

BASEMENT

10  
E  
75:1983-1984

UNIVERSITY OF CAMBRIDGE

DEPARTMENT OF  
APPLIED ECONOMICS

T W E N T Y F O U R T H   R E P O R T

A C T I V I T I E S   I N   T H E   P E R I O D

O C T O B E R 1983 t o S E P T E M B E R 1984

University of Cambridge  
 DEPARTMENT OF APPLIED ECONOMICS  
 Sidgwick Avenue, Cambridge CB2 3RQ

Director: W.A.H. Godley

TWENTY-FIFTH REPORT  
 ACTIVITIES IN THE REGION  
 OCTOBER 1983 TO SEPTEMBER 1984

484 2891:27 3 0-7

Committee of Management, January 1984

**RESEARCH ACTIVITIES**

**SWAMI AMRIT TERRY (T.S. BARKER)**

**I.G. BEGG**

**R.M. BLACKBURN**

**B.M. DEAKIN (Assistant Director)**

**W.A.H. GODLEY (Director)**

**G. GUDGIN**

**A. HUGHES (Chairman)**

**M.H. PESARAN**

**A. SINGH**

**M.R. WEALE**

**S. MOORE (Assistant Staff Observer)**

**S. SIBSON-TURNBULL (Secretary)**

Company finance and performance

Stagflation: a macroeconomic policy to reconcile full employment and price stability

Debt: the danger of the recession

Superstition of operating businesses by holding companies

Adjusting problems and policy in an integrated world economy

The impact of import restrictions in the inter-war period

Industrial structure and economic performance: Britain and France in the 1960s

Agricultural reform in China

Risk, information and quantity signals in economics

Page

1  
 11  
 12  
 18  
 18  
 19  
 23  
 23  
 25  
 32  
 32  
 33  
 35  
 36  
 42  
 43

Committee of Management, January 1984

- SWAMI AMRIT TEER (T.S. BARKER)
- I.G. BEGG
- H.M. BLACKBURN
- H.M. DEARIN (Assistant Director)
- W.A.H. GODLEY (Director)
- G. GUDGIN
- A. HUGHES (Chairman)
- M.R. PEARAN
- A. SINGH
- M.R. WEALE
- E. MOORE (Assistant Staff Officer)
- E. SIMON-TURNBULL (Secretary)

CONTENTS

	Page
<b>I RESEARCH ACTIVITIES</b>	
<b>A ECONOMICS</b>	
Growth and fluctuations in the British economy: projections for planning	1
Trade, aid and British industrial structures	11
Assessing economic policy in the UK	12
<b>Labour Studies Group</b>	18
International Working Party on labour market segmentation	18
The impact of Retail Trades Wages Councils	18
Employment consequences of changes in the manufacturing production process	19
Economic policy in Northern Ireland	22
Company finance and performance	23
Stagflation: a macroeconomic policy to reconcile full employment and price stability	25
Destocking during the recession	32
Supervision of operating businesses by holding companies	32
Adjustment problems and policy in an integrated world economy	33
The impact of import restrictions in the inter-war period	35
Industrial structure and economic performance: Britain and France in the 1970s	36
Agricultural reform in China	42
Risk, information and quantity signals in economics	42

	Page
Taxing and pricing transport fuels in developing countries	48
Computer software for estimating qualitative response models	50
Institutional investment, mergers and public policy	52
Conglomerate organisation and economic efficiency	54
<b>B SOCIOLOGY</b>	
Reproduction of social inequality	56
The importance of social stratification	57
Other activities of the sociology group	58
<b>II PUBLICATIONS</b>	
DAE Occasional Papers	60
Cambridge Studies in Sociology	60
Other DAE publications	61
DAE Economic Reprints	61
DAE Sociology Reprints	62
<b>III OTHER ACTIVITIES</b>	
DAE Library	63
Computing Unit	63
Teaching for the University	64
Teaching for the Colleges	64
Service on University Committees	65

	Page
<b>IV FINANCE</b>	<b>65</b>
<b>V STAFF</b>	
Research staff	66
Visiting scholars	68
Assistant staff	69
This section outlines the work done in 1983-84 on the research projects being conducted in the Department.	
<b>A ECONOMICS</b>	
<b>GROWTH AND FLUCTUATIONS IN THE BRITISH ECONOMY: PROJECTIONS FOR PLANNING</b>	
<u>Project Staff</u>	
Swami Anant Terry (Dr T.S. Barlow)	Senior Research Officer
Dr V.K. Barlow	Senior Research Officer
Mr A. Chaplin	Research Student on ESRC linked studentship
Dr H. Lindemann	Research Officer
Dr A.W.A. Pearson	Senior Research Officer
Mr P.H. Paine	Research Officer
Mr A. Tait	Junior Research Officer
Professor Sir Richard Stone	Professor of Finance and Accounting University of Cambridge
Mr M.R. Weale	Junior Research Officer

Page		Page
23	Finance	48
	Taxing and pricing transport fuels in developing countries	
	Computer software for estimating response curves	52
58	Research staff	
63	Institutional investment, mergers and public policy	55
66	Visiting scholars	
	Conglomerate organisation and performance	56
	<b>B. SOCIOLOGY</b>	
	Reproduction of social inequality	58
	The importance of social stratification	58
	Other activities of the sociology group	58
	<b>II PUBLICATIONS</b>	
	DAS Occasional Papers	59
	Cambridge Studies in Sociology	59
	Other DAS publications	59
	DAS Economic Reprints	59
	DAS Sociology Reprints	59
	<b>III OTHER ACTIVITIES</b>	
	DAS Library	60
	Computing Staff	60
	Teaching for the University	60
	Teaching for the Colleges	60
	Service on University Committees	60

**TWENTYFOURTH REPORT OF THE  
DEPARTMENT OF APPLIED ECONOMICS  
(covering the year October 1983 to September 1984)**

**I RESEARCH ACTIVITIES**

This section outlines the work done in 1983-84 on the research projects being conducted in the Department.

**A ECONOMICS**

**GROWTH AND FLUCTUATIONS IN THE BRITISH ECONOMY:  
PROJECTIONS FOR PLANNING**

Project members

- |                                       |  |
|---------------------------------------|--|
| Swami Amrit Terry<br>(Dr T.S. Barker) | Senior Research Officer  |
| Dr V.K. Borooah                       | Senior Research Officer  |
| Mr A. Chaplin                         | Research Student on ESRC linked studentship                    |
| Dr M. Landesmann                      | Research Officer   |
| Dr A.W.A Peterson                     | Senior Research Officer  |
| Mr R.G. Pierse                        | Research Officer   |
| Mr A. Snell                           | Junior Research Officer  |
| Professor Sir Richard Stone           | Professor of Finance and Accounting<br>University of Cambridge |
| Mr M.R. Weale                         | Junior Research Officer  |

Associate members

- Mr J.A. Beath Department of Economics, University of Bristol
- Mr A. Goudie Department of Applied Economics, University of Cambridge
- Ms Linda Hesselman Cambridge Econometrics Ltd
- Mr A. Lawson Faculty of Economics and Politics, University of Cambridge
- Dr G. Meeks Faculty of Economics and Politics, University of Cambridge
- Dr H. Pesaran Faculty of Economics and Politics, University of Cambridge
- Mr D. Sharpe Wolfson College, Cambridge
- Dr L.A. Winters Department of Economics, University of Bristol

Visitors to the Project:

- Philippe Cuneo, Department of Enterprises, INSEE, Paris, France
- Professor Dong Ho Rhee, Department of International Economics, Seoul City University, Korea
- Pini Graziano, Faculty of Law, University of Modena, Italy
- Dr Pavle Petrovic, Faculty of Economics, Belgrade, Yugoslavia
- Professor J. Rattsø, Institute of Economics, University of Trondheim, Norway

Funding

The present basis for funding the project is that 75% of the direct costs are financed by the ESRC whilst the remainder comes from Cambridge Econometrics (a company set up to provide a commercial service using the project's model), and from other sources.

The objectives and organisation of the research

The aim of this project, which is under the direction of Swami Amrit Terry (Dr T.S. Barker), is to study quantitatively, in as great detail as practicable, the present structure and future prospects of the British economy and the possibilities of influencing these prospects by means of economic policy. To do this, the project has developed a multisectoral dynamic model of the economy (MDM).

The research activity of the project is organised around this model. Each member of the project is expected to contribute towards the improvement of existing relationships in the model, the introduction of new ones and the examination of the overall performance of the model and its projections. During the period of this report, responsibility for research into various aspects of the model was allocated as follows:

- |                                 |  |
|---------------------------------|--|
| Swami Amrit Terry (T.S. Barker) | co-ordination of research; exports, imports and their prices; complete model simulations                               |
| Vani Borooh                     | consumers' expenditures  |
| Michael Landesmann              | stockbuilding and production   |
| Tony Lawson                     | wage rates; expectational variables in the model   |
| William Peterson                | industrial investment and employment functions; energy submodel; complete model simulations                            |
| Richard Pierse                  | income, spending and portfolio allocation of the personal sector; econometric methods; solving the model over the past |
| Andrew Snell                    | the exchange rate  |
| Martin Weale                    | the financial model; industrial pricing  |

### Progress of the research

The main developments in the model during the year have been the inclusion of the 'real wage resistance' equation to explain money wage rates in the forecasting version and the estimation and testing of an exchange rate equation as an alternative to the assumption of fixed rates. A major effort has gone into completing the re-estimation of the equations and writing up the results in the book on the model and its properties. This book, now in draft form, will appear in the series Cambridge Studies in Applied Econometrics. The main additional areas of research on particular aspects of the economy have been in financial behaviour, consumption and the distribution of income, industrial pricing, the external sector and employment.

### Relationship with the Macroeconomic Modelling Bureau

The 1983 version of MDM6, together with the forecast produced by Cambridge Econometrics in June 1983, was supplied to the Macroeconomic Modelling Bureau and Institute for Employment Research at Warwick in July. William Peterson visited the Institute in September 1983 to help in the implementation of the model on the Warwick University Burroughs computer. The incompatibilities between Burroughs and IBM dialects of FORTRAN, together with the large amount of data which must be transferred with the model, means that some problems were encountered in the implementation. We hope to reduce these in future by recoding the model solution program in FORTRAN 77, which is now available on both Warwick and Cambridge machines. Members of the project attended the two meetings organised by the Bureau during the academic year 1983-84, and William Peterson presented a paper entitled 'Policy Analysis using a Large Econometric Model' at the July conference.

### Other activities

The project has run a full programme of seminars and workshops during term-time in Cambridge and in addition members of the project have presented papers at seminars and conferences elsewhere.

### Publications

The following books and papers reporting the work of the project have been published during the year or have been accepted for future publication.

Barker, T. and Brailovsky, V. 1983. Recuento de la quiebra. La politica economica en Mexico, 1976-1982, Nexos, no. 71, November 1983, pp. 13-24

Barker, T. forthcoming (a). The experience of monetarism in the United Kingdom 1979-1983. To be published in a volume in honour of Walter Hesselback, edited by J. Langkau and C. Kohler, Friedrich-Ebert-Foundation, Federal Republic of Germany

Barker, T. forthcoming (b). The Cambridge Multisectoral Dynamic Model and alternative strategies for full employment in the UK. To be published in a volume edited by M. Hopkins, International Labour Office, Geneva

Barker, T. forthcoming (c). Forecasting the economic recession UK 1979-82: a comparison of model-based ex ante forecasts, Journal of Forecasting

Swami Amrit Terry (T.S. Barker) forthcoming (d). Endogenising input-output coefficients by means of industrial submodels, in A. Smyshlyaev, Proceedings of the Fifth IIASA Task Force Meeting on Input Output Modeling, IIASA, Laxenburg, Vienna

Barker, T., F. van der Ploeg and M. Weale forthcoming. A balanced system of national accounts for the United Kingdom, Review of Income and Wealth

Borooah, V.K. and S.P. Chakravarty forthcoming. An experiment in forecasting using the Kalman Filter, in J.J. Sztadynger (ed.), Problems of Building and Estimating Large Econometric Models, North-Holland, Amsterdam

Borooah, V.K. forthcoming. The interaction between economic policy and political performance, in R.C.O. Matthews (ed.), Economics and Democracy, Macmillan

- Borooah, V.K. forthcoming. Consumers' expenditure estimates using the Rotterdam Model, Applied Economics
- Landesmann, M. 1983. Disproportional growth and structural change in the European Communities, in A Smyshiyev (ed.), Proceedings of the Fourth IIASA Task Force Meeting on Input Output Modelling, IIASA, Laxenburg, Vienna
- Landesmann, M. (with R. Pierse). Industrial policies in the UK, in A. del Monte (ed.), Industrial Policies in Europe
- Lawson, T. forthcoming (a). Keynes, prediction and economics, in T. Lawson and H. Pesaran (eds), Keynes' Economics: Methodological Issues, Croom Helm
- Lawson, T. forthcoming (b). The context of prediction (and the paradox of confirmation), British Journal for the Philosophy of Science
- Peterson, W. and Barker, T. forthcoming. Disaggregated model-building using a software support system, in Proceedings of 3rd IFAC/IFORS/SEDC Conference on the Modelling and Control of National Economies, Pergamon Press
- Pierse, R.G. (with A.C. Harvey) 1984. Estimating missing observations in economic time series, Journal of the American Statistical Association, vol. 79, March, pp. 125-131
- van der Ploeg, F. 1983 (a). Economic growth and conflict over the distribution of income, Journal of Economic Dynamics and Control, Vol. 6, pp. 253-279
- van der Ploeg, F. 1983 (b). Predator-prey and neo-classical models of cyclical growth, Zeitschrift für Nationalökonomie, Vol. 43, No. 3, pp. 235-256
- van der Ploeg, F. 1984 (a). Generalized least squares methods for balancing large systems and tables of national accounts, Review of Public Data Use, forthcoming
- van der Ploeg, F. 1984 (b). Macro-dynamic theories of cyclical growth, in Mathematical Methods in Economics, Handbook of Applicable Mathematics, John Wiley, Chichester, UK
- van der Ploeg, F. 1984 (c). Government ideology and re-election efforts in a simple macroeconomic model, Oxford Economic Papers, vol. 36, June, pp. 213-231
- van der Ploeg, F. 1984 (d). Risk and linear-quadratic stabilisation, Economics Letters, vol. 15, pp. 73-78
- van der Ploeg, F. 1984 (e). Implications of workers' savings for economic growth and the class struggle, in R.M. Goodwin, M. Kruger and A. Vercelli (eds), Nonlinear Models of Fluctuating Growth, Springer-Verlag, Berlin

- van der Ploeg, F. forthcoming. Optimal control methods for the formulation of economic policy, Systems Science, Poland
- Stone, R. 1982. How accurate are the British national accounts? To be published
- Stone, R. 1984 (a). Model design and simulation, Economic Modelling, Vol. 1, No. 1, 1984, pp. 3-23
- Stone, R. 1984 (b). Random shocks in a simple growth model, Economic Modelling, Vol. 1, No. 3, 1984, pp. 277-80
- Stone, R. 1984 (c). Balancing the national accounts: the adjustment of initial estimates - a neglected stage in measurement, in Demand Equilibrium and Trade (eds. A. Ingham and A.M. Ulph), Macmillan, London, 1984
- Stone, R. 1984 (d). Life profiles and transition matrices. In organising sociodemographic data: appendix to Active life profiles for different social groups by Dudley Seers in Economic Structure and Performance, Academic Press, San Diego, 1984
- Stone, R. 1984 (e). Accounting matrices in economics and demography, in Mathematical Models in Economics (ed. F. van der Ploeg), Wiley, New York, 1984
- Stone, R. 1984 (f). 'Robert Malthus'. Address to Conference of the British Society for Population Studies, Cambridge, 1984
- Stone, R. and Weale, M. 1984. Two populations and their economics. To be published in London Papers in Regional Science 15
- Weale, M. 1984 (a). The accounts of the UK public sector 1971-1981, Three Banks' Review, March
- Weale, M. 1984 (b). Quantity and price effects in a model of world trade based on an accounting matrix, Review of Income and Wealth, March
- Weale, M. (with Vince Cable) 1983. The economics of import controls in the UK, World Economy, December
- Weale, M. (with the late John Grady) forthcoming. British Banking: 1960 to 1984, Macmillan



Conference Papers and Seminars

The following papers have been presented at conferences during the year.

Conference on the Analysis and Forecasting of Economic Structural Change, IIASA, Laxenburg, Austria, May 1984

Swami Amrit Terry      The Cambridge MDM and forecasting  
(T.S. Barker)            structural change for the UK economy

Centre for Economic Policy Research Conference on Financial Modelling, London, May 1984

Martin Weale            Financial policy and the exchange rate:  
(with James Meade      a model for use in the investigation of  
and David Vines)        new Keynesian policies

1st International Conference in Banking and Monetary Economics, Orleans, June 1984

Martin Weale            Modelling the financial economy (also  
given to London Business School, April 1984)

6th Conference of the Society for Economic Dynamics and Control, Nice, France, June 1984

William Peterson        Policy analysis using a large econometric  
model

Cambridge Growth Project/Cambridge Econometrics Conference on The Economy and Industrial Change, Cambridge, July 1984

Richard Pierse and      Properties of MDM  
Irwin Fairclough

Martin Weale            The properties of the Financial Model

Andrew Snell            MDM6 with an endogenous exchange rate

Vani Borooah            Projections of consumers' expenditure

William Peterson        Responses to policy changes

Martin Weale            Price formation in MDM

William Peterson        Beyond 2000  
and Colin Hughes

1st Conference of the ESRC Macroeconomic Modelling Bureau, Warwick, July 1984

William Peterson        Policy analysis using a large econometric  
model

Fourth International Symposium on Forecasting, London Business School, London, July 1984

Swami Amrit Terry      Forecasting and policy analysis with a  
(T.S. Barker) and      large-scale macroeconomic model of the UK  
William Peterson

Regional Science Conference, Canterbury, September 1984

Richard Stone and      Two populations and their economies  
Martin Weale

The European Meeting of the Econometric Society, Madrid, September 1984

Martin Weale            The structure of personal sector  
short-term asset holdings (also given to  
Cambridge Growth Project, October 1983)

The following seminars have been given:

Terry Barker            UK export and import functions:  
estimates and tests of restrictions (given  
to the Cambridge Growth Project,  
February 1984)

Vani Borooah            The interaction between economic policy  
and political performance (The Lister  
Lecture given at the British Association  
meeting, Norwich, 11th September, 1984)

Michael Landesmann    The effects of industrial policies in the  
and Richard Pierse    UK (given to the Cambridge Growth  
Project, November 1983)

Michael Landesmann    UK exports and relative industrial  
performance (given to the Cambridge  
Growth Project, November 1983)

Theories of production and technical  
change (8 lectures given to Part II  
(Paper 5) of the Economics Tripos,  
University of Cambridge)

William Peterson        MDM6 with wages endogenous (given to  
the Cambridge Growth Project, November  
1983)

Richard Pierse           Econometric tests for MDM (given to the  
Cambridge Growth Project, May 1984)

Implementing the Pesaran-Evans  
consumption function in MDM (given to  
the Cambridge Growth Project, May 1984)

- Andrew Snell MDM6 with an endogenous exchange rate (given to the Cambridge Growth Project, March 1983)
- Martin Weale The Cambridge Growth Project model and the financial economy (given to Universities of Bremen and Oldenburg, October 1983)
- The accuracy and error structure of the UK national accounts (given to the Cambridge Growth Project, January 1984)
- An introduction to international economics (8 lectures given to Prelim. year of the Economics Tripos, University of Cambridge)

#### Growth Project Papers (GPP)

- 544 The structure of personal sector short-term asset holdings - Martin Weale
- 545 Does the United States have a current account deficit? - Martin Weale
- 546 Policy evaluation and design before the rational expectations revolution - Andrew Snell
- 547 Multiple solutions and current practice in simulating models containing forward rational expectations - Andrew Snell
- 548 Full information maximum likelihood estimation of rational expectations models: a new approach - Andrew Snell
- 549 North Sea oil and the UK economy 1974-1981 - Terry Barker and Irwin Fairclough
- 550 The experience of monetarism in the United Kingdom 1979-1983 - Terry Barker
- 551 The Cambridge Multisectoral Dynamic model and alternative strategies for full employment in the UK - Terry Barker
- 552 A dynamic input-output forecasting model of Korea - Professor Dong-Ho Rhee
- 553 Oligopoly power in British industry - Vani Borooah and Rick van der Ploeg
- 554 Policy analysis using a large econometric model - William Peterson

- 555 Household income, consumption and savings in the United Kingdom, 1966-82 - Vani Borooah and Don Sharpe
- 556 Modelling the UK exchange rate in the context of a large macroeconomic model: the single equation approach and the role of the rate of interest and of intervention (May 1983) - Andrew Snell
- 557 Endogenising input-output coefficients by means of industrial submodels - Swami Amrit Terry
- 558 Aggregate consumption and the distribution of income in the United Kingdom - Vani Borooah and Don Sharpe

#### Sam Unit Papers (SUP)

- 115 1979 input-output tables - William Peterson
- 116 The ownership of the public sector debt - Martin Weale
- 117 Agricultural and food submodel: data. Note on the output variable; intermediate output - Andrew Chaplin
- 118 Agricultural and food submodel: data. Note on the 'harmonized' Production Account and SOEC/ESA Economic Account - Andrew Chaplin
- 119 Agricultural and food submodel: data. Note on inconsistencies in accounting bases, input-output tables and agricultural accounts, 1953/4-1979 - Andrew Chaplin

#### Growth Program Manuals (GPM)

- 6b PHX2 commands for MDM - William Peterson

#### TRADE, AID AND BRITISH INDUSTRIAL STRUCTURES

Project member: Martin Weale

Associate member: Vince Cable, Commonwealth Secretariat

Sponsor: ESCOR

This project investigated the effects on the British economy of different trade and aid policies. Use of the Cambridge Growth Project Model allowed the industrial implications of different policies to be studied. By focussing on the textile and motor vehicle industries it was possible to distinguish the effects of tariffs,

quotas and voluntary export restraint. The consequence of such policies were shown to be industry-dependent and to arise as much indirectly, through offsetting movements in tax and exchange rates so as to maintain internal and external balance, as directly.

Aid policies were also investigated. The effects of tied aid were shown to be much stronger than untied aid, with direct impact falling on the industries whose output was supplied as aid. Some work was also done on the world economy. A model to investigate the global effects of aid policies was considered. Perhaps the most striking result to emerge from this was that if Europe, North America and Japan all give an equal proportion of GDP as untied aid, the external balance of Japan can actually improve.

#### Publications

Cable, V. and Weale, M. 1983. Economic Costs of Sectoral Protection, The World Economy, Vol. 6, No. 4

Weale, M. 1984. Quantity and Price Effects in an Analysis of World Trade based on an Accounting Matrix, Review of Income and Wealth, Series 30, No. 1

### ASSESSING ECONOMIC POLICY IN THE UK

#### Project Members

I. Begg	Professor W. Godley
K.J. Coutts	G.H. Gudgin
T.F. Cripps	T.S. Ward

#### Sponsor: ESRC

This report covers the first year of a four-year programme which developed out of earlier research on the Effects of Economic Policy undertaken at the DAE and which is being sponsored by the Macroeconomic Modelling and Forecasting Consortium. The project aims to integrate the treatment of national issues within a coherent framework of analysis of the world economy and Europe

as a whole. The general aim is being pursued at a number of levels simultaneously.

#### (a) Macroeconomic theory

Professor Godley, K.J. Coutts and G.H. Gudgin have been engaged in the task of extending and refining the analysis set out in Macroeconomics published by Godley and Cripps in 1983, particular attention being paid to the relationship their work bears to that of other writers. The relationship between this analysis and the traditional IS-LM approach (and Tobin's adaptation of this) is to be found in 'Introduction to the synthesis of macroeconomic theory based on Tobin's Nobel lecture'. This analysis is extended to incorporate a representation of 'inside' money and private debt in 'Outline for a reconstituted basis for macroeconomic theory'. Preliminary empirical work with results for the US economy is presented in 'Inflation accounting of whole economic systems' and forms the accounting basis for the work currently in train which concerns the macroeconomic theory of inflation. Work is also proceeding on the extension of the theoretical model to a multi-country, multi-currency system.

#### (b) Applied macro-models

K.J. Coutts has updated the former CEPG model of the UK economy in a newer, more condensed form. T.S. Ward, with I.G. Begg and K.J. Coutts, has updated the model of Europe in the World Economy and presented a preliminary set of projections at the meeting of the Federation Europeenne pour les Recherches Economiques (FERE) in Paris, September 1984. A paper by L. Cuyvers of the University of Antwerp and G. Leithauser and G. Karl of the University of Bremen, reporting policy simulations using the version of the model installed at Bremen last year, was also presented at the same meeting.

#### (c) Software and information technology

T.F. Cripps and K.J. Coutts have been organising software for preparing data and processing macro-models on an IBM-compatible

personal computer. The model of Europe in the World Economy is now being implemented in the Department on an IBM PC-XT which can be used as a terminal to the university network, permitting file transfer to and from the university's IBM 3081 installation and, potentially, the Warwick Bureau. It is hoped to make the World Economy Model available on diskettes to run on IBM-compatible PC's (appropriately configured) at other research institutions in the UK and overseas. It seems likely that the PC-based technology will provide a convenient medium for exchange of data and models to facilitate joint research in the future. This an issue now under consideration by the ESRC Centre for Economic Computing at Warwick as well as the Macro-economic Modelling Bureau with whom we are in touch to discuss present and future work in this direction.

(d) Policy analysis

During the year T.S. Ward has been a leading member of an international research group organised by the FERE on the evolution of economic and social institutions in Western Europe during the past decade. This research group, with participation from seven countries, has developed and extended the conceptual framework developed by Aglietta, Boyer and others which was already extensively applied to comparative research on the French and US economies by researchers at CEPREMAP in Paris. The results have been written up in a two-volume report, written in French, which the Commissariat au Plan intends to publish in a special issue of their review and which it is hoped to publish in English sometime during 1985. During the coming year we intend to contribute to a second major report, organised by the FERE with support from the European Commission and the French Ministry of Research, concerning international aspects of European economic problems. This study will draw substantially on past DAE research, including the macro-model of Europe in the World Economy, as well as on theoretical and applied work undertaken at CEPREMAP and other European centres.

Publications and Papers

- Anyadike-Danes, M., and Godley, W. 'A stock Adjustment Model of Income Determination Using Inside Money and Private Debt with some Preliminary Empirical Results for the United States', in Proceedings of Conference on Monetary Theory and Economic Institutions, Florence, 1982 (forthcoming)
- Coutts, K.J. CEPG Model of the UK Economy, 9th edition 1984, DAE mimeo
- Coutts, K.J. and Godley, W.A.H. 'Introduction to a synthesis of macroeconomic theory based on Tobin's Nobel lecture, mimeo
- Coutts, K.J., Godley, W.A.H. and Gudgin, G.D. Inflation accounting of whole economic systems, Journal of Monetary Economics, (forthcoming)
- Cripps, T.F. 'Europe in the World Economy', paper submitted to conference of the Applied Econometrics Association, Brussels, December, 1983
- Cripps, T.F. and Begg, I.G. 'Indicators for monitoring the Regional Impact of Extra-Community Trade', report prepared for the Commission of the European Communities, November 1983
- Cripps, T.F. and Ward, T.S. (with Swami Amrit Terry) Industrial Outlook: A Feasibility Study, report to Industrial Analysis Division of OECD, June 1984
- Fothergill, S, Gudgin, G., Kitson, M. and Monk, S. Differences in the Profitability of the UK Manufacturing Sector between Conurbations and Other Areas, Scottish Journal of Political Economy, Vol. 31, No. 1, Feb. 1984
- Fothergill, S., Gudgin, G. and Mason, N. The Economic Consequences of the Sizewell B Nuclear Power Station, DAE, Dec. 1983
- Godley, W.A.H. 'Outline for a reconstituted basis for macroeconomic theory', mimeo
- Godley, W.A.H. and Coutts, K.J. 'Some proposals for the simplification and reorganisation of macroeconomic theory', Department of Applied Economics, revised working paper, June 1984
- Gudgin, G. 'Job Generation in the Service Sector'. Position Paper for the ESRC Industry and Employment Committee, Nov. 1983
- Gudgin, G. PME et Creations D'Emploi: Le Cas Exemple du Royaume-Uni, in X. Greffe (ed.), Les PME Creent-Elles des Emplois? Paris, 1984

Gudgin, G. and Fothergill, S. Geographical Variation in the Rate of Formation of New Manufacturing Firms, Regional Studies, Vol. 18, No. 3

Ward, T.S. 'The 1983 Autumn Statement' and 'A Note on Asset Sales', both in First Report from the Treasury and Civil Service Committee, Session 1983-84, The Government's Economic: Autumn Statement

Ward, T.S. 'The 1984 Public Expenditure White Paper: An Appraisal' in Third Report from the Treasury and Civil Service Committee, Session 1983-84, The Government's Expenditure Plans 1984-85 to 1986-8

Ward, T.S. FERE Model of Europe in the World Economy, 1983, DAE mimeo

Ward, T.S. 'Les Transformations du Rapport Salarial en le Royaume-Uni depuis une Decennie' in Les Transformations du Rapport Salarial en Europe 1973-1984, Federation Europeene pour les Recherches Economiques, Paris, September 1984

Ward, T.S. (with other members of the European Federation for Economic Research). Assembly and Assessment of Proposals for Employment Generation through Publically Financial Programmes, report to the European Commission, September 1984

#### Other Activities

T.F. Cripps and T.S. Ward (with Sw. Amrit Terry) carried out a feasibility study on setting up an industrial forecasting system within OECD, at the request of the Industrial Analysis Division.

I. Begg, T.F. Cripps and T.S. Ward participated in two conferences on European economic problems organised by the European Federation for Economic Research, one in Santiago, Spain in January and the other in Paris in September.

T.S. Ward gave a paper on recent and prospective developments in the UK economy to a symposium on The British Economy in 1984 held in Paris in March at the Universite de Paris - Dauphine.

T.S. Ward contributed to two conferences organised by the European Parliament, one on Problems of Economic Policy held in Brussels in October 1983 and one on Problems of the Mediteranean Economies held in Palermo, Sicily in December 1983.

T.S. Ward gave two seminars to the Economics Department of University College, Swansea in October 1983 on the recent work of the Cambridge Economic Policy Group.

T.S. Ward has continued to contribute policy analyses to the Treasury Committee and was appointed as one of the specialist advisers for the Committee's enquiry into long-term public expenditure trends.

K.J. Coutts attended the international conference on 'Economic Policy and National Accounting in Inflationary Conditions' organised by the European Commission and the University of Bergamo, Bergamo, Italy, January 1984; a conference on macroeconomic modelling of the USA economy, New School for Economic and Social Research, New York, April 1984; a meeting on 'Persistent Decline in Profits in OECD Countries', OECD External Relations Division, Paris, July, 1984; and a seminar and conference on UK macroeconomic modelling organised by the ESRC Macroeconomic Modelling Bureau held at London Business School, March 1984 and at Warwick University, July 1984.

G. Gudgin gave evidence to the Public Inquiry into the Sizewell B Nuclear Power Station on behalf of the National Union of Mineworkers in December 1983. Papers on Employment in the Service Sector were given to the Regional Studies Association in Durham and at the University of Kent. Attended the European Conference Emploi et Crise in Paris, June 1984.

## LABOUR STUDIES GROUP

Project Members: Jill Rubery, Roger Tarling, Frank Wilkinson

Associate Members: Christine Craig, Elizabeth Garnsey

### 1. International Working Party on Labour Market Segmentation

The Labour Studies Group continued its active involvement with the International Working Party throughout the year.

Mr Gyorgy Sziraczki from the Karl Marx University, Budapest, spent six weeks working in Cambridge with the Labour Studies Group in January/February 1984. This visit facilitated the organisation of the Sixth conference of the Working Party which was held in Budapest in July 1984. Jill Rubery and Roger Tarling gave a paper on the State and unions in the labour market in the UK.

### 2. The Impact of the Retail Trade Wages Councils

This project was commissioned by the Department of Employment with the aim of assessing the effects of changes in statutory minimum wage rates on earnings and employment in the Retail Trades.

The project was fully described in the 22nd Annual Report. The final report was completed and presented to the Department of Employment at a Seminar. The report has subsequently been revised for publication in the Department of Employment research paper series.

### 3. Employment consequences of changes in the manufacturing production process

Sponsor: ESRC

This project is designed to explore the qualitative effects on employment structure and organisation of changes in product markets, products, technology, industrial structure and the organisation of work in several industries. Interviews have been carried out with a large number of firms, ranging from small to large, to explore the characteristics of each industry and the inter-relationships between the factors involved. The industries studied are agricultural machinery, heating and ventilating equipment, construction and earth moving equipment, domestic appliances, telecommunications, printing machinery, hosiery and furniture. The work being carried out at present is an analysis of similarities and differences in the experiences within and between these industries.

#### Publications and Papers

- C. Craig, E. Garnsey and J. Rubery, 1984. Pay in small firms: women and informal payment systems. Department of Employment Research Paper (forthcoming)
- C. Craig, J. Rubery, R. Tarling and F. Wilkinson, 1985. Economic, social and political factors in the operation of the labour market, in B. Roberts, R. Finnegan, D. Gallie and B. Roberts (eds), New Approaches to Economic Life, Manchester University Press (forthcoming)
- C. Craig and F. Wilkinson, 1984. Pay and Employment in Four Retail Trades. Final report to Department of Employment on the project 'Employment consequences of Wages Councils' (forthcoming in Department of Employment Research Paper Series)
- E. Garnsey, J. Rubery and F. Wilkinson, 1984. Labour market structure and workforce divisions, Unit 8 of the Open University Course Work and Society, to be reprinted in a book Work and Society based on selected units from the course
- J. Rubery (with J. Humphries), 1984. The reconstitution of the supply side of the labour market: the relative autonomy of social reproduction, Cambridge Journal of Economics, vol. 8, no. 4

- J. Rubery, R. Tarling and F. Wilkinson, 1983. 'Government policy and the labour market: the case of the UK'; paper to the 1983 conference at the International Working Party on Labour Market Segmentation, Aix-en-Provence, July in Federation News, General Federation of Trade Unions
- J. Rubery, R. Tarling and F. Wilkinson, 1984A. Industrial Relations in the 1980s, in M. Poole et al, The Future of Industrial Relations, Routledge and Kegan Paul
- J. Rubery, R. Tarling and F. Wilkinson, 1984B. Labour market segmentation theory: an alternative framework for analysis; paper presented to the British Sociological Association conference, April 1984
- R. Tarling, 1983A. 'Competitiveness: theory or policy?' Paper for SSRC workshop on competitiveness of British industry, London, November 18-19, 1983
- R. Tarling (with M.H. Pesaran), 1983B. 'Changes in the UK male labour force in the post-war period', in Studies in Productivity Analysis, Kluwer-Nijhoff (forthcoming)
- R. Tarling and F. Wilkinson, 1984. The level and flexibility of costs, in R. Tarling (ed.): Flexibility or Rigidity: the Struggle for Control in the Labour Market, Academic Press (forthcoming)
- F. Wilkinson (with Joan Robinson), 1983. Ideology and logic, in F. Vicarelli, Attualita di Keynes, Giuseppe Laterza and Figli, Rome - English translation by Macmillan, (forthcoming)
- F. Wilkinson, 1984A. Worker organisation, State Expenditure and Capitalist Crisis, in the inaugural issue of the journal of the Association d'Economie Politique, Etudes d'economie politique, September
- F. Wilkinson (with E. Lorenz) 1984B. Shipbuilding and Britain's Economic Decline: 1890 to 1965, in B. Elbaum and W. Lazonick The Decline of the British Economy, Oxford University Press (forthcoming)

#### Other Activities

Jill Rubery gave a paper to the ESRC/Warwick University conference on 'Is there a management offensive against trade unions' in March 1984, and a paper to the British Sociological Association conference on Work, Employment and Unemployment in April 1984.

Jill Rubery attended a workshop in Sperlonga, Italy in July 1984 to discuss her chapter on trade unions in the recession in the UK for an international comparative book on trade unions.

Roger Tarling and Frank Wilkinson are acting as Specialist Advisors to the Employment Committee of the House of Commons on the subject of Low Pay. A summary paper is being prepared for the Committee.

Roger Tarling gave a paper to an International Seminar on Improving Labour Market Flexibility, arranged by H.M. Treasury, at Sunningdale, 11-13 January 1984.

Frank Wilkinson and Christine Craig gave a seminar at the Department of Employment in November to present the final report on the relation between employment and legal minimum wages in retailing.

Frank Wilkinson gave a Seminar on the flexibility of costs to the Economic Faculty in Modena, Italy in March 1984.

Frank Wilkinson gave a Seminar on minimum pay to the Law Faculty in Cambridge in May 1984.

Roger Tarling and Frank Wilkinson gave a paper to the Manchester workshop on labour markets and unemployment (organised by the ESRC).

## ECONOMIC POLICY IN NORTHERN IRELAND

Project members: Dr D. Canning, B.C. Moore and J. Rhodes

Sponsor: ESRC

### Aims of the Project

This 2-year project, which started in November 1982, comprises two separate but related studies. The objective is to study the Northern Ireland labour market, and the role of the public sector in the Province, and the dynamic relationships between the two, in order to compare and contrast the effects of alternative economic development strategies. Work on the labour market includes an analysis of differential changes in birth rates and activity rates as well as net migration flows, and an analysis of the main influences on employment in agriculture, manufacturing industry, and private and public services. An evaluation of the impact of conventional regional policy and the effects of the political troubles on manufacturing employment in the Province has also been undertaken.

The effect of UK fiscal policy on Northern Ireland is being examined by undertaking a detailed analysis of expenditure 'needs' in the Province for each component of public expenditure and comparing these 'needs' with actual public expenditure. A model has also been developed to simulate the effects of changes in different components of public expenditure on the Northern Ireland labour market.

Most of the empirical work is now complete and the work is being written up.

### Publications and Papers

Moore, B. and Rhodes, J. 1983. Cities and regions: Conflicts and coordination, in Managing Urban Change, Vol. II, The Role of the Government, OECD

Moore, B., Rhodes, J. and Tyler, P. 1984. 'The Effects of Government Regional Economic Policy, DAE mimeo, (forthcoming HMSO)

Moore, B. and Spires, R. 1984. Science Parks, report written for OECD, DAE mimeo

Rhodes, J. 1984. Regional dimensions of de-industrialisation, in R.L. Martin and R. Rowthorn (eds), De-industrialisation in the UK Space Economy, Methuen (forthcoming)

As a member of the Regional Studies Association Panel, John Rhodes collaborated in Report of an Inquiry into Regional Problems in the United Kingdom, Geo books, Norwich, 1983.

Three conference papers have been produced during the year. Two of these were presented at the ESRC Conference in Belfast in December 1983 and the third was presented to an ESRC conference in Glasgow in June 1984.

### COMPANY FINANCE AND PERFORMANCE

Project members: A.W. Goudie, G. Meeks

Associate member: J.G. Meeks

Sponsor: Esmee Fairbairn Charitable Trust

Work has proceeded on two complementary sub-projects this year:

#### (i) The Cambridge/DTI Databank

A databank of standardised financial accounts for UK companies, developed by the investigators and Professor Whittington (now of Bristol University) for the period 1948-77, is being extended up to



1983. The main computer programs for this extension are now prepared and the final biographical and consistency checks, necessary before the update is completed, are in progress.

(ii) Company Failure and Rescue Policy

This project, which began in January 1984, aims to extend our model of individual companies with the Cambridge Growth Project's macroeconomic model so as to include a model of company failure; to use the model in policy evaluation and theory testing; and to draw out implications for policies of rescuing failing companies.

Publications and Papers

1. On the Databank Project

Goudie, A. and Meeks, G. 1983A. 'The Cambridge/DTI Company Accounts Databank', paper presented at the ESRC Industrial Economics Study Group Symposium on Data Sources, Queen Mary College, November

2. On the Failure Project

Goudie, A., Meeks, G. and Meeks, J.G. 'A macroeconomic approach to company failure', paper presented to staff seminars at the Universities of Aberdeen, Dundee and St. Andrews

3. On the Model underlying the Failure Project, using material from the databank

Goudie, A. and Meeks, G. 1984. Individual agents in a macroeconomic model, Journal of Policy Modelling

Goudie, A. 1984A. Tax exhaustion: estimates from a disaggregated model of corporate tax liabilities, Applied Economics

Goudie, A. and Meeks, G. 1983B. 'Prospects for the company sector under alternative macroeconomic policies', paper presented to National Economic Development Office, December

Goudie, A., 1984B. 'The identification of corporate failure', paper presented to Cambridge Growth Project/Cambridge Econometrics Conference, July

4. Papers arising out of the project or incidental to it

Goudie, A. 1984C. The Dividend Decision in the presence of tax exhaustion, Scottish Journal of Political Economy

Meeks, J.G. 1984. Utility in Economics, in USA National Academy of Sciences, Surveys of Subjective Phenomena, Vol. II

Meeks, G. and Meeks, G. 1984. Profitability measures as indicators of post-merger efficiency: a reply, Journal of Industrial Economics

STAGFLATION: A MACROECONOMIC POLICY TO RECONCILE FULL EMPLOYMENT AND PRICE STABILITY

Project members: Prof. J.E. Meade and Dr D. Vines

Associates: Dr J.M. Maciejowski, Dept. of

Engineering, Division of Control and Management Systems

Martin Weale, DAE

P. Westaway, PhD Student with ESRC

research-linked award, Economics Faculty

N. Christodoulakis, PhD Student, Division of Control and Management Systems

Sponsor: ESRC

The purpose of this project is to investigate the administrative and economic feasibility of a two-pronged set of policies:-

monetary, budgetary, and foreign-exchange policies designed to ensure a steady but restrained rate of growth of the total money incomes generated by the production of goods and services in the UK; and

a combination of various reforms of different wage-fixing institutions and arrangements which, against the background of a steady rate of growth in the demand for the products of labour, would promote full employment

## 1. Work on Wage Fixing

A book on this work entitled Stagflation Volume 1: Wage Fixing was published by Allen and Unwin on 21st January 1982. James Meade has continued to lecture and write on this subject and has prepared an extensive manuscript on wage fixing in capitalist, profit-sharing, and labour-managed economies which develops the model of Professor M. Weitzman in the Economic Journal for December 1983.

## 2. Work on Demand Management

In our book Stagflation Volume 2: Demand Management (Allen and Unwin, 1983) we designed fiscal policy to keep the money national income on its target path; exchange-rate control through official intervention to keep the balance of payments on current account on a predetermined path; and monetary policy to keep the real rate of interest constant. The implication was that the authorities would be willing and able to finance any budget balance between revenue and expenditure, and any balance between the demand for and supply of foreign currency by the private sector that might result from these policies.

The basic shortcomings of this exercise amounted to a refusal to consider properly the effects of monetary policy. The reason for this was the absence of any information about the effect of relative expected yields (including expected changes in foreign exchange rates) on the international flow of capital funds. We now propose to reconsider our exercises in the light of the best information on this subject that we can obtain. Work is proceeding in five interrelated directions.

### (i) Macroeconomic Simulations

Our aim has been to check the viability of our policies on existing quarterly macroeconomic models. This avoids us having to model for ourselves the speed and extent, for example, of tax effects on

consumption, or real exchange rate effects on net exports. The full Treasury model appears to be too large to be our basic research tool. We shall not attempt to refine the shortened version of the Treasury model which was constructed specifically for our Demand Management book. The NIESR model appears well suited for our purposes. We shall however need to reconstruct the financial system of the NIESR model, for no presently available financial model would enable us to answer our questions. This became very obvious at a special conference on Financial Modelling held in May 1984. This conference was convened at the New Centre for Economic Policy Research (6 Duke of York Street, London SW1) for the discussion of these issues.

### (ii) Financial Modelling

This empirical work is intended to provide parameter estimates for a capital account model which considers the split between aggregated home and aggregated foreign assets. The reasons for attempting to estimate this model rather than relying on other existing exchange rate work are that

it is easily integrated into the macroeconomic model (see Meade, Vines and Weale, 1984);

it is a model which identifies the two instruments of financial policy with which we are interested: the short-term rate and foreign exchange intervention;

it is more general than models which consider only public sector liabilities and private sector money. Blanchard and Dornbusch (Banca Nazionale del Lavoro, Quarterly Review, March 1984) advocate the investigation of a model with this characteristic;

it recognises the ability of the financial system to transform home assets (this simplifying assumption is the basis of the aggregation of home assets). The work is thus complementary to other work in this area.

One advantage of a simple model of the type we advocate is that it can be estimated as a system, taking into account observed market-clearing prices during the estimation period. Such an approach is not possible with larger supply/demand models which have not always generated very successful market-clearing prices.

Any model of this type requires the estimation of reaction functions for the policy instruments. We intend to estimate an interest rate reaction function, and also a reaction function explaining the mix between home and foreign assets in the financing of the national debt.

Preliminary analysis has enabled the identification of correctly-signed interest rate effects in UK holdings of foreign assets. But foreign holdings of UK assets are less easily explained.

The initial work implies neutral expectations of exchange rate movements. In order to analyse other expectations regimes we should hope to make use of series for expected exchange rate movements estimated by others and also to investigate estimation under rational expectations.

It is quite possible that the interest rate parameters will be poorly determined, although still better than guesses. But a feature of this portfolio balance model is that a shift from internal to external financing of the national debt has clear consequences; the design of our control rules will reflect this.

### (iii) Refining our Proposals

There will be three targets of policy: the money national income, the investment ratio, and the overall balance of payments. The instruments of policy will be taxes, monetary policy (the interest rate), and foreign exchange intervention. This differs from our Demand Management book in which the exchange rate was treated as an instrument: here we shall investigate various policies for

intervention ranging from a free float up to a completely policy-controlled exchange rate.

We shall

- (a) assign the first, second and third instrument to the first, second and third targets respectively;
- (b) investigate cross-coupling between targets and instruments, including differing relative strengths of interest rate and intervention adjustments to control the balance of payments;
- (c) to look at the robustness of the control in the face of price compensation in wage setting.

Peter Westaway has worked on cross-linking and on robustness to price compensation in wage bargaining. This lays out the ground rules for investigations (b) and (c).

### (iv) Extending the Control Design

Our exercises will concern regulation of the economy around a predetermined trajectory. Such a trajectory can be chosen by means of the optimal control techniques used by the Imperial College, London team and others. Regulation about it is best studied using frequency domain techniques, which pay attention to stability margins, rise time, bandwidth, etc. A synthesis of these methods has been developed by Christodoulakis in his Ph.D thesis (funded by the Greek government). This will enable us to study the two problems simultaneously. By contrast, in the Demand Management volume, we ignored the optimal control aspects and instead regulated about an ad hoc trajectory.

Christodoulakis has made further advances in control techniques which will enable us to derive control rules which are insensitive to model uncertainty (including uncertainties of the financial model). Two procedures are available:

- formulation of uncertainty as a multi-representation of the economy and design of multi-model controllers;
- minimisation of a criterion function which represents a weighted average of uncertainty according to an estimated probability distribution.

(v) Rerunning History

Our aim here is to use the NIESR model, augmented as a result of Martin Weale's work on capital market modelling, to re-run history with our policies in place over the 1970s and 1980s. We are aware of the potential difficulties in this, in particular:

the assumption of hindsight involved in the use of a model estimated on data which has emerged from a period over which we now seek to rerun history; and

'Lucas critique' problems (in particular that consumers might smooth their consumption response to tax changes if our policies were in place).

From Martin Weale's work we hope to obtain not a precise description of exchange rate behaviour in the past but a range of estimates - high, medium and low - of the degree of international portfolio substitutability. We shall then use these to investigate the robustness of reruns of history to:

different interest rate and intervention rules;

different regimes of exchange rate expectation formation

(including rational expectations, but also including

expectations in which the uncertainty about the degree of

international portfolio substitutability corresponds to our own uncertainty);

different cross-coupling of fiscal and financial policies and

different degree of success in reforming wage-fixing

arrangements;

different trade elasticities and strengths of real balance

effects in consumption. Christodoulakis has found that, for

our purposes, these are the two most important differences

between the NIESR, LBS and HMT models.

Publications and working papers

Christodoulakis, N. 1984. 'Explicit solutions for Optimal Target Paths under Fixed Macroeconomic Policy Rules', paper presented at the Society for Economic Dynamics and Control Conference, Nice, June

Christodoulakis, N, and van der Ploeg, R. 1984. 'Macroeconomic Policy Formulation with Conflicting Views of the Economy', paper presented at the Society for Economic Dynamics and Control Conference, Nice, June

Christodoulakis, N, and Vines, D. 1983. The Dynamic Properties of the London Business School Model, in T. Basar (ed.), Modelling and Control of National Economies, Oxford, Pergamon Press, 1984

Maciejowski, J.M. and Vines, D. 1982. Decoupled Control of a Macroeconomic Model using Frequency Domain Methods, Journal of Economic Dynamics and Control, Jan. 1984

Meade, J.E. 1983A. A New Keynesian Approach to Full Employment, Lloyds Bank Review, October

Meade, J.E. 1983B. Full Employment, New Technologies and the Distribution of Income (T.H. Marshall Memorial lecture, University of Southampton, 1 November 1983), Journal of Social Policy, Vol. 13, No. 2

Meade, J.E. 1984. A New Keynesian Bretton Woods, Three Banks Review, June

Meade, J.E., Vines, A, and Weale, M. 1984. 'Financial Policy and the Exchange Rate: a Model for use in the Investigation of New Keynesian Policies', paper presented to Centre for Economic Policy

Vines, D. 1984A. 'A North South Growth Model Along Kaldorian Lines', Centre for Economic Policy Research Discussion Paper, August 1984

Vines, D. 1984B. Open Economy Macroeconomic Analysis in Historical Perspective, Allen and Unwin, forthcoming

Vines, D. and Kanbur, S.M. Ravi. 1984. 'North South Interaction and Commodity Control', Centre for Economic Policy Research Discussion Paper, March

Westaway, P. and Maciejowski, J.M. 1983. A Comparison of Frequency Domain and Optimal Control Methods for the Design of a Macroeconomic Feedback Regulation Policy, in Basar, (ed.), op. cit.

### Seminars, Conferences etc.

Lectures given by Meade at Southampton (September 1983) and London School of Economics (January 1984); by Vines at Cardiff (October 1983) and Edinburgh and London School of Economics (January 1984); by Meade, Vines and Weale at the Centre for Economic Policy Research (June 1984); by Christodoulakis and Westaway at Queen Mary College and Warwick (December 1983 and January 1984); and by Christodoulakis at Nice (June 1984).

### DESTOCKING DURING THE RECESSION

Project member: C. Pratten

Sponsor: Department of Industry

This study examined the role of, and reasons for, destocking in the 1979/82 recession. The novel feature of the study was the obtaining of information from a sample of companies about the causes of their destocking. A report of the study is being published by Gower Press. The report describes changes in stocks and movements of the ratios of stocks to output and stocks to sales during the recession. The importance of destocking as a cause of recession is assessed and the reasons for destocking are described. The effects of stock relief and inflation on stockholding are described and illustrated.

### SUPERVISION OF OPERATING BUSINESSES BY HOLDING COMPANIES

Project member: C. Pratten

Sponsor: ESRC

Information about the methods companies use to monitor and control their operating businesses was obtained from 36 UK and American

companies. A paper describing the results of the study has been circulated to the companies which took part in the study. This report compared the different methods used by companies.

### Other Activities

A textbook entitled Applied Macro-Economics was completed during the year and accepted for publication by Oxford University Press.

A short study was made of the presentation of economics on TV. It was based on a scrutiny of programmes in the Weekend World series.

### ADJUSTMENT PROBLEMS AND POLICIES IN AN INTEGRATED WORLD ECONOMY

Project member: M. Panic

Sponsor: A Sainsbury Family Trust

The year 1983/4 was devoted mainly to the writing and revision of the first of the two books emerging from this project. It is now being prepared for publication by Macmillan, under the title National Management of the International Economy.

This book is a combination of economic theory, applied research and economic history used to analyse the conditions which have to be satisfied in order to achieve a sustainable economic order in a highly integrated world economy. The book, as indicated in the Twenty Third Annual Report, consists of five parts: (i) the process of international integration; (ii) the nature and causes of external disequilibria (with a special emphasis on the 'fundamental disequilibrium'); (iii) the effect of external disequilibria on

differences and changes in national commercial policies over the last century and a half; (iv) special problems created for the international economic system by the energy crisis; and (v) the need for an international economic order and the conditions that would have to be satisfied in the 1980s.

I am also working on the material for the second book, Domestic Policy Options in an Open Economy. This will be also published by Macmillan.

#### Other Activities:

I have given papers and participated in seminars in Oxford, London and Fontainebleau. I have also given talks on British and International economic developments to senior civil servants, bankers and industrialists. I have continued to participate in an CECD Panel of International Experts; and have been made an Associate Member of the Faculty at Ashridge Management College. I also participated, as a member of an advisory group, on a project on inward direct investment into the UK prepared by the Royal Institute of International Affairs

#### Working Papers and Papers given at Seminars

- M. Panic: 'The "Cambridge" Approach to Current Economic Problems', mimeo.
- M. Panic: 'The Meaning and Practical Limitations of the Estimates of "International Competitiveness"', mimeo.
- M. Panic: 'The Phillips Curve: The Wrong Dependent Variable?', mimeo.
- M. Panic: 'A Neglected Consequence of Rigid Monetary Policies', mimeo.
- M. Panic: 'A Quantitative Analysis of Changes in International Integration since 1950', mimeo.

#### THE IMPACT OF IMPORT RESTRICTIONS IN THE INTER-WAR PERIOD

Project members: Professor Lord Kaldor  
Michael Kitson

Associate member: John Rhodes

Sponsor: ESRC

This two-year project aims to test the hypothesis that the imposition of import restrictions in inter-war Britain increased the demand for the products of British industry and stimulated the expansion of manufacturing output.

The preliminary part of the project has been concerned with the development of three areas of analysis. First, there is comparison of the UK performance with the other main industrial nations. Second, we shall evaluate the components of domestic economic growth. Both these areas are being analysed with the use of published secondary sources. The third area of investigation concerns an inter-industry evaluation: comparing the performance of those industries that were newly protected with those that were not. Data on output employment and productivity have been assembled for approximately 100 industries from the Census of Production (1924, 1930, 1935), and trade data aggregated according to the same industrial classification have been acquired from the Annual Statement of Trade of the UK (published annually, 1924-1938). Initial results confirm that the strength of the UK recovery in the 1930s was due to the growth of the manufacturing sector. Preliminary analysis of the disaggregated data also indicates that the change in the growth rate of the newly-protected industries was substantially greater than that of the non-protected industries, following the imposition of import restrictions.

## Publications

Fothergill, S., Kitson, M. and Monk, S. 1984A. Differences in the Profitability of the UK Manufacturing Sector between conurbations and other areas, Scottish Journal of Political Economy, Vol. 31.

Fothergill, S., Kitson, M. and Monk, S. 1984B. Urban Industrial Change, HMSO, forthcoming

Fothergill, S., Kitson, M. and Monk, S. 1984C. The supply of land for industrial development, in S. Barrett and P. Healey (eds), Land Policy, Gower, forthcoming

Fothergill, S., Kitson, M. and Monk, S. 1984D. Rural Industrialisation: trends and causes, in M. Healey and B. Ilbery (eds), The Industrialisation of the Countryside, Geo, forthcoming

Fothergill, S., Kitson, M. and Monk, S. 1984E. Industrial buildings and economic development, in W.F. Lever (ed) Industrial Change in the U.K., Methuen, forthcoming

Fothergill, S., Gudgin, G., Kitson, M. and Monk, S. 1984. The de-industrialisation of the city, in R. Martin and R. Rowthorn (eds), De-Industrialisation in the U.K. Space Economy, Methuen, forthcoming

## INDUSTRIAL STRUCTURE AND ECONOMIC PERFORMANCE: BRITAIN AND FRANCE IN THE 1970s

Project member: Dr E.H. Lorenz

Sponsor: ESRC Postdoctoral Fellowship Scheme

This three-year project, which commenced in October 1983, investigates recent changes in industrial structure and work organisation in British and French manufacturing. Industrial structure is taken to mean not only the size structure of industry and industry mix, but also the nature of inter-firm relations in a region or district. The project focuses on the impact on structure and economic performance of emerging alternatives to the dominant corporate strategy of the 1950s and 1960s: vertical and horizontal

integration combined with the rationalisation of productive units towards mass production of standard products. The following developments have been identified, not necessarily in order of importance:

- (i) large firms adopting 'neo-fordist' strategies based on the use of flexible microelectronic technologies and the introduction of more flexible divisions of labour;
- (ii) vertical disintegration of large firms associated with increased reliance on outwork and homework;
- (iii) the emergence of small scale high technology firms concentrated in particular regions or districts;
- (iv) small firms adopting sweat-shop strategies based on 'traditional' technologies, low pay and high work intensity.

These new developments may be interrelated in a particular way. The search for greater flexibility by large firms can lead them to 'put out' work as well as alter their internal division of labour. This in turn can improve the market position of small subcontracting firms who may be encouraged to invest in new technology. Small subcontractors may further diversify their production to lessen their dependence on the orders of particular firms. However, in the absence of trade-union or institutional constraints a low-wage strategy may appear a viable alternative for small firms operating in a competitive environment.

A number of factors help account for these organisational shifts. First, greater market uncertainty during the 1970s has increased the risks of pursuing a mass-production strategy and has encouraged a search for more flexible alternatives. Second, the practical development of computer-based technology, by allowing for greater flexibility without loss of productive efficiency, has acted to reduce the minimum efficient scale of production. Technical developments include computer numerical control (CNC), computer-aided design and manufacture (CAD/CAM) and robots. Third, an increase in trade-union or legal controls at the plant level during the 1960s and 1970s has encouraged large firms to

subcontract work and possibly has enhanced the competitive position of small firms, which can more easily evade such restrictions.

A regional approach was adopted to investigate these relations. In each country an 'old' industrial region in relative decline is being contrasted with a relatively expanding 'new' industrial region. This approach is justified by the fact that variations in the mix of industries between regions cannot explain adequately differences in performance. Moreover, the power of this explanatory variable has progressively decreased over the post World War II period. This suggests that variations in company strategy and inter-firm relations may be important in differential performance. Particular features of local infrastructure may be significant in accounting for these variations in structure and strategy. The use of international comparison, on the other hand, will allow an assessment of the role of nationally specific institutions and conditions.

Published reports and data are being used to provide a general picture of developments in manufacturing industrial structure in the regions under consideration. In addition, interviews with management, trade-union officials and employer-association representatives are being conducted to provide detailed knowledge of conditions in one sector of manufacturing. The interviews are designed to allow both an assessment of the extent to which firms' product-market and labour-market strategies are changing, and an exploration of the underlying causes.

Initially a review of the literature on regional employment growth was made to determine an appropriate choice of regions for comparison in Britain. The East and West Midlands were chosen. These regions show considerable disparity in terms of employment growth, levels of unemployment, average earnings levels and levels of investment by firms in 'new' technology. The East Midlands is progressively outstripping the West Midlands. In the case of

France, the department of the Rhone-Alpes was tentatively chosen for international comparison. The Rhone-Alpes is one of France's major manufacturing centres and has experienced considerable interregional shifts in employment away from the traditional industrial agglomerations of Lyon and St. Etienne. Further, the composition of the Rhone-Alpes manufacturing base is similar to that of the Midlands.

The mechanical engineering sector was chosen for a detailed case study. This choice was based on a number of considerations. Mechanical engineering is composed of a number of industries differentiated in terms of performance and industry structure characteristics and sharing a common technology undergoing rapid transformation as a result of the impact of microelectronics. As a producer of capital goods for the manufacturing sector, mechanical engineering has strategic importance for industrial productivity generally.

Census of Employment and Business Monitor statistics were used to construct a basic description of changes in industry structure in the East and West Midlands. This includes: (a) changes in the distribution of employment by SIC and MLH for each region between 1968 and 1981; (b) changes in the size structure of industry by SIC for each region between 1972 and 1981; (c) contrasts between the regional trends and the national trend.

Census data were also used to describe changes in the structure of the mechanical engineering sector nationally. This description includes changes in the distribution of employment by MLH and region between 1971 and 1981; changes in size structure of the industry by enterprise and establishment between 1968 and 1981; and changes in industry concentration ratios. Overseas Trade Statistics of the UK were used to calculate import and export ratios and UN statistics were used to calculate Britain's share of world markets.



Survey data published by Metalworking Production were used to describe changes in the stock of NC and CNC machine tools according to MLH, plant size and region. These figures confirm qualitative impressions of the trend in the pattern of investment in 'new' technology. They show that small plants (less than 50 employees) account for a disproportionate share of NC/CNC machine tools installed and that their share has increased from 21 to 25 per cent between 1976 and 1982. The relative dynamism of the East Midlands is confirmed, the region having increased its share of the national stock of NC/CNC machine tools from 8 to 13 per cent between 1976 and 1982 while the West Midland's share fell dramatically from 21 to 9 per cent.

A preliminary survey of industry archive sources in Birmingham, Coventry, Nottingham and Leicester was made. In most cases this did not prove rewarding due to lack of up-to-date material or problems of access. Coventry sources hold out some promise. The Local Records Office has the extant records of Alfred Herberts Ltd., Britain's largest machine tool firm prior to its recent collapse. An investigation of its records should provide insight into the characteristic problems of large engineering firms located in the Coventry district.

Subsequent effort has been devoted primarily to visiting firms in the East and West Midlands. Generally these have consisted of a two to three hour interview with the managing director or production manager. As of to date twenty interviews have been conducted. Ten of these have been with machine tool producers. The machine tool industry holds a strategic position as a supplier of capital goods to the mechanical engineering sector. An investigation of the product market strategies of machine tool producers provides insight into developments in mechanical engineering more generally. Visits have been made to a range of firm types, including large international exporters with dominant market positions in their product range in Britain as well as smaller specialised firms catering to particular market niches. The

remaining interviews have covered a variety of industries in mechanical engineering including press and tool makers, hosiery machinery, textile machinery, footwear machinery and general subcontract engineering. The size of firms has ranged from 800 employees to less than 10 employees. Interviews have also been conducted with trade union officials in Leicester and Coventry and have been arranged with employer associations, including the East and West Midlands branches of the Engineering Employers Federation, the Midlands branch of the Engineering Industries Association and the Machine Tool Trades Association.

#### Publications

Lorenz, N.E. 1984. Two Patterns of Development: The Labour Process in the British and French Shipbuilding Industries, 1880-1930, The Journal of European Economic History, Fall

Lorenz, N.E. and Wilkinson, F. 1984. The Decline of British Shipbuilding, in B. Elbaum and W. Lazonick (eds), The Decline of the British Economy, Oxford University Press, forthcoming

#### Conferences

'The Decline of British Shipbuilding', paper delivered at the Boston University Conference on the Decline of the British Economy, October 1983.

'Restructuring Labour Markets in the British and French Shipbuilding Industries', paper delivered at the 6th Annual Conference on Labour Market Segmentation, Budapest, Hungary, July 1984.

## AGRICULTURAL REFORM IN CHINA

Project member: Peter Nolan

Sponsor: ESRC

The purpose of this research is to examine the nature and impact of rural institutional reforms ('de-collectivisation') in China's villages since 1978.

### Publications and Papers

Nolan, P. 1983. De-collectivisation of Agriculture in China, 1979-82: a long-term perspective, Cambridge Journal of Economics, Vol. 7, nos. 3/4

Nolan, P. 1984. Urban bias, rural bias, or state bias? Urban-rural relations in China since 1949, Journal of Development Studies, 1984

Nolan, P. and Paine, S. 1984. Towards an assessment of rural institutional reform in China since 1978

## RISK, INFORMATION AND QUANTITY SIGNALS IN ECONOMICS

Project members on DAE research staff: Mr J.P. Thomas

Dr T.S. Worrall

Teaching Officers who participate

in the Project:

Dr M.M. Bray

Professor F.H. Hahn

Dr D.M.G. Newbery

Associate member: Professor T.J. Kehoe (MIT)

Visitors to the Project: Professor L. Lau (Stanford)

Professor R.M. Solow (MIT)

Sponsor: ESRC

The aim of this project is to investigate at a fairly general and abstract level the consequences of 'missing markets' for

economic theory, welfare and macroeconomics. These missing markets are caused by information deficiencies which generate such features as asymmetric information, quantity signals and constraints. In the last year particular attention has been paid to the labour market, where the standard Walrasian account is least convincing and the macroeconomic implications most obvious. Equally important is imperfect information in the market for loanable funds, where investment and hence capital accumulation are directly affected. Individual research work of project members is briefly indicated below together with a list of discussion papers published this year, conferences attended by members and publications.

Hahn Professor Hahn's two main research areas have been implicit contract theory and macroeconomic theory. In contract theory he has shown that equilibria may be Pareto ranked by employment (everyone is better off with more employment) and that the indifference principle will not always hold (employees would rather work than be laid-off). Over the last year he has co-operated with Professor Solow on a book on employment theory. His paper on wages and employment has shown that real wages may increase with employment levels.

Bray Dr Bray has completed a major piece of work on the stability of rational expectations equilibrium (Discussion Paper No. 79). She also is in the process of completing an introductory piece on information transmission in capital markets. She has also started to work on a dynamic model of a price setting duopoly with customer loyalty.

Newbery Dr Newbery continues to work on problems of energy policy and the tax policy of developing countries. He has been particularly interested in the taxation of transport in Tunisia. He has continued his work on commodity price stabilisation and implicit contracts with J.E. Stiglitz.

Thomas Jonathan Thomas and Tim Worrall have co-operated in the study of a number of problems in contract theory. They have investigated wage contracts which are self-enforcing, that is contracts in which neither the employer nor employee ever has an incentive to renege. That such contracts exist (non-trivially) is perhaps surprising, but more surprising is the fact that the contracts are very simple in form but make current wages dependent upon past history. Arising out of this work is on-going research on long-term loan contracts under asymmetric information. Jonathan Thomas has also made considerable progress in his study of inventory behaviour. Under certain conditions current output is independent of the aggregate stock of inventories.

Worrall Tim Worrall has concentrated on the research indicated above with Jonathan Thomas. In addition he is interested in Oligopoly Theory and long-term models of moral hazard.

Economic Theory Discussion Papers:

The following discussion papers have been produced in the academic year 1983/84.

68. Wage Rigidity, Implicit Contracts, and Economic Efficiency: Are Market Wages too Flexible?  
by D.M.G. Newbery and J.E. Stiglitz. October 1983
69. The Manipulation of Futures Markets by a Dominant Producer  
by D.M.G. Newbery. October 1983
70. Non-Linear Pricing and the Exclusion of Consumers  
by Ben Lockwood. October 1983
71. Implicit Contracts and Involuntary Unemployment  
by Frank Hahn. January 1984
72. Economic Theory and Keynes's Insights  
by Frank Hahn. January 1984
73. The Indexation of Optimal Labour Contracts  
by Jonathan Thomas. January 1984
74. Self-Enforcing Wage Contracts  
by Jonathan Thomas and Tim Worrall. April 1984

75. Wages and Employment  
by Frank Hahn. April 1984
76. Wages and Employment in a Segmented Labour Market  
by Ian M. MacDonald and Robert M. Solow. January 1984
77. Risk and Trade Policy  
by David M.G. Newbery and Joseph E. Stiglitz. February 1984
78. A Numerical Investigation of Multiplicity of Equilibria  
by Timothy J. Kehoe. June 1984
79. Rational Expectations Equilibria, Learning and Model Specification  
by Margaret Bray and Gene Savin. June 1984

Quaker Workshops

The 'Quaker' Workshops have been particularly successful this year and their format continues to be widely imitated. The following principal talks have been given:

1. Luca Anderlini  
Interdependence in General Equilibrium Models
2. Margaret Bray  
Convergence to Rational Expectations Equilibrium in Misspecified Models
3. Andrew Capling, Harvard University  
Inventory Policies and Macroeconomic Fluctuations
4. Panikos Demetriades  
The Long Run Costs of Inflation
5. Drew Fudenberg (Berkeley, U.C.)  
The Folk Theorem in Repeated Games with Discounting
6. Frank Hahn  
Wages and Employment in a Keynesian Model
7. Tim Kehoe  
The Use of Index Theory in General Equilibrium
8. Tim Kehoe  
Equilibria in Overlapping Generations Models
9. Tim Kehoe  
A Numerical Investigation of the Multiplicity of Equilibria

10. David Newbery  
The Economics of Roadbuilding
11. David Newbery  
The International Mobility of Multinational Corporations
12. Hamid Sabourian  
Repeated Games with Imperfect Information
13. Hamid Sabourian  
Rational Conjecture in Repeated Games
14. Hamid Sabourian  
A General Equilibrium Model of Imperfect Competition
15. Jonathan Thomas  
The Indexation of Optimal Labour Contracts
16. Jonathan Thomas  
Self-Enforcing Wage Contracts - Results
17. Tim Worrall  
Self-Enforcing Wage Contracts - Existence
18. General Discussion  
The Miners' Dispute

In addition to the regular Quaker meetings, the Project held a two-day conference at Churchill College for Project members and invited guests. The following papers were presented.

1. David Levine (UCLA)  
Is the US Economy an Arrow-Debreu Economy?
2. John Moore (LSE)  
Involuntary Lay-offs and Unemployment
3. Hamid Sabourian  
Existence of Equilibria in Imperfectly Competitive Economies
4. Bob Solow  
Unemployment in Spatial Models of Imperfect Competition
5. Jonathan Thomas  
Self-Enforcing Wage Contracts

David Newbery has attended conferences in Tennessee and Bangkok to present papers on 'The Effect of Protection on Manufactured Exports for Developing Countries' and 'Equity,

Efficiency and the Pricing of Petroleum Products in Asia'. The former with Gordon Hughes is published as CEPR Discussion Paper 14. Margaret Bray, Jonathan Thomas and Tim Worrall attended the European meetings of the Econometric Society to present the discussion papers numbers 79, 73 and 74 respectively.

#### Publications

- Kehoe, T.J. and Levine, D.K. Intertemporal Separability in Overlapping Generations Models, Journal of Economic Theory (forthcoming)
- Kehoe, T.J. and Mas-Colell, A. An Observation on Gross Substitutability and the Weak Axiom of Revealed Preference, Economic Letters, 15 (3)
- Kehoe, T.J. and Serra-Puche, J. A Computational General Equilibrium Model with Endogenous Unemployment: An Analysis of the 1980 Fiscal Reform in Mexico, Journal of Public Economics, 22 (1)
- Hahn, F.H. Equilibrium and Macroeconomics, Basil Blackwell
- Hahn, F.H. Wages and Employment, in a volume for Sir John Hicks' 80th Birthday, forthcoming
- Newbery, D.M.G. Commodity Price Stabilising when in Imperfect or Cartelized Markets, May 1984, Econometrica, 52 (3)
- Dixit, A.K. and Newbery, D.M.G. Setting the Price of Oil in a Distorted Economy, Economic Journal, forthcoming
- Newbery, D.M.G. and Hughes, G.A. The Effect of Protection on Manufactured Exports for Developing Countries, in L. Klein and Z.A. Silberston (eds.), forthcoming
- Newbery, D.M.G. Equity Efficiency and the Pricing of Petroleum Products in Asia, in C. Siddayao (ed.) Criteria for Energy Pricing, London, Graham and Trotman, 1985
- Newbery, D.M.G. and Stiglitz, J.E. Pareto Inferior Trade, Review of Economic Studies, 51 (1)
- Newbery, D.M.G. The Manipulation of Futures Markets by a Dominant Producer in R. Anderson (ed.), Industrial Organisation of Futures Markets, Lexington Books, D.C. Heath, 1984

## TAXING AND PRICING TRANSPORT FUELS IN DEVELOPING COUNTRIES

Project Members: Dr G.A. Hughes and Dr G. Newbery

Sponsor: World Bank

The objective of this research, which forms part of a larger project, is to formulate guidelines for imposing taxes on transport fuels - primarily petroleum products - in developing countries taking account of the impact of such taxes on the distribution of income across households and on non-transport use of fuels as intermediate inputs.

The studies of the impact of fuel taxes on prices and the household distribution of income were completed during 1983-84 with a study of Indonesia complementing previous work on Thailand and Tunisia. In most respects the conclusions of these three studies concerning the impact of fuel taxes were similar, except that the Indonesian study highlighted the adverse distributional effects of taxing kerosene when the price of this fuel has previously been subsidised, thus encouraging its use in rural areas. Further work to update these studies using more recent input-output and household budget data has been delayed by difficulties in obtaining the appropriate data but this is expected to be completed during 1984-85.

Hughes has also been engaged in compiling cross-country data on the consumption and prices of petroleum products and on vehicle stocks, new registrations and car prices. This is now complete and is being used to investigate the response of gasoline demand and car sales to changes in the real price of gasoline. The data have also been used to examine how domestic prices and taxes in different countries were altered following the increases in world oil prices during the period 1970-82.

During the year Newbery has been concerned with the modelling and estimation of the social cost of road damage caused by vehicles, which is a crucial element in assessing road user charges. His results, based on both simulation studies and estimates for Tunisia, suggest that for a wide range of plausible parameter values, the marginal and average costs of road damage are very similar. This is a very important conclusion because it implies that efficient road user charges - designed to reflect the marginal social cost of road damage - should generate enough revenue to cover the full cost of maintaining a road network. However, the best method of collecting these road user charges remains to be settled, since there is a rather poor correlation between fuel use and the appropriate road user charge over different types of vehicles.

### Bibliography

- A. Dixit and D. Newbery - 'Setting the Price of Oil in a Distorted Economy', Economic Journal (forthcoming)
- G.A. Hughes (1984a) - 'The Impact of Fuel Taxes in Indonesia'
- G.A. Hughes (1984b) - 'The distributional Impact of Fuel Taxes in Developing Countries'
- G.A. Hughes and T. Tavana - 'Petroleum Product Prices, 1970-80' (World Bank Technical Paper)
- D. Newbery (1984a) - 'Equity, Efficiency and the Pricing of Petroleum Products in Asia'
- D. Newbery (1984b) - 'Estimating Road User Charges'

### Seminars, Conferences, etc.

Papers based on the work of the project were given at the AUTE Conference, an ESCAP Workshop on Energy Pricing Policy in Bangkok, the World Bank, the Universities of Warwick and Lancaster, and at a Workshop on Energy Policy in LDC's at the Surrey Energy Economics Centre.

## COMPUTER SOFTWARE FOR ESTIMATING QUALITATIVE RESPONSE MODELS

Project members: Dr G.A. Hughes and Dr N.E. Savin

Associate member: A. Guilfoyle

Sponsors: Nuffield Foundation and U.S. Forest Service

This project was established with the objective of developing computer programs capable of performing maximum likelihood estimation for models with qualitative or limited dependent variables using large datasets.

During the 1970s numerical analysts developed a number of algorithms for performing the numerical optimisation of large or complex functions. These have, until now, not been adopted in widely-used econometric packages, so that the first stage of the project work was devoted to a comparison of the efficiency of these new algorithms with the older ones on econometric problems of the type encountered in analysing large cross-section surveys. At the same time we investigated alternative methods of approximating the Hessian of the valuation function which is required to provide the variance-covariance matrix of the estimated coefficients. Our results showed that for almost all problems with large datasets or complex likelihood functions the quasi-Newton method using first derivatives combined with the BFGS update was superior to all other methods, even in cases where a full Newton-Raphson procedure is conventionally used.

The algorithms developed in the first stage of the project have been incorporated in a computer package titled MLPACK. This is designed to enable econometricians and others to estimate a wide variety of models using either maximum likelihood or non-linear least squares estimation. As well as conventional facilities for handling data the package currently incorporates the following commands:

- (i) PROBIT - to estimate the probit model for a binary dependent variable
- (ii) LOGIT - to estimate the multinomial logit model for a binary or multinomial dependent variable using the conditional, classical or mixed specifications
- (iii) MAXLIK - to perform maximum likelihood estimation for a likelihood function supplied by the user
- (iv) FIML - to estimate a non-linear system of simultaneous equations using full information maximum likelihood, where the system of equations is specified by a subroutine supplied by the user
- (v) NLLS - to estimate a non-linear system of equations using various non-linear least squares procedures including NLOLS, NL2SLS, NL3SLS and NLSUR

The algorithms have also been incorporated in a new version of the package SHAZAM.

The preliminary version of MLPACK is being tested at the World Bank, the U.S. Forest Service and the University of British Columbia as well as at Cambridge. A revised version of the package will be made available to other universities early in 1985. In Cambridge the package has been used for the estimation of systems of demand equations using 10,000 observations, for the investigation of the effects of insecticides and for the analysis of joint decisions concerning housing movement and labour mobility.

### Papers

G.A. Hughes and A. Guilfoyle - MLPACK Users Manual.

G.A. Hughes, J. Robertson and N.E. Savin - 'A Multinomial Logit Analysis of Pesticide Effects on Western Spruce Budworm'.

### Seminar

A paper based on the work of the project was given to the Cambridge Statistics Group.

INSTITUTIONAL INVESTMENT, MERGERS AND PUBLIC POLICY  
CONGLOMERATE ORGANISATION AND ECONOMIC EFFICIENCY

Teaching Officers directing the project: A. Hughes, A. Singh

Project member on DAE Research Staff: M.S. Kumar

Associate member: A.D. Cosh

Sponsor: Office of Fair Trading

These two projects started in May 1982 and will be completed in March 1985. They extend the authors' earlier work on the impact of mergers, and investigate a range of new issues. The aims and methods of research for the two projects, and the progress made in each, are examined in turn.

1. Institutional investment and mergers

Although there is broad agreement over the facts as well as the reasons for the increasing domination of industrial companies by institutional holdings, the implications of these facts arouse great controversy. The implications are, indeed, far reaching and extend to several areas: from the general social theory of the nature of contemporary capitalist society, to narrow, but extremely important, issues in the economic theory of the firm, and to questions of public policy. In relation to the economic issues, a major reason for these controversies has been the lack of systematic empirical research, particularly at the microeconomic level.

The purpose of the research being undertaken is to shed some light on the influence of institutional investors on company performance and behaviour, and in particular their role in the merger process. The huge merger wave which has engulfed UK industry during the last two decades has been the subject of a large academic literature; the effects of these mergers on industrial performance and economic growth rightly continue to be matters of serious public policy concern. In summary, the results

of the academic research so far suggest that at the microeconomic level, the effect of mergers on company profitability has most likely been neutral, i.e. on average mergers have neither raised, nor lowered, profits of amalgamating firms. There is unambiguous evidence that in perhaps half the cases mergers reduced microeconomic efficiency. A central question which arises with respect to the role of institutional investors is whether or not the post-merger performance of companies where such investment is important has been markedly different from that of other companies. To what extent, if at all, do institutional investors use their influence and professional knowledge to discourage mergers which they believe are unlikely to be successful.

The central questions on which the research project - which is certainly among the first of its kind - focuses are the following:

- (i) What is the nature and extent of the degree of institutional control of non-financial companies in the UK economy and how has it changed over time?
- (ii) Through what channels and in what ways could institutional control affect corporate behaviour?
- (iii) Is there any difference in the economic performance of companies in which institutions have greater 'control' or involvement compared with those where they have less or no control?
- (iv) Do institutions play a distinct role in the corporate merger process compared with other kinds of holders of shares?
- (v) Are the pre-merger characteristics of either the taken-over or the acquiring companies in which institutional shareholdings are 'important' different from similar companies where such shareholdings are not so important? Is the post-merger performance of acquiring companies with sizeable institutional holdings different from that of other amalgamating companies?

The issues are being studied in two complementary ways. First, by means of ex post statistical data and observed outcomes, and second, by means of interviews. With regard to the first, very detailed research has been done, based on data on company characteristics and performance, and on data on company stockholdings, which were collected from share registers and other sources. An analysis has been undertaken into the extent of institutions' involvement in over 300 large companies, and its effect on companies' performance, in particular on the post-merger performance. A comprehensive report based on this work has been submitted to the OFT.

With regard to the second approach detailed interviews are being conducted with representatives of a selected sample of Pension Funds, Insurance Companies, Shareholder Protection Committees and other relevant institutions, with valuable assistance from the industries division of the Bank of England. It is hoped that when the project is completed the OFT will give permission for the publication of the results of the research in the form of a monograph.

## 2. Conglomerate organisation and economic efficiency

This research has two main aims: first, to answer some basic questions about the internal organisation and economic performance of large diversified firms in the UK; second, to consider the implications of these results for the development and implementation of industrial and competition policy. Particular attention is paid to questions of investment appraisal and the allocation of capital funds within companies, and a distinction is drawn between investment in new capital equipment and the purchases of subsidiaries. As for the institutional investment project, the research is being carried out using questionnaires and interviews with management, as well as using published information on ownership, diversification, and other characteristics of firms, and

their performance. A large body of data collected on the diversification and ownership of companies is being combined with the DI Databank to examine the relevant issues, and the statistical analysis has been completed.

### Papers and Publications

'Institutional Investment and Economic Performance: empirical evidence for U.K.', Institutional Investment, Mergers, and Public Policy Working Paper No. 1

'Institutional Investors: Objectives, Structure and Influence', Institutional Investment, Mergers and Public Policy Working Paper No. 2

Cosh, A.D. and Hughes, A. 1984A. 'The Anatomy of Corporate Control', DAE mimeo, Cambridge

Cosh, A.D. and Hughes, A. 1984B. 'The Inlocking Directorate in the UK, Stability and Change 1971-81', DAE mimeo, Cambridge

Cosh, A.D., Hughes, A., Kumar, M.S. and Singh, A. 1984. Institutional Investment, Company Performance and Mergers: Empirical Evidence for the UK, a report submitted to the OFT

Hughes, A. 1982 Conglomerate Companies and Competition Policy: A Report Prepared for the National Consumer Council

Hughes, A., and Kumar, M.S. 1984. Recent Changes in Aggregate Concentration in the United Kingdom, Cambridge Journal of Economics, September 1984



## B SOCIOLOGY

### REPRODUCTION OF SOCIAL INEQUALITY

Project Members: Dr R.M. Blackburn  
Dr K. Prandy  
Mr A. Stewart

Associate: Dr L. Miller-Bernal, Wells College,  
New York

Sponsor: ESRC

This project, which commenced in May 1978, was designed to continue and extend the work of the group, and earlier projects (described in previous Annual Reports) were incorporated.

The project is concerned with the general area of social inequality and social change, addressing a number of problems of theoretical and practical importance. A basic feature is the attempt to move towards a more dynamic model of social stratification which takes account of processes of reproduction of societies.

The research involves a number of themes relating to social stratification, including white-collar unionism, the labour market, careers, and perceptions, understandings and evaluations of social inequality. Current work is focussed on the last of these themes.

#### Publications and Papers

Stewart, A., 'Gender, Households and Employment', ESRC Symposium on Labour Markets, Manchester

Stewart, A., Blackburn, R.M., and Prandy, K., Gender and Earnings: The Failure of Market Explanations, in B. Roberts, R. Finnegan and D. Gallie, New Approaches to Economic Life, Manchester University Press, forthcoming

Stewart, A., 'Theory and Measurement; New Approaches to Social Data', DAE Sociology Seminar, November

## THE IMPORTANCE OF SOCIAL STRATIFICATION

Project members: Dr K. Prandy  
Dr R.M. Blackburn

Sponsor: ESRC

The project examines the argument that there is greater coherence in stratification arrangements than has previously been shown to exist. It will re-analyse existing data sets to test our contention that relationships are stronger than previously found and evaluate the results, rather than seek to uncover new relationships. The main areas to be considered are inter-generational transmission of advantage, marriage, friendship, income, education, home and car ownership and, to a lesser extent, attitudes and beliefs. An essential step has been the production of a more adequate measure of stratification which will be made available for general use. This is continuous, but one aim of the project is to explore its relationship to possible groupings into discrete classes. The project is intended both to benefit those concerned with empirical research, and also to have significant theoretical implications.

The bulk of the work on construction of a revised scale has now been carried out. The scale cannot yet be regarded as finalised, because a certain amount of modification is likely as a result of experience in its use. This is especially true where there are small numbers involved in a group and hence a greater possibility that those in our sample may not be representative.

Certain other issues also require further examination in the light of the proposed analyses. Towards its upper end that scale shows a marked increase in the average interval between points, and while this is almost certainly in part a consequence of the methods used in its construction it may also reflect a social reality. Also there are indications that certain situs effects may be operating, so that for example skilled workers in construction are coming out with lower scale values than might have been expected.

One area where scale development and analysis necessarily go together is that of gender and occupation. Our major datasets are comprised solely of males, and the scale could thus be described as one of male occupations. We have begun to examine the validity of this description by looking at marriage patterns, using our own data and, of others so far, the 1979 British General Election Survey. A paper based on this work was presented at the ESRC Symposium on Gender and Stratification. Precisely how gender should be incorporated into the scale, or even whether this is absolutely necessary, is not yet decided. Further analysis and theoretical clarification are required. However, we have found our analyses do demonstrate greater consistency in stratification arrangements, in the case of marriage, than have previous approaches.

#### Papers

'Ideologies of Work' (paper given by Dr Blackburn to the BSA Conference University of Bradford, April 1984)

'Similarities of Life-Style and Occupations of Women' (paper given by Dr Prandy to ESRC Symposium on Gender and Stratification, University of East Anglia, July 1984)

'Measurement and its Relation to Theory' (lecture given by Dr Prandy at BSA Summer School, University of Exeter, September 1984)

#### OTHER ACTIVITIES OF THE SOCIOLOGY GROUP

The group has maintained its association with colleagues in other institutions. In particular Mr J. Holmwood of the University of Edinburgh and Dr L. Miller-Bernal of Wells College have collaborated in our work. Mr Angelo Pichierri and Dr Tibor Erhart were visitors to the Department.

As in previous years the group was host to the ESRC Social Stratification Seminar.

Dr R.M. Blackburn acted as external examiner for the Hatfield Polytechnic and continued to act as the local sociology representative for the ESRC Survey Archive.

The monograph series Cambridge Studies in Sociology is edited by the group.

The group continued to organise its own seminar series.

## II PUBLICATIONS

### DAE OCCASIONAL PAPERS

This series, published for the Department by the Cambridge University Press, is designed for the rapid publication of research results.

One new title appeared in the Series this year. No. 55, Political Aspects of the Economy, by V.K. Borooah and F. van der Ploeg, was published in December 1983. A second title, No. 56, Growth, Acquisition and Investment, by Manmohan S. Kumar, was prepared for press.

### CAMBRIDGE STUDIES IN SOCIOLOGY

This series includes works of theoretical and social interest based on the findings of empirical sociological investigations. The books may originate anywhere, but those arising from the sociological work of the Department will normally be included.

The editors are Dr R.M. Blackburn and Dr K. Prandy and the series is now published by Macmillan.

During the year the following title was published:

P. Whalley, The Social Production of Technical Work (1984)

### OTHER DAE PUBLICATIONS

FERE Model of Europe in the World Economy by T.S. Ward (1983)

The Economic Consequences of the Sizewell 'B' Nuclear Power Station by S. Fothergill, G. Gudgin and N. Mason (December 1983)

CEPG Technical Manual of the UK Economy. Technical Manual (9th Edition) by K.J. Coutts (1984)

### DAE ECONOMICS REPRINTS

This series contains articles published by members and associates of the Department in journals, conference proceedings and elsewhere. It is distributed free of charge to interested libraries and academic institutions. The following titles were added in the series during the year.

- No. 74 Do Mergers Reduce Corporate Investment: Evidence from the United Kingdom Experience  
Manmohan S. Kumar
- No. 75 International Direct Investment in Conditions of Structural Disequilibrium: UK experience since the 1960s  
M. Panic
- No. 76 After Chayanov and Lenin  
David Lehmann
- No. 77 Government Policy, Real Wage Resistance and the Revolution of Conflict  
Rick van der Ploeg
- No. 78 Long-Term Recovery: A Return to Full Employment?  
Terry Barker
- No. 79 A Review of Models and Data in the Norwegian System of Economic Planning  
Terry Barker
- No. 80 Projecting Economic Structure with a Large-Scale Econometric Model  
Terry Barker

- No. 81 De-Collectivisation of Agriculture in China, 1979-82: a Long-Term Perspective  
Peter Nolan
- No. 82 A New Keynesian Approach to Full Employment  
James Meade
- No. 83 Industrialisation in Africa: A Structuralist View  
Ajit Singh
- No. 84 Foreign Aid for Structural Change: Lesotho  
Ajit Singh
- No. 85 Hypotheses about Mergers  
Alan Hughes, Dennis C. Mueller and Ajit Singh
- No. 86 Competition Policy in the 1980s: The Implications of the International Merger Wave  
Alan Hughes, Dennis C. Mueller and Ajit Singh
- No. 87 The Causes and Effects of Takeovers in the United Kingdom: an Empirical Investigation for the Late 1960's at the Microeconomic Level  
Andrew Cosh, Alan Hughes and Ajit Singh

DAE SOCIOLOGY REPRINTS

The following title was added to the series during the year.

- No. 10 The Role of Contradictions in Modern Theories of Social Stratification  
J. Holmwood and A. Stewart

III OTHER ACTIVITIES

DAE LIBRARY

During the period October 1983 to September 1984 the Department received 153 periodicals: 16 of these were in exchange for the Department's Reprint Series and 51 were gifts, the remainder being purchased. The library has acquired 134 books, 987 pamphlets and 305 government publications.

COMPUTING UNIT

During the period from October 1983 to September 1984 the Computing Unit have successfully transferred the Department's programs and files to the MVS-based operating system which was introduced in June 1984. Advantage has been taken of the opportunity to rewrite and extend some of the programs concerned.

Diana Day, Mavis Barnett and Shirley Seal have continued to provide computing assistance to the Department projects, in particular by providing graphs using the flat-bed plotter and associated programs; Bobbie Coe has acted as the main source of advice and help to Department staff generally.

## TEACHING FOR THE UNIVERSITY

During the year members of the Research Staff gave lectures for Tripos examination courses in the following fields:

- Series production and technical change
- International economics
- Applied macro-economics
- Industrial relations and the economics of the labour market
- Current economic problems
- Women in the labour market
- Competition, growth and structural change
- Growth in the world economy
- Industrial management
- Statistics
- Theory of statistics

They also gave courses for the M.Phil. in Economics, and supervised and examined post-graduate students for the degree of PhD in this and other Universities

## TEACHING FOR THE COLLEGES

Nearly all members of the Research staff also undertook undergraduate teaching for the Colleges. It was estimated by the Working Party on the Economics Tripos that Department members carried out 35 per cent of all such teaching. Ten members were Directors of Studies in Economics and two in Social and Political Sciences.

## SERVICE ON UNIVERSITY COMMITTEES

Members of the Department's research staff served on the following University Committees during the year:

- The Committee of Management of the Department, and its Appointments Sub-Committee
- The Faculty Board of Economics and Politics, and its sub-committees dealing with Appointments; Lecture List and Future Needs; Admissions
- The Social and Political Sciences Management Committee

## IV - FINANCE

During the financial year (1 August 1983 to 31 July 1984) the Department's annual expenditure was £677,076 compared with £637,728 in 1982/83. 89.9% of the expenditure was on stipends, salaries and wages.

The University Grant rose from £225,135 in 1982/3 to £237,889 in 1983/84, an increase of £12,754. Expenditure went up by £39,348.

The following are the principal new or additional payments by outside bodies which have been accepted during the year for payment over various periods:

	£
Economic and Social Research Council	435,067
Leverhulme Trust	57,050
	<u>492,117</u>

V STAFF

RESEARCH STAFF

DIRECTOR Professor W.A.H. Godley, MA (Cantab)  
MA (Oxon), Fellow of King's College

ASSISTANT B.M. Deakin, MA (Cantab), MA (Oxon),  
DIRECTOR Fellow of Magdalene College

SENIOR RESEARCH OFFICERS

Swami Amrit Terry (T.S. Barker), MA (Edinburgh), MA PhD  
(Cantab), Downing College

R.M. Blackburn, MA (Cantab), PhD (Liverpool), Fellow of  
Clare College, Head of Sociological Research

V.K. Borooah, MA (Bombay), MA (Southampton), MA  
(Cantab), PhD (Southampton), Fellow of Queens' College

K.J. Coutts, MA (Cantab), Fellow of Selwyn College

T.F. Cripps, BA (Cantab), Fellow of Darwin College

G.H. Gudgin, BA (London), BA (Open University), MA  
(Cantab), PhD (Leicester), Fellow of Selwyn College

B.C. Moore, MA (Cantab), MSc (Econ) (London), Fellow of  
Downing College

M. Panic, MA (Cantab), MA (Econ) (Sheffield), PhD (Cantab)  
(under Special Regulations)

A.W.A. Peterson, MA (Cantab), MA (Essex), PhD (Cantab),  
Fellow of Christ's College

K. Prandy, BA (Open University), BSc (Econ) (London), MA  
(Cantab), PhD (Liverpool), Fellow of Fitzwilliam College

C.F. Pratten, BA (Bristol), MA (Cantab), Fellow of Trinity Hall

J. Rhodes, BA (Liverpool), MA (Cantab), Fellow of Wolfson  
College

A. Stewart, MA (Cantab), BSc (Econ) (London), Emmanuel  
College

R.J. Tarling, MA (Cantab), Fellow of St. Catharine's College

D.A. Vines, BA (Melbourne), MA (Cantab), Fellow of  
Pembroke College

T.S. Ward, BA (Wales) MA (Cantab), MA (Econ)  
(Manchester), Fellow of Fitzwilliam College

S.F. Wilkinson, MA (Cantab), Fellow of Girton College

RESEARCH OFFICERS

I.G. Begg, BA (Strathclyde), MA (Cantab), Darwin College

A.W. Goudie, MA (Cantab), Fellow of Robinson College

M.S. Kumar, PhD (Cantab), Fellow of Sidney Sussex College

M.A. Landesmann, MA (Vienna), Fellow of Girton College

R.G. Pierse, BA (Oxon)

J.C. Rubery, MA (Cantab), Fellow of New Hall

JUNIOR RESEARCH OFFICERS

D.J.H. Canning, BA (Belfast), PhD (Cantab), Darwin College

M. Kitson, BA (Cantab)

A.J. Snell, BSc (Econ) (Hull)

J.P. Thomas, BA (Cantab), DPhil (Oxon), St. John's College

M.R. Weale, MA (Cantab), Fellow of Clare College

T.S. Worrall, BA (Econ), (Liverpool), MA (Econ) Essex, PhD  
(Econ) (Liverpool)

PUBLICATIONS SECRETARY

Mrs A. Newton, MA (Cantab)

RESEARCH ASSOCIATES

Dr A.D. Cosh, Department of Engineering, Fellow of Queens'  
College

Professor F.H. Hahn, Faculty of Economics and Politics,  
Fellow of Churchill College

Dr E. Garnsey

Mr A. Hughes, Faculty of Economics and Politics, Fellow of Sidney Sussex College

Dr G. Hughes, Faculty of Economics and Politics, Fellow of Churchill College

Professor the Lord Kaldor, Fellow of King's College

Professor T.J. Kehoe, Massachusetts Institute of Technology

Mr T. Lawson, Faculty of Economics and Politics

Professor J. Meade, Fellow of Christ's College

Dr B. McCormick, University of Southampton

Dr G. Meeks, Faculty of Economics and Politics, Queens' College

Dr J.G. Meeks

Dr D. Newbery, Faculty of Economics and Politics, Fellow of Churchill College

Dr P. Nolan, Faculty of Economics and Politics, Fellow of Jesus College

Dr H. Pesaran, Faculty of Economics and Politics, Fellow of Trinity College

Mr P. Petit, CEPREMAP, Paris

Dr N.E. Savin, Faculty of Economics and Politics, Fellow of Trinity College

Dr A. Singh, Faculty of Economics and Politics, Fellow of Queens' College

#### VISITING SCHOLARS, OCTOBER 1983 - SEPTEMBER 1984

Dr O. Bjerkholt, Central Bureau of Statistics, Oslo, Norway

Mrs V.K. Borooah, University of Southampton

Mr P. Cuneo, INSEE, France

Mrs E. Desai, Institute of Applied Manpower Studies, Dehli, India

Mr E. D'Oliveira, Coimbra University, Portugal

Dr T. Erhart, National Planning Office, Budapest, Hungary

Mr P. Jaszi, American University, Washington, DC, USA

Mr T. Mackay, City of London Polytechnic

Dr L. Miller-Bernal, Wells College, Aurora, New York, USA

Mr E. Offerdal, Central Bureau of Statistics, Oslo, Norway

Professor L. Osberg, Dalhousie University, Halifax, Nova Scotia, Canada

A. Pichierri, Torino University, Italy

Professor B.P. Philpott, Victoria University of Wellington, New Zealand

Mr G. Rampa, University of Pavia, Italy

Professor J. Rattsø, Trondheim University, Norway

Mr G. Serafetinidis, Panteios School of Political Science, Athens, Greece

Mr S. Stroem, University of Oslo, Norway

Mr G. Sziraczki, Karl Marx University, Budapest, Hungary

#### ASSISTANT STAFF, OCTOBER 1983 - SEPTEMBER 1984

Mrs I. Bailey

Miss A. Mason

Mrs M.J. Barnett

Miss S. Metcalfe

Mr E.D. Bougourd

Mrs S. Moore

Ms M.V. Clark

Mrs O.E. Peppercorn

Mrs R. Coe

Miss S.D. Seal

Miss D.M. Day

Mrs E.L. Scott

Mrs S.L. Douglas

Ms S. Sibson-Turnbull

Ms T.C. Gurner

Mr R. Smith

Miss C.A. Hudson

Mrs B.P. Watson

Mrs M. Martin

Mrs K.M. Wilson