MACROECONOMIC POLICY AND ECONOMIC INTERDEPENDENCE

EDITED BY DONALD R. HODGMAN AND GEOFFREY E. WOOD

STUDIES IN BANKING AND INTERNATIONAL FINANCE
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Macroeconomic Policy and Economic Interdependence

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Introduction

The papers collected in this volume examine various aspects of the conduct and consequences of national macroeconomic policy in a world of economically interdependent countries. In this brief introduction we first summarise the questions addressed before turning to the details of the papers.

THE QUESTIONS

An issue which has been extensively discussed both analytically and empirically in recent years is the effect on monetary policy of fiscal deficits. This is examined here in a setting where it is popularly supposed the question is of little practical importance – West Germany. Another paper studies how the goals and techniques of monetary policy have been altered by financial innovation and deregulation in what was once of the most regulated financial systems of the West, that of France. Deregulation and financial innovation have also affected Italy. One of the papers studies the likely impact of this on the conduct of monetary policy in that country. The channels of transmission of monetary policy are examined, and a reaction function estimated for the Italian central bank. Less country-specific studies consider exchange rates. First there is an important but often neglected definitional question. How is the much discussed real exchange rate to be defined? One study contrasts two definitions, shows when they produce the same series, and examines the behaviour of a definition of the real rate between some EEC members. Another general question concerns price controls. Are these an effective policy technique for moderating the economic costs of unemployment and lost output which can arise from disinflationary macroeconomic policies?

The final group of issues considers economic interdependence explicitly. Policy-makers can respond in a variety of ways to the fact of economic interdependence. What are the implications for the economies involved of these different ways of reacting? Do the results of policies differ (at any rate analytically) when policy-makers co-operate in some areas but not in others, in contrast with when there is either complete co-operation or complete non-co-operation?

Within the EEC, countries, partly at any rate as a result of policies, have differed in their inflation and growth experiences, and have had somewhat different exchange rate policies. How have the countries' respective trade patterns and balance of payments current accounts been affected?

These, and other closely related questions, are addressed in the papers which constitute this volume.

THE PAPERS

Manfred Willms's paper considers 'Fiscal Deficits, Interest Rates and Monetary Policy in West Germany'. He is concerned with the growth and changing character of the fiscal deficit in West Germany, its influence on the level and structure of interest rates, and the consequences of the deficit and of the transfer of Deutsche Bundesbank profits to the Federal government for the monetary base and money stock. He reviews the Federal Republic's experience with fiscal deficits from 1964 to 1985 and traces their increase to the accelerated growth of public expenditures, accompanied by their restructuring towards consumption and away from investment. Turning to the influence of government deficits on interest rates, Willms reviews a number of econometric studies of this issue and then constructs and tests his own model for the determination of the nominal long-term interest rate in West Germany, using quarterly data for the period 1970–85. In his final equation, which includes the budget deficit, only the rate of inflation is statistically significant.

Next Willms considers the effects of the maturity structure of public debt on the term structure of interest rates in West Germany. He reviews existing theory on this issue and then reports the results of a recent empirical study of Karl-Heinz Vollmer. Empirical investigation is severely handicapped by inadequate data for West Germany on the maturity structure of government debt. Despite this difficulty, on the basis of his re-examination, Willms feels able to endorse Vollmer's conclusions that the effects of the maturity structure of government debt on the term structure of interest rates in West Germany are small, and are dominated by expectations of the level of interest rates. In a concluding section, Willms discusses the possible influence of the growing public debt in West Germany on the ability of the central bank to control the monetary base and money supply. He finds that typically the Deutsche Bundesbank has used changes in its holdings of government debt to sterilise disturbances in the monetary base from

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other sources, especially changes in the foreign exchange reserve component. In this context he considers the possibility that the transfer of Bundesbank profits (which he labels 'seigniorage') to the government may have jeopardised the central bank's control over the monetary base. He finds no evidence that the central bank's control has been weakened by this practice.

Didier Bruneel analyses the 'Recent Evolution of Financial Structures and Monetary Policy in France'. Bruneel presents a systematic, detailed and informed discussion of recent innovations in the French financial system. Changes have occurred, under substantial official guidance, as a result of deregulation. Pressures for change have come from the response of economic agents to inflation and greater volatility of interest rates, from a need to broaden the market for public debt, and from changes in the international financial environment – including in particular the degree of integration of domestic and international financial markets. Use of new payment technologies has also produced modifications in financial practices, but this has been closely supervised and regulated by the authorities. The broad result of change in regulation and practice has been to decrease the authorities' reliance on direct controls in favour of greater reliance on market forces. Money and financial markets have increased their role in financial intermediation compared to that of banks and specialised financial institutions.

Bruneel comments on some traditional features of the French financial system which have often been cited as obstacles to more efficient central bank control of the money supply. These include the heterogeneous character of the French banking system, the high level of business debt, the existence of subsidised loans and the trade-off between exchange rate and money supply objectives. In his evaluation these are not regarded as decisive impediments to control techniques that work through market processes. Thus the evolution of French monetary and financial institutions and practices, and of techniques employed by the monetary authorities, should, he considers, continue to parallel that of other Western countries.

The paper of Capie, Pradhan and Wood deals with a policy instrument which is sometimes seen as an adjunct to fiscal and monetary policy. This instrument is price controls. Such controls, it is sometimes argued, can reduce the output costs of lowering inflation; and indeed, some argue that controls can lower inflation by directly containing prices, without any supporting policy measures.

The paper asks a general question – under what conditions are price controls likely to be effective? It does this first by tackling a specific issue – the effectiveness of UK price controls in the 1960s. After a definition of effectiveness – making prices lower than they would otherwise have been – and a survey of the controls, various tests for effectiveness are proposed and carried out. One test is described and dismissed; this is a monetary test, using money growth to predict prices and ascribing errors to controls. This is dismissed because it can contain no correction for the random short-run behaviour of velocity. The two tests which are used involve first constructing an index, making use of information on the weights in the price index; and secondly, an atheoretical exercise in time series modelling. Both tests yield the same conclusion; price controls did not affect prices in the UK in the 1960s. This conclusion is generalised by considering the circumstances of the time in the UK. There were essentially no penalties for not complying with the controls. And, more important, the UK was on a fixed exchange rate, so any wedge driven between domestic and foreign prices would have exacerbated excess demand. The general conclusion is that controls are likely to be effective only when an economy is not open to foreign trade. That is a sufficiently special case, the authors argue, as to imply that price controls are unlikely in general to be effective. They are not a policy instrument additional to the more usual ones.

The paper by Donald Hodgman and Robert Resek is concerned with 'Italian Monetary and Foreign Exchange Policy'. The paper analyses and questions the rationale offered by the Bank of Italy for the policy followed in the period 1974–83 of controlling 'total domestic credit' instead of a monetary aggregate. The authors maintain that the more clear-cut successes of Italian monetary policy during these years can be attributed to interest rate and substitution effects, and to non-price credit rationing, rather than to the wealth effects stressed by official doctrine. Hodgman and Resek review Italy's recent move away from the use of direct controls toward greater reliance on market processes and discuss the attendant phenomena of deregulation, institutional reforms and financial innovation. The paper presents an econometric estimate of a reaction function for the Bank of Italy's control over the Treasury bill rate, so as to examine the relationship of this policy technique to policy objectives. The response pattern is dominated by the influence of balance-of-payments objectives. It is concluded that the various reform measures, begun in 1981 and continuing to the present, should strengthen the ability of the Bank of Italy to implement an effective monetary policy while avoiding some of the controls over credit flows.

In his paper Donald Coes examines two exchange rate concepts. He starts by observing that two major definitions of the real exchange rate have dominated discussion. The most commonly encountered one, which defined the real rate as the nominal rate multiplied by a representative 'rest of world' price level and deflated by the home price level, is inspired by the purchasing power parity literature. A second definition, introduced originally by Australian economists, defines the real rate as the ratio of tradable to non-tradable prices. The latter definition is of particular interest for a country which is not large enough to affect the prices of its tradable goods, both importable and exportable.

Although apparently distinct, the two definitions are closely related and, under some assumptions, they reduce to the same thing. In most contexts no price series which can readily be identified as a general non-tradable goods price index exists. One is thus forced to measure the price of non-tradables as a residual, after removing the effects of tradable price changes from a general index which includes both types of good. When non-tradables are measured in this way and tradable goods are assumed to be linked to international prices by the exchange rate, the real exchange rate can then be expressed as $Pt/Pnt = (eP^*/P)^a$, where a is the share of tradables in total expenditure. This argument, which is developed in the first part of the paper, suggests that most empirical work using the commoner purchasing power parity definition of the real exchange rate may be reinterpreted in tradable/non-tradable terms.

Using IMF and UN data for the four major Western European economies, the tradable/non-tradable real exchange rate on a quarterly basis for the 1974–85 period is calculated in the second part of the paper. Since $a < 1$, the real rate defined in this way shows significantly more variability than the purchasing power parity definition would imply.

The paper concludes with a comparison of real exchange rate variability in the four countries over the 1974–85 period. There appears to have been little noticeable effect of the European Monetary System (EMS) in reducing real exchange rate variability in the three of the four countries which became members of the system. There does appear to have been an increase in the correlation of the real rates, or convergence among the members, some of which may be attributable to the EMS.

'The Role of Exchange Rate Movements in Transmitting International Disturbances' is the subject of a paper by James M. Boughton, Richard D. Haas and Paul R. Masson. The authors' central concern is how economies respond to various shocks, first when exchange rates are allowed to respond freely to these shocks, and then when national authorities act to stabilise exchange rates. The authors' intention is to isolate the effects of exchange rate movements in a floating rate world. First they review existing theoretical literature analysing the effects of domestic monetary and fiscal policy on foreign countries. They discuss transmission effects for models with zero capital mobility, for the Mundell-Fleming model, for the Dornbusch model with rational expectations, for models which incorporate the dependence of money demand on the exchange rate, and for models which incorporate supply effects. As models include more complex features the *a priori* conclusions which can be drawn for the transmission effects of monetary and fiscal policies do, of course, become less clear cut.

The authors then turn to empirical evidence, some derived from existing econometric models and some from simulation experiments with a new small macroeconomic model (MINIMOD) recently developed at the International Monetary Fund (IMF). They seek answers to two questions: First, is monetary policy transmitted negatively across countries in a world of floating exchange rates, and fiscal policy positively? Secondly, is monetary policy more powerful and fiscal policy less powerful under freely floating exchange rates than when exchange rate changes are resisted through unsterilised intervention? They also examine differences occasioned by whether expectations are rational ('model consistent') or adaptive. They find the empirical evidence 'by no means uniform' but tending to support several broad conclusions. First, US monetary expansion with flexible exchange rates tends to reduce prices abroad, but has only a small negative effect on foreign output. Secondly, fiscal policy is transmitted positively to both output and prices with a possible exception for 'forward-looking expectations'. Thirdly, exchange rate flexibility tends to increase the domestic multiplier effects of monetary policy, but has little effect on fiscal policies.

National economic policy-makers certainly are aware that economic interdependence influences the results of policy measures. Indeed, co-operation among national authorities in adopting policy measures has been much discussed by these very authorities, and has found application in practice both within the EMS in altering central exchange rates, and in co-ordination of changes in discount rates by the central banks of the US, West Germany, and Japan. Strengthened multilateral surveillance in the context of the IMF has been recommended in reports of the Group of Ten and the Group of 24 and endorsed in principle at the April 1986 meeting of the Interim Committee of the IMF, and at the Tokyo Economic Summit in May 1986. The implications of economic interdependence for policy actions by national authorities are studied explicitly in three papers in this volume.

In their paper on 'Policy Interdependence: Does Strategic Behaviour Pay? An Empirical Investigation Using the Liverpool World Model', Matthew Canzoneri and Patrick Minford examine the possible welfare implications of various alternative forms of behaviour by national policy-makers in response to issues raised by economic interdependence. The authors combine a game-theoretic analytical approach to issues of policy-making under economic interdependence, with quantification of results based in part on simulations by the Liverpool World Model (LWM). They examine three main questions: First, the welfare implications for the US and Europe when deflationary monetary policy in each is chosen (a) ignoring each other's policy ('insular' strategy), and (b) taking each other's strategy into account but assuming it fixed (a Nash strategy); secondly, how French expansionary and rest-of-Europe contractionary monetary policies would have differed under Nash and 'insular' approaches to policy-making; thirdly, how the timing and extent of British deflationary policy under the Thatcher government would have differed in 1979–83 had US policies from 1979 been taken into account.

The authors' method is ingenious. They formulate a stylised model of the percentage deviation of output from equilibrium in each policy domain (that is, Europe and the US) in response to 'own' and 'other' deflationary policies, allowing for interdependence. The parameters are based on LWM simulations. Next, for each policy-maker they define a welfare function that depends on output variation and inflation. In each welfare function a key parameter on the inflation term is calculated on assumptions about initial conditions and about optimising policy strategies assumed to have been followed in the period 1979–84.

Canzoneri and Minford present strategy-dependent results for each of their main scenarios of interdependence. These are best appreciated in the context of their paper. Their most general conclusion is that 'strategic behaviour differs non-negligibly from insular behaviour in a world of considerable economic interdependence'. They find too that the utility gain when policy-makers go from insular to strategic behaviour is several multiples of the further gain from shifting to co-operative behaviour from a Nash strategy.

The paper by Giorgio Basevi, Paolo Kind and Giorgio Poli is entitled 'International Co-operation of Monetary Policies and Confrontation of Commercial and Financial Policies: An Application to US-EC Relations and to Problems of the European Monetary System'. The authors' purpose is to explore the implications for national economic performance and welfare of international co-operation in one policy sphere accompanied by conflict in another policy sphere. Their approach is to design abstract and simplified macroeconomic models incorporating price levels, interest rates, real output, money wage rates and bilateral exchange rates as endogenous variables with money supply, tariffs, taxes on capital flows, and shift parameters (for example, fiscal policy) as policy instruments or exogenous shocks. The models are designed to typify aspects of intra-European Community (EC) relationships (for example, between 'West Germany' and 'Italy') in combination with 'EC-US' relationships. Structural parameters in the models are assigned 'based on economic theory, actual size of the countries involved, and *a priori* knowledge of their likely structure'.

The authors assume an exogenous shock of a 10 per cent fall in the level of supply in all three countries. The model is then simulated to determine results under various assumed combinations of co-operative and noncooperative strategies. Strategies followed by the two countries modelled to represent the EC are designed to reflect constraints implied by EC membership (for example, a target for the intra-EC bilateral exchange rate). Results are evaluated in terms of pairs of objective or welfare functions (one for exchange rate and price level objectives, and one for real output objectives) that the authorities of the three ideal countries try to optimise. The authors explore five different strategy scenarios chosen to exemplify realistic possibilities. The paper is rich in suggestive insights. To cite one example: 'monetary cooperation, unaccompanied by cooperation in the real field, may contribute to reinforce, rather than diminish, the forces that push behind confrontation in the real field, and thus lead to protectionism in international trade'. In other words, uncooperative solutions may be superior to partially cooperative ones.

The paper prepared by Lorenzo Bini-Smaghi and Stefano Vona is entitled 'The Effects of Economic Convergence and Competitiveness on Trade among the EMS Countries'. The authors examine economic performance of member countries within the EMS, noting especially progress within the EMS on convergence of inflation but to a lesser extent on growth of real domestic product. The disparity in real growth rates together with divergent exchange rate policies adopted by member countries has given rise to significant modifications in trading patterns within the exchange rate area, 'It is these modifications, their main

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determinants and eventual alternative scenarious (growth rates and exchange rate policies) that form the subject of this paper'.

The authors discuss economic forces affecting trade patterns. They construct and estimate an econometric model for international trade and inflation for manufacturing industry in the major countries within the exchange rate area: West Germany, France and Italy. Estimation results reveal dissimilar income and price elasticities for imports and exports among the three countries. Various computer simulation experiments with the model are carried out to consider alternative scenarios. The authors consider effects of nominal exchange rate policies on competitiveness, the effect of divergent growth rates on the current account balance for manufactures, and the extent of pass-through of import price increases on domestic price levels and export prices.

The paper is rich in statistics describing the degree of economic convergence in the community, trade balances, domestic demand, and import and export price competitiveness. Estimation results for model equations are presented in a series of tables. Simulation results of alternate policy scenarios are presented in graphs and discussed by the authors. In their quantitative work Bini-Smaghi and Vona have made use of the EEC Community Services Volimex data base containing more detailed intra-community trade data than available elsewhere. One appendix discusses characteristics of data utilised in calculations and the method employed in calculating indicators of price competitiveness. A second appendix shows the extent to which the effect of a devaluation on export and import prices depends on the reaction of the other countries of the EEC Exchange Rate Agreement.

Among a number of conclusions to which the study points here is one example: If the West German economy had grown at the same rate as the other two over the simulation period, the West German trade balance surplus would have been reduced by about 30 per cent, the French surplus would have gained 20 per cent, and Italy would have had a more favourable trade balance throughout the years 1979–84.

Robert Aliber presents a provocative 'counter-traditional' view in his paper on 'US Fiscal Deficits and the Foreign Exchange Value of the US Dollar'. Aliber adduces a 'traditional' analysis which treats the dollar appreciation and fiscal deficits as due to the rise in US nominal and real interest rates resulting primarily from large tax cuts. By contrast Aliber argues that the appreciation of the dollar in the early 1980s was caused by expectations of reduced price inflation in the US due to the tightening of US monetary policy that began in 1979. This dollar appreciation caused in turn the current account deficit in the balance of payments, depressed output and employment in the US tradable goods industries and, via multiplier effects on the US gross national product, thus depressed the latter below high employment levels. The resulting reduced level of tax receipts and high level of unemployment compensation payments combined with high interest cost of the government debt to produce the large fiscal deficits of recent years.

In Aliber's view these fiscal deficits have had the beneficial effect of offsetting the drag on US aggregate demand from high real interest rates and an overvalued US dollar. Without the stimulatory effects of the fiscal deficit, excess capacity and unemployment in the US would have risen even more than they did. For this reason Aliber concludes that the mix of US monetary and fiscal policy should not now (April 1987) be changed to deal with the trade deficit.

CONCLUSIONS

The papers in this volume address a wide range of topics by a variety of approaches. The diversity of data bases and approaches makes the more robust a very important conclusion which emerges from these studies.

It is inescapable that national economies are interdependent. They interact with each other, and policy-makers in these countries can learn from each others' experiences. The general lesson which emerges from these papers is that study of these various forms of interdependence will be fruitful both in its contribution to knowledge and in improving the conduct of economic policy.

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Robert Z. Aliber is Professor of International Trade and Finance at the University of Chicago. He has been a Professor at the Salzburg Seminar in American Studies, Visiting Scholar at the Federal Reserve Bank of San Francisco, and a consultant to various agencies of the US government. Among his books are *Monetary Reform and World Inflation*, *National Monetary Policies and the International Financial System*, *The Political Economy of Monetary Reform* and *The International Money Game*.

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Forrest Capie is Professor of Monetary History at the Centre for Banking and International Finance at the City University, London. He has also taught at the Universities of Warwick and Leeds and was British Academy Overseas visiting Fellow to the USA in 1978. He is author of *Depression and Protectionism*, co-author of *The Inter-War Economy: A Statistical Approach* and *Monetary History of the United Kingdom*, over twenty journal articles and co-editor of *Financial Crises and the World Banking System* (with Geoffrey E. Wood).

Donald V. Coes is Associate Professor of Economics at the University of Illinois at Urbana-Champaign. A graduate of Princeton University, he is the author of *The Impact of Price Uncertainty: A Study of Brazillian Exchange Rate Policy* and a number of articles in international economics. In 1984 he was a Fulbright Professor in Brazil, and is currently a consultant to the World Bank and the Library of Congress.

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Stefano Vona is an economist at the Research Department of the Banca d'Italia. He graduated in statistics at the University of Rome and undertook postgraduate research at Cambridge University. He participated in the drawing up of the second econometric model of the Banca d'Italia at the end of the 1970s, and has published several articles in the fields of labour economics and international trade.

Manfred Willms is Professor of Economics at the University of Kiel (Germany) and Director of the Institute of Economic Policy. He has been a Visiting Professor at the University of Illinois, a consultant to the IMF and a Visiting Scholar at the Federal Reserve Bank of St Louis. His main publications are in the field of monetary economics and international finance.

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