a drastic U-turn for Danish monetary policy.[1]

The main conclusion to draw, however, is that the rather ambitious Danish exchange rate policy has the seeds for its own destruction via the dramatic increase in yearly debt service on public debt and the decreasing marginals between foreign and domestic interest rates.

9.5.2. The structure of the Danish public external debt.

Two main objectives in debt management policy are minimizing borrowing costs and achieving a balanced maturity structure.[2] In order to minimize borrowing costs the debt

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1) A cornerstone in Danish monetary policy has been, and is still, the external commitment, i.e. having an exchange rate target. This commitment dates back to 1951 with the so-called "Letter-agreement" (see Danmarks Nationalbank, Annual Report 1951), which states that decreases in the international reserves must have an effect in diminishing domestic liquidity. Such a policy of non-sterilization is a prerequisite for any participation in currency schemes like the snake and the EMS.

2) See OECD, Government Debt Management, Objectives and Techniques, Paris 1982.

should be spread over several currencies and the best possible borrowing terms under given circumstances should be obtained.

The longer the average life of the total debt and the more balanced the distribution of maturity dates and the amounts of maturing debt, the smaller the refunding needs in a particular year. In this way a balanced maturity structure will contribute in achieving other objectives, such as maintaining orderly market conditions and minimizing the market impact of[1] government debt operations, besides being a necessity for medium-term fiscal and monetary planning, as devised in chapter 6.

Table 12 shows a disaggregation of the internal as well as the external debt into maturities and currency denominations. We shall in this section concentrate on the latter.

The absolute amounts have been converted into relative amounts in table 13, which also shows a breakdown into loans with variable coupon rate.

The composition of the debt does not give any indication of following the Danish trade pattern, but is merely a function of the ruling conditions in the different currency markets.

The sharp increase in the debts denominated in dollars is explained by the longer maturities in especially the dollar-markets, both the Eurodollar and the national credit market. The increase in loans with variable coupon rate is according to "Finansredegørelsen"[2] due to new markets with

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1) Ibid., p. 15.

2) Finansredegørelsen 1982, Ministry of Finance, p. 79.

Table 12

Danish government debt, end of fiscal years 78-81

(in millions of Dkr.)

	78	79	80	81
A. Loans				
Long-term bonds	1492	1390	1288	1189
Short-term bonds	29579	43002	66919	99737
Savings bonds	-	-	-	-
Lottery bonds	1000	1000	1200	1200
One and two year debt certificates	13050	16950	21350	33250
Total internal debt	45121	62342	90757	135376
External debt:				
Denominated in				
Dollars	11647	13045	19930	31000
Swiss francs	3230	3894	5223	6339
German Marks	10382	14309	12748	12269
Swedish Kr.	361	373	368	320
Japanese yens	1582	2033	3272	3776
Other currency units	1937	2090	3805	3817
Total external debt	29139	35744	45346	57521
Total debts	74260	98086	136103	192897
B. Total bank indebtedness	-17686	-12383	-10117	-2626
Total government debt (A+B)	56574	85703	125986	190271
A+B in % of current government revenue	63.1	87.3	118.1'	169.6'
Government external debt in % of national income	10.1	11.5	13.7'	16.1'

' = Ministry of Finance estimates.
Figures derived from: Danske Statslan 1981.

Table 13

The relative distribution of Danish foreign debt broken down on currency denomination and the proportion loans with a variable coupon rate. In %.

	US dollar	DM	S.Frcs.	Others	Total	Variable
Fiscal year 1978	40	36	11	13	100	42
Fiscal year 1979	36	40	11	13	100	39
Fiscal year 1980	44	28	12	16	100	39
Fiscal year 1981	44	21	11	14	100	46

Source: Table 12.

these kinds of loans, which then can be tapped, but it is probably also because of expectations of a general decline in interest rates. To investigate whether the Danish government has become less creditworthy and thus having to pay a higher spread over LIBOR is somewhat futile because of two reasons. Firstly, to which countries should Denmark be compared, and secondly, and more important, the front-end fees of Danish public loans are not published anywhere. If small spreads over LIBOR are seen as a matter of national prestige, then a less creditworthy country can often doctor the terms by agreeing on a high front-end fee.

The absolute decrease, hence relative decrease, in the proportion of German marks is remarkable when compared with the steady proportion of Swiss francs.

Danish treasury bills were until March 1979 marketed abroad, but as the effective rate at that time was so much higher than the expected change in the exchange rate, such a way of financing the deficit on the balance of payments proved to be very expensive.

The coming liberalization of foreign sales of Danish treasury bills, now because interest margins have narrowed, is planned officially because that may lower domestic rates further, but it can also be interpreted as the first sign of real difficulty in financing the deficit, because this way of financing the deficit must carry a premium in order to attract foreign funds. In this way the financing gets relatively expensive, unless the exchange rate is altered radically.

Table 14.

Ordinary yearly amortization of external funded debt outstanding as of December 31, 1981

Millions of kroner	*Redemption*	*Principal amounts outstanding at the end of the year*
1981	–	57.521,1
1982	6.622,3	50.898,8
1983	7.805,7	43.093,1
1984	7.924,1	35.169
1985	7.189,2	27.979,8
1986	5.854	22.125,8
1987	5.560,3	16.565,5
1988	5.642,2	10.923,3
1989	3.552,8	7.370,5
1990	3.516,9	3.853,6
1991	1.076,5	2.777,1
1992	814,3	1.962,8
1993	126,7	1.836,1
1994	124,8	1.711,3
1995	107,9	1.603,4
1996	102,1	1.501
1997	98,8	1.402,2
1998	98,8	1.303,4
1999	98,8	1.204,6
2000	14,8	1.189,8
2001		
2002	–	–
2003	–	–
2004		
2005	1.052,5	137,3
2006	–	137,3
2007	–	137,3

Source: Danske Statslån 1981, Ministry of Finance, Copenhagen.

Table 15

Maturity structure of central government debt, in % of total.

Fnd of fiscal year 1970 (March) and 1978 (March).

	-2 ys.	2-5 ys.	5-10 ys.	10-15 ys.	15 ys.+	Total
1970	6	6	13	4	71	100
1978	35	51	8	1	5	100

Source: Government borrowing and debt management in Denmark.
Ministry of Finance, The Department of the Budget. Copenhagen, June 1979.

Table 16

The change in the Danish international reserves. End of fiscal years 1980 and 1981.

	1980	Change	Realignments	1981
Gold	5741	-	-982	4759
Reserves in IMF	798	-47	+147	898
SDR's	1056	+27	+388'	1471
ECU's	2336	-376	+117	2077
Foreign claims	15981	-4827	+3129	14283
Foreign liabilities	-479	+129	-	-350
Official reserves	25433	-5094	+2799	23138
Banking sectors net position	255	-297	+470	428
Total international reserves	25688	-5391	+3269	23566

Source: Danmarks Nationalbank, Annual Report 1981.

Table 17

International reserves and undrawn credits

	International reserves (1)	Undrawn credits (2)	(2) in % of (1)
March 1978	14.1	3.9	22
December 1978	17.0	2.5	13
December 1979	22.4	5.9	21
December 1980	25.7	9.4	27
December 1981	23.6	13.3	36

Source: Finansredegørelse 1982.

Ministry of Finance.

In table 14 the ordinary yearly amortization of externally funded debt is shown. As is the case with the internally funded debt, see next section 9.5.3, a high rate of redemption is due in 1983. So in this respect the distribution of maturity dates seems somewhat skewed. Likewise the table shows the problem which will arise by refinancing the existing stock of external debt.

If we look at the maturity structure of central government debt, table 15, we notice the dramatic shift in the maturity structure. From having the largest part of the debt in very long-term maturities in 1970, the opposite is now the case. More than 85% of the debt is short to medium term.

In the years up to 1980 Denmark's international reserves were steadily growing, as the result of the combined public and private capital import.

From 1980 the reserves have started decreasing, see table 16. If the exchange rate realignments are included the fall in the reserves was DKR 2122 millions, and if we exclude exchange rate gains and extra SDR's, we get a loss of reserves of Dkr. 5391 million. Such a fall in reserves is indeed remarkable when it is considered that the figures are not corrected for inflation. However if we include undrawn credits, table 17, we see that these have been in a constant increase, and now amounts to 36% of the international reserves.

9.5.3. The placement and structure of Danish internally funded public debt

Looking at the domestically funded part of the public debt we see the opposite trend of the one we found in the externally funded part.

The stocks of debts are found in table 12, but the average maturities have changed[1] from 2 years 7 months in 1979 to 4 years at the end of fiscal year 1981.

The coupon rate was increased in 1980 from 8% to 12%. With depressed sales this meant a substantial increase in the average return from these assets.

The placements of the internally funded public debt do not follow a uniform pattern.

The increase for the non-bank sector, see table 18, is probably a result of the stagnation in house construction. Usually institutional investors used the market for private mortgage debt for medium and long-term placements, but with the low level of activity in the construction sector institutional investors seem to have moved into short-term bonds and treasury bills instead.

Table 19, amortization of the internally funded debt, indicates that the hub of redemption is in 1983, which coincides, unfortunately, with the high redemption rate of the externally funded debt that year.

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1) See Finansredegørelsen 1982, op. cit. and Danske Statslan 1980 and 1981.

Table 18

The placement of bonds and treasury bills

	New emissions	Central bank	Banking sector	Non-banks	Abroad	Total
1978	14027	-1	13	74	14	100
1979	11133	-2	57	45	-	100
1980	16878	-3	45	64	-6	100
1981	28998	-3	33	73	-3	100

Source: Finansredegørelse, Oktober 1982. Ministry of Finance.

TABLE 19.

Ordinary yearly amortization of internal funded debt outstanding as of December 31, 1981

Millions of kroner	*Redemption*	*Principal amounts outstanding at the end of the year*	*Millions of kroner*	*Redemption*	*Principal amounts outstanding at the end of the year*
1981		135.376,4	2001	875,8	864,1
1982	21.963,6	113.412,8	2002	510.8	353.3
1983	37.273,6	76.139,2	2003	10,8	342,5
1984	13.401,6	62.737,6	2004	10,8	331,7
1985	13.300,1	49.437,5	2005	210,7	121
1986	10.847,1	38.590,4	2006	10,8	110,2
1987	7.297,1	31.293,3	2007	10,8	99,4
1988	6.613,2	24.680,1	2008	5,3	94,1
1989	6.409,8	18.270,3	2009	5,2	88,9
1990	4.167,9	14.102,4	2010	5,3	83,6
1991	4.167,9	9.934,5			
1992	918,4	9.016,1	2011	5,2	78,4
1993	891,6	8.124,5	2012	5,3	73,1
1994	990,5	7.134	2013	5,2	67,9
1995	988,9	6.145,1	2014	5,3	62,6
1996	888,9	5.256,2	2015	5,2	57,4
1997	888,9	4.367,3			
1998	875,8	3.491,5	2016	5,3	52,1
1999	875,8	2.615,7	2017	5,3	46,8
2000	875,8	1.739,9	2018	–	46,8

Source:Danske Statslån,1981.Ministry of Finance,Copenhagen.

9.6. The effects of the budget deficit on monetary policy.

As amongst others Hoffmeyer & Hansen point out[1] the main objective for Danish monetary policy has been the secure financing of the balance of payments deficit, this by maintaining a steady level of international reserves.

The instrument for this has been and is still a relatively higher domestic level of interest than the one abroad.

When the Danish budget changed from a position of surplus to one of deficit in the mid seventies, it became more important to control the growth in the money stock.

The main instruments for this are, besides controlling the money supply, quantitative restrictions in the banking sectors and credit ceilings.

The only variable in a fixed exchange rate system which affects the money supply positively and which is outside the control of the central bank is the amount of private capital imports.

Let us now briefly present an outline of some very basic relationships for the influence of budget financing on the interest level.

There are three ways a budget can be financed:

a) By borrowing from the central bank.

b) By borrowing from the banking sector.

c) By borrowing from the non-bank sector.

A budget deficit creates an expansion in M_1, which is defined as the private sector's claims on central bank, the government

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1) E. Hoffmeyer and L. Hansen, "Danish Monetary Policy During the Last Decade", Kredit und Kapital, No. 2, 1978.

or the foreign sector.

If this deficit is financed by the government drawing on its cash-line in the central bank, i.e. monetizing the deficit, the immediate result would be an expansion of the money supply, which, ceteris paribus, would result in a decrease in the interest level.

If the budget deficit is financed by selling bonds or treasury bills to the banking sector the direct effect depends on whether the new government debt is seen as an addition or a substitute for other assets in the bank's portfolio.[1]

If the bank's holdings of other assets are unaffected, the result is an increase on both sides of the bank's balance sheet and the broadly defined money supply will increase by an equal amount. Unlike central bank finance there will be no increase in the supply of high powered money.

The sale of government debt to the non-bank sector has no immediate effect on the monetary base or on the broadly defined money stock.

Purchase of the debt instruments implies a change of ownership of deposits from the private sector to the government and back again when the money is spent.

If the domestic financial market is sophisticated there should be no substitution effects by the introduction of a new asset. However the most likely result is an upward pressure on the interest rate as a result of the marketing of the new debt instruments.

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1) See OECD, Budget Financing and Monetary Control, Paris 1982, p. 15.

Foreign financing of the budget deficit means that the foreign currency proceeds must be used to purchase domestic currency on the exchange market before it can be spent by the government.

In a system with fixed exchange rates net capital imports will increase the narrowly defined money stock, or they will increase credit levels in the banking sector. This can lead to a disequilibrium in the money market, which again will affect the portfolio composition in the non-bank sector. A decrease in the domestic interest level will induce the non-bank sector to bring down its foreign commitments.

The first way of finance, central bank finance, increases the money supply and lowers the interest rate level. Private bank finance seems to have a neutral effect, or only slightly positive effect on the money supply.

Finance from the non-bank sector must be assumed to have a neutral or only slightly positive effect on the money supply. Foreign finance in a fixed exchange rate system, however, expands either high powered money or expands the banking sector's liquidity.

In the context of Denmark we see how the high degree of monetary financing in 1975 and 76, when the budget shifted from its surplus to its deficit position, put a strong downwards pressure on the Krone.

Sales of debt instruments had been sluggish, and in the hope of helping the economy out of recession, the government tacitly agreed on monetary finance.

The recession had resulted in a severe shortfall in

revenues, and as it was difficult to reach a political consensus for large scale government borrowing, a high degree of monetary finance was introduced. The result was, not entirely unexpectedly, a narrowing in the span between foreign and domestic interest rates, which led in turn to instability in the exchange market.

The following aggressive sales of debt instruments in 77 and 78 changed the structure of interest in favour of government debt instruments. A significant part of private capital imports was placed in domestic bonds and treasury bills because the interest span had become too large. The effect on the exchange rate was the peak in the nominal effective rate in 1979, see chapter 8. The trend we have seen developing in the last couple of years, of substituting private capital imports for public capital imports, shows that the room for monetary maneuvre has been narrowing. High short interest rates will eventually have a spill-over effect on the long rates,[1] which again will inhibit residential construction and fixed investments. So in the current climate with high unemployment rates and a stagnating economy it is doubtful whether the strong currency option will continue to be a realistic choice. The liberalization of foreign sales of Danish government debt instruments will either make the financing of the deficit more expensive or it will decrease the domestic interest rate level. Both options will have severe repercussions for the traditional cornerstone in Danish monetary policy of having a realistic external commitment.

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1) Can you twist the interest structure? According to Hoffmeyer & Hansen an operation twist in the case of Denmark has only had a very short-term and limited success. Hoffmeyer & Hansen, op. cit., 1978.

Chapter 10

Summaries and conclusions.

Below we shall briefly make a summary of the findings of the individual chapters. From this summary we try to draw some conclusions about the ability of a small open economy using the strong currency option as an adjustment tool for monetary unification.

The strong currency option is chosen by a small open economy because the open sector is seen as a transmitter of inflation. This is a logical extension of the Scandinavian inflation model. The danger is now that the high rate of unemployment, which is partly a result of the appreciating exchange rate, makes a deficit on the budget nearly unavoidable. When monetary finance is excluded, because of the exchange rate target commitment, capital imports are necessary , which in turn, ceteris paribus, tend to put upward pressure on the exchange rate.

An overvaluation of a currency, which is normally a temporary phenomena, can, via expansive fiscal policies combined with the ratchet effect, lead to a permanent expansion of the government sector. This will make further adjustment more difficult, and may

easily transform a temporary overvaluation into a protracted one, which in turn implies the existence of a vicious circle also for an overvalued currency. This hypothesis was originally used by DeGrauwe [1] in a study about the overvaluation of the belgian franc. We try to extend the scope of this hypothesis in the present study.

Most theory on monetary integration has focused on "global" advantages and disadvantages of a currency area. The present study approaches the problem differently. We look at cost and benefits from the angle of the individual national state taking part in a scheme of integration.

In a mixed economy restrictive monetary policies will be felt more burdensome by the tradeables sector. This for two reasons. The impact of high real interest rate will add to fixed costs, and secondly, a high real exchange rate will squeeze profits on overseas markets.

In order to share adjustment costs between the tradeables and the non-tradeables sector more evenly, a more prominent role for budgetary policy is set forward in the process of monetary integration.

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1) P.DeGrauwe (1983), op.cit.

How much autonomy has a small open economy really got in setting targets for domestic macro-economic policies?

By analysing international linkages in the capital market, in the commodity market and in the money market, we conclude that domestic policy autonomy is illusory.

A two country, two goods policy model is introduced and we conclude that devaluation alone does not solve problems of external disequilibria.

By establishing a link between budget deficits and trade deficits, we accentuate the importance of cautious budgetary policies in the process of monetary integration.

The usual preconditions for solving the "central problem"of monetary integration, i.e. internal and external equilibria at a fixed exchange rate, are analysed, in chapter 4, and we find in chapter 5, that a total external deficit of a currency area as a whole, will have to be carried by the members of the currency area, which have the lowest capability of controlling domestic inflationary pressures.

The obvious answer to this problem is a higher degree of coordination of national economic policies inside a currency area.

By using a traditional Meades model we show that

policy conflicts between countries, arising from income targets incompatible with balance of payments equilibrium are results of an inconsistency between policy targets and policy instruments.

We present a framework for coordinating national medium term financial targets.

Such a framework for coordination would be an obvious advantage over the present over reliance on tight monetary policies and accommodating fiscal policies.

By using a modified Salter diagram the impact of captial imports on consumption and production is analysed. Due to a change in relative prices, production of tradeables will fall and the production of non-tradeables will increase.

By assuming that changes in relative prices and changes in the real exchange rate are next to the same thing, we show that a deflation with an over reliance on tight monetary policies will put the adjustment burden primarily on the tradeables sector.

Accommodating fiscal policies, i.e. sustained budget deficits can lead to a financial crowding out of private investments. We show that the more likely outcome for an open economy is crowding out via the exchange rate.

The main conclusion, however, is that prolonged deficit finance and tight monetary policy in order to combat inflation are incompatible.

The first part of the empirical part of the present study presented an analysis of the variations in nominal effective and real effective exchange rates for the EMS countries. Denmark and Belgium were the countries which had the least satisfactory trade-offs between changes in nominal and real exchange rates.

By comparing variations in unit labour indices, export unit cost indices and GDP-deflators with the changes in the nominal effective exchange rate, we found that there indeed had been a high degree of squeeze in the profits for danish exporters. By comparing the changes in end uses of GNP the decline in capital formation in Denmark was significantly higher than elsewhere.

Such decline in investments will no doubt create inflationary bottlenecks on the supply side, when the long expected recovery sets in.

Public sector consumption was shown again to have risen most in Denmark.

From different indices for the fiscal and monetary stance we see that Denmark did indeed experience a decade of tight monetary policies and accommodating fiscal policies.

In this way our hypothesis seems to stick.

It is demonstrated that there are no uniform trends between economic performance and the expansion of the public sector for the EMS-countries.

However,with the highest rise in public indebtedness and a very modest performance in terms of economic growth and employment, the public

spending multiplier seems to be very ineffective in the case of Denmark. Even when domestic inflation rates are coming gradually under control, one could ask whether the strong currency option and the resulting enormous increase in foreign indebtedness, was the most cost effective instrument for combating inflation.

With structural differences in the EMS countries, i.e. that disturbances are real instead of monetary, the equilibrium point between long term purchasing power parity and the nominal effective exchange rate is probably very difficult to arrive at. This because of a continuous change in relative prices. With this change in relative prices and the huge increase in foreign indebtedness in mind, a once and for all time devaluation is not necessarily the right instrument in the case of Denmark. So in chapter 9 we try to analyse the balance of payments as a fiscal phenomenon.

From chapter 3 we recall that a current account deficit is composed of two components: the private sector deficit and the public sector deficit.

With private investment recoveries budget deficits should decline according to old fashioned anticyclical deficit finance. In the case of Denmark they did not budge. With the public sector taking over more and mpre of the foreign borrowing i.e.

that the private sector deficit is drastically decreasing a devaluation on the current account, which conversely means a revaluation of the capital account is ambiguous. This if the deficit originates in the public sector.

However an exchange rate realignment may promote domestic debt sales, which would tend to hold down the real level of domestic interest rates. This would in turn improve the competitiveness of the tradeables-sector.

Our initial hypothesis depicted a change in economic structure as a result of the strong currency option. By looking at job creation and job destruction from Danish ATP-statistics, we find that in four years manufacturing jobs have decreased 8% while central government jobs have increased by 8,6% and local government jobs show an increase of a record 28%.

By disaggregating the consumer price index, we show that services have had the highest price increase which, ceteris paribus, supports our thesis of a change in relative prices, although the evidence is of a somewhat sketchy nature.

The last part of chapter 9 analysed the structure of the danish debt. With a rapid decrease in private foreign borrowing the public sector has taken over as the main provider of foreign exchange to boost the international reserves.

With a narrowing of the interest rate marginals i.e. an equalization of the costs of foreign and domestic money, the problem arises of what to do with the private sector foreign debt. A narrowing of the interest rate span can be brought forward by two factors, either in concert or separately.

With a large rate of unemployment in especially the construction sector, a lowering of interest rates is a political necessity in order to revive this sector.

Another plausible outcome is that it will become more and more difficult to finance the balance of payments deficit, and a remedy would be to encourage foreign sales of domestic bonds and treasure bills.

Such a step would tend to equalize the foreign and domestic interest rate levels.

The private sector will now use the domestic money markets for raising funds. The amount which is used for honouring foreign debt commitment will induce a decrease in the level of foreign reserves. Such a move has already taken place.

A decrease in the level of foreign reserves does not at all harmonize with the strategy of having a strong currency, and as mentioned in the chapter, this could very well mark the end for the strong currency option.

Is that good or bad?

With domestic inflation under control, paid for by a deep recession, the strong Danish krone linked

to the DM by a high interest rate margin, could probably be substituted for a strong danish krone supported by more cautious budgetary policies.

However the main thing is that Denmark has had the worst trade-offs between external indebtedness and economic performance, however measured. So one could ask whether the excercise seemed worthwhile.

One more factor must be mentioned in order to answer the question above. There seems to be a conceptual mistake in the practical interpretation of the Scandinavian inflation model,when this model is considered in the context of monetary integration.

Evidence from the present study show that the inflationary pressure came from the non-tradeables sector. With profits in the nontradeables sector being squeezed, and with the dramatic expansion of the government sector, this does not surprise. So perhaps the effects of an overvalued currency should be incorporated into the Scandinavian inflation model. With an overvalued currency inflationary pressure is likely to come from within.

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