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UNIVERSITY OF CAMBRIDGE

DEPARTMENT OF APPLIED ECONOMICS

T W E N T Y F I R S T 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

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Committee of Management, January 1981

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T W E N T Y F I R S T R E P O R T
O F T H E
D E P A R T M E N T O F A P P L I E D E C O N O M I C S
(covering the year October 1980 to September 1981)

I R E S E A R C H A C T I V I T I E S

This section outlines the work done in 1980-81 on the research projects being conducted in the Department.

ECONOMICS

GROWTH AND FLUCTUATIONS IN THE BRITISH ECONOMY:
PROJECTIONS FOR PLANNING

Membership of the project

The project is under the direction of Professor Sir Richard Stone and Dr Barker.

Research officers:	Terry Barker Vani Borooah Michael Landesmann (who joined in October 1980) Tony Lawson Robert Owen (who joined in June 1981) William Peterson Rick van der Ploeg Martin Weale
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Research associates:	David Livesey, Department of Engineering, University of Cambridge Geoffrey Meeks, Secretary to the Degree Committee, Faculty of Economics and Politics Andrew Goudie, Junior Research Officer Hervey Gibson, Managing Director, Cambridge Econometrics
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SSRC Senior Research Fellow:	Peter Crossman, James Cook University of North Queensland, Australia
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Visitors to the Project:

S. Tveitereid, Central Bureau of Statistics,
Oslo, Norway

S. Brodersen, Central Statistical Office,
Copenhagen, Denmark

Dr. L. Tomaszewicz, University of Lodz, Poland

Professor G. Tattara, University of Venice,
Italy

Dr. D. Stratil and J. Linkes, Computing
Research Centre, Bratislava,
Czechoslovakia

G. Pireddu, Scuola Superiore E. Mattei, Milan,
Italy

The organisation of the research

The research activity of the project is organised around a model of the British economy which is designed to simulate the operation of the British economy for the purpose of economic management and control. 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.

Terry Barker	Co-ordination of research; imports, complete model simulations
Martin Weale	Industrial pricing functions
Vani Borooah	Financial flows in MDM; income and expenditure accounts; complete model simulations
Tony Lawson	Wage equations; expectational variables in the model; technological change
Michael Landesmann	Investment and export functions
Robert Owen	Exchange rates and financial flows with the rest of the world.
William Peterson	Investment and employment functions; energy submodel; complete model simulations
Rick van der Ploeg	Control applications of the model; complete model simulations; condensed form solution packages

Progress of the research

During the year we received on the 1974 and 1975 input-output tables consistent with the 1980 National Income and Expenditure and the CSO's Production Accounts. These data are the main sources for the data base which has been partly constructed for the next version of the project's model (MDM5). Individual members of the project have worked on the data within their areas of responsibility and re-estimated most of the equations of the model. These are being solved simultaneously using IDIOM, a special package designed for large-scale multi-sectoral models: this work will continue well into the next academic year.

We are also using the data to construct a complete System of National Accounts (SNA) for the UK in 1975, both unbalanced and with various residual errors allocated to measures of reliability. This work is in progress and we expect to extend it to cover the period 1954-1979.

The main progress with the existing operational version of the model (MDM4) has been the inclusion of price equations (replacing profit share equations); this was completed in June 1981 in time for the projections presented at our annual conference.

The main applications of the model to questions of economic policy during the year have been reported in conference papers and publications. The main ones are: application of optimising techniques; the effect of North Sea oil on the UK; comparing employment policies; differential energy taxes; and the effects of curing inflation.

Other activities

The project has continued the development of the software packages IDIOM and MREG for solving and estimating large scale models. The project has run a full programme of seminars and workshops during the term in Cambridge and in addition project members have given seminars to other groups in Cambridge and elsewhere.

Publications, papers and conferences

The main results of the research were previously published in the series A Programme for Growth (London, Chapman and Hall) in which twelve volumes appeared. This series has been replaced by a new series, Cambridge Studies in Applied Econometrics, in which three books have appeared: Models and Projections of Demand in Post-War Britain by Angus Deaton (1975), Economic Structure and Policy by members of the project, edited by Terence Barker (1976) and Public Policy and the Corporation by Mervyn King (1977). The series has been taken over by Cambridge University Press and a further volume, No.4 in the series, An Econometric Model of the Export Sector by Alan Winters was published in 1981.

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

Barker, Terry, Vani Borooah, Rick van der Ploeg and Alan Winters (1980). The Cambridge Multisectoral Dynamic Model: an instrument for for national economic policy analysis, Journal of Policy Modelling, Vol. 2, No. 3, pp. 319-344

Barker, Terry, William Peterson and Alan Winters (forthcoming). The Cambridge multisectoral dynamic model: description and analysis. To be published in a volume edited by E. Fontela, ASEPELT

Barker, Terry and Vladimiro Brailovsky (editors) (1981). Oil or Industry? Energy, Industrialisation and Economic Policy: Issues in Canada, Mexico, Netherlands, Norway and the United Kingdom, Academic Press, November

Barker, Terry (1980). The economic consequences of monetarism: a Keynesian view of the British economy 1980-90. Cambridge Journal of Economics, Vol. 4, pp. 319-336

Barker, T.S. (1981A). A priori constraints and the analysis of British imports, in R Courbis (ed.) International Trade and Multicountry Models, Paris, Economica

Barker, Terry (1981B). An international comparison of energy resources and prices. De-industrialisation, North Sea oil and an investment strategy for the United Kingdom. Policy issues in energy-rich economies. Chapters 2, 8 and 12 in Oil or Industry? (see above)

Barker, Terry (1981C). Depletion policy and the de-industrialisation of the UK economy. Energy Economics, Vol. 3, No. 2, April, pp. 71-82

Barker, Terry (1981D). Projections of economic structure using a large-scale econometric model, Futures, Vol. 13 no. 6, December, pp. 458-467

Barker, Terry (1982). Long-term recovery: a return to full employment? Lloyds Bank Review, 143, January, pp. 19-35

Borooah, V.K. (forthcoming). Financial influences in the housing market: an econometric study for the UK, in R. Courbis (ed.), Volume of proceedings of a Conference on International and Financial Models, Rome 1979

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

Borooah, V.K. and F. van der Ploeg (forthcoming A). British government popularity and economic performance: a comment, Economic Journal

Borooah, V.K. and F. van der Ploeg (forthcoming B). Analyses of the Cambridge multisectoral dynamic model, in J.J. Sztaudynger (ed.), Problems of Building and Estimating Large Econometric Models, Amsterdam, North-Holland

Landesmann, M. and C. Karsch (forthcoming). The development of Vienna's industrial base. (Manuscript for a book to be published in Vienna: in German, completed December 1980)

Landesmann, M. (1980). Industrial efficiency and changes in the Operation of the production systems. Doctoral dissertation, University of Vienna, December

Lawson, T. (1981A). Paternalism and labour market segmentation theory, in F. Wilkinson (ed.), Dynamics of Labour Market Segmentation, Academic Press

Lawson, T. (1981B). Keynesian modelling and the rational expectations critique, Cambridge Journal of Economics, December 1981

Owen, Robert, (forthcoming). Inter-industry determinants of foreign direct investment: a Canadian perspective. Forthcoming in Alan Rugman (ed.) New Perspective on the Multinational Enterprise, 1982

Peterson, A.W.A. (1981). Capital goods and technical change: some theoretical problems, in T. Puu and S. Wibe (eds.), Technical Progress, Macmillan

Ploeg, F. van der, (forthcoming A). Reliability and the adjustment of sequences of large economic account matrices, Journal of the Royal Statistical Society, Series (A).

Ploeg, F. van der, (forthcoming B). The industrial implications of an optimal reflationary mix for the British economy. Applied Economics

Stone, J.R.N. (1980A). Random shocks in a simple growth model

Stone, J.R.N. (1981A). Balancing the national accounts: Britain, 1969-1979

Stone, J.R.N. (1981B). The international harmonisation of national income accounts

Stone, J.R.N. (1981C). Life profiles and transition matrices in organising socio-demographic data

Stone, J.R.B. (1981D). Working with what we have: how can existing data be used in the construction and analysis of socio-demographic matrices?

Weale, M.R. and F. van der Ploeg, (1981). Conflicts over North Sea Oil Profits and macro-economic Policy, in R.F. Drenick and F. Kozin (eds.), System modeling and Optimization, Springer-Verlag

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

VIIth Conference on the Problems of Building and estimating large models, Polanica Zdroj, Poland, December 1981

Vani Borooah . . . An Experiment in Forecasting using the Kalman Filter Analysis of the Cambridge Multisectoral Dynamic Model

CJE Conference on the New Orthodoxy, Sidney Sussex College, Cambridge, June 1981

Terry Barker The new orthodoxy in applied economics: the case of North Sea oil and its effects on the United Kingdom economy

Third Economics and Control Conference, Lyngby, Denmark, June 1981

A.W.A. Peterson Software support for multisectoral dynamic models of national economies
T.S. Barker and
F. van der Ploeg

F. van der Ploeg Government policy, real wage resistance and the resolution of conflict

CGP/CE Conference on Industry and the Economy: Planning for Recovery,

Trinity College, July 1981

Terry Barker Long-term recovery: a return to full employment?

William Peterson Curing inflation

Rick van der Ploeg Economic properties of MDM
Designing economic policies for recovery

Martin Weale Know your print-out
Prices and profits
Differential energy taxation

European Meeting of the Econometric Society, Amsterdam, August 1981

V.K. Borooah and F. van der Ploeg The changing criteria of economic success: performance and popularity in British politics

10th IFIP Conference on System Modelling and Optimisation, New York, September 1981

F. van der Ploeg Conflicts over North Sea oil profits and macro-economic policy

Fourth Anglo-French Colloquium on Political Economy, Oxford September 1981

A.W.A. Peterson Some lessons from disaggregated econometric model-building

The following seminars have been given:

Terry Barker 'UK import functions: a disaggregated approach'
(given to the Cambridge Growth Project, May 1980 and the SSRC Economic Model Study Group, December 1980)

'Depletion policy and de-industrialisation in the UK'
(given to Energy Economics Group, University of Surrey, Faculty of Economics seminar at Queens' College, Cambridge, November 1980)

'Planning for industrialisation in Mexico'
(given to the Energy Research Group, Cavendish Laboratory, Cambridge, November 1980)

'De-industrialisation, North Sea oil and an investment strategy for the UK 1980-90'
(given at Cambridge Econometrics meeting

London, November 1980)

- Michael Landesmann 'Stockbuilding equations'
(given to the Cambridge Growth Project,
May 1981)
- Tony Lawson 'Disaggregated wage equations'
(given to the Cambridge Growth Project,
May 1981)
- 'Aggregate wage equations'
(given to the Cambridge Growth Project,
May 1981)
- 'New estimates of the UK consumption function'
(given to the Cambridge Growth Project,
February and November 1980)
- Robert Owen 'A two-country disequilibrium model of
international finance'
(given to seminars at the LSE, University of
Warwick, University of Birmingham and Cambridge)
- William Peterson 'A comparison of two dynamic input-output models:
INFORUM and MDM'
(given to the Cambridge Growth Project,
November 1980)
- Rick van der Ploeg 'Optimal planning, bargaining and rational
expectations'
(given to the Cambridge Growth Project,
October 1980 and the Engineering Department,
February 1981)
- 'Government policy, real wage resistance and
the resolution of conflict'
(given at Oxford University, January 1981
and the Cavendish Laboratory, May 1981)
- Martin Weale 'Price formation in UK manufacturing industry'
(given to the Cambridge Growth Project,
February 1981)

Growth Project Papers (GPP)

- 489 The determination of UK wholesale prices of manufacturing
output - Martin Weale.
- 490 The economic consequences of monetarism: a Keynesian view
of the British economy 1980-90 - Terry Barker.
- 491 Revisions to the national accounts - Martin Weale.
- 492 Medium-term planning with a multisectoral dynamic model

of the UK economy - Rick van der Ploeg.

- 493 The taxation of stock appreciation - Martin Weale.
- 494 Government policy, real wage resistance and the
resolution of conflict - Rick van der Ploeg.
- 495 Rates of return in backward agricultural economies -
Martin Weale.
- 496 British government popularity and economic performance:
a comment - Vani Borooah and Rick van der Ploeg.
- 497 The changing criteria of economic success: performance
and popularity in British politics - Vani Borooah and
Rick van der Ploeg.
- 498 Paternalism and labour market segmentation theory -
Tony Lawson.
- 499 Taxation, profits and inflation - Martin Weale.
- 500 The root-locus for predator-prey and neo-classical models
of cyclical growth - Rick van der Ploeg.
- 501 What is happening to Government spending? - Terry Barker.
- 502 Software support for dynamic models of national economies -
William Peterson, Terry Barker and Rick van der Ploeg.
- 503 Disaggregated consumers' expenditure in MDM5 - Vani
Borooah.
- 504 The new orthodoxy in applied economics: the case of
North Sea oil and its effects on the United Kingdom
economy - Terry Barker.
- 505 Building societies and the market for new private
dwellings: structure and estimates - Vani Borooah.
- 506 Long-term recovery: a return to full employment? -
Terry Barker.
- 507 Projections of economic structure using a large-scale
econometric model - Terry Barker.
- 508 Keynesian model building and the rational expectations
critique - Tony Lawson.
- 509 Incomes policy and the real wage resistance hypothesis:
econometric evidence for the UK, 1955-1979 - Tony Lawson.

Sam Unit Papers (SUP)

- 91a Protective duties and the temporary charge on imports for MDM5 1954-1979 - Terry Barker.
- 92 Sectoral flow of funds accounts - Martin Weale.
- 93 Income from employment - William Peterson.
- 94 Flow of funds data in MDM: sources and definitions - Vani Borooah.
- 95 MDM5 data from the 1974 input-output tables and classification converters - Terry Barker.
- 96 Gross fixed capital formation 1954-1979 - William Peterson.
- 97 Gross output and normal output for the periods 1954-79 - Martin Weale.
- 98 Profits - Martin Weale.
- 99 Indirect taxes - Martin Weale.
- 100 Sectoral flow of funds accounts - Martin Weale.
- 101 A system of national accounts for the Cambridge Growth Project - Terry Barker, Rick van der Ploeg and Martin Weale.
- 102 The accounting prices - Martin Weale.
- 103 Industry taxes - 2 VAT - Martin Weale.
- 104 Interest rates in MDM - Vani Borooah.
- 105 Balance sheet data for MDM - Vani Borooah.

Rocket Programme Papers (RPP)

- 75 Index of production tables for Industrial Subscription Service Reports - Alice Buchanan.
- 76 Consumer spending behaviour in the UK - Tony Lawson
- 77 MDM45 - Terry Barker.
- 78 The implementation of the price equations - Martin Weale.
- 79 Interest payments on public sector debt - Vani Borooah.

THE EFFECTS OF ECONOMIC POLICY

This programme has continued in one form or another for nearly eleven years, financed mainly by the Social Science Research Council, and is undertaken by the dozen or so members of the Cambridge Economic Policy Group working on the programme and related projects under the direction of Wynne Godley. The programme has led to the development of a computer model of the UK economy and the publication of annual Economic Policy Reviews as well as to a large number of research papers and publications on particular issues.

In 1980/81 the major part of the work was financed under a new four-year programme (agreed with the SSRC) which aims to develop an integrated analysis of economic policy extended to the international level within the European Community and to the regional and sub-regional level within the UK and other countries. The programme is directed at what seem likely to be the key economic problems facing Britain and the Community in the 1980s for which no empirically-based system of analysis at present exists. The main task is one of constructing appropriate accounting systems and macro-economic models to provide a framework within which particular policy issues and specific pieces of research can be evaluated.

(a) World economy

Our December, 1980 Economic Policy Review published an improved model of the world economy with a full analysis of the macro-economic impact of energy problems. This has attracted considerable interest, including that of the Centre d'Etudes Prospectives et d'Informations Internationales in Paris where a project is being started to further develop the analysis of financial issues, building on our framework. Our study of the global economy has given us a good foundation for assessing problems of the European Community as a whole.

(b) The European Community

Our analysis of the Community and its member countries, published as a Policy Review in December 1981. The interpretation of policy issues was very much aided by the contacts and occasional seminars we have held with Italian, French and German economists (including a meeting at Palermo in September 1980 and one to be held near Rome in September 1981). We have had a visiting German student during the past year and one of our French colleagues will be working here for the academic year 1981/2.

Several members of the group have also participated in study groups and meetings at Brussels, giving us a reasonably good knowledge of work done by Community institutions.

(c) National policy

We have continued to participate in the national policy debate and to use our model of the UK economy to monitor the extraordinary developments of the past two years which have provided a strong test of the validity of pre-existing assumptions.

(d) Regional analysis

Following publication of a Policy Review in July 1980 devoted to regional issues and containing a provisional set of historical accounts, we have continued work on labour market issues and are considering how best to establish a formal regional-national model. We are also collaborating with an Italian group who are aiming to produce parallel accounts for the regions of Italy.

(e) Software

We have been trying out various approaches to the development of improved computer software which would make the implementation of

our quantitative methods easier and more widely accessible. During the past year we have concentrated on two projects:

(i) a comprehensive 'package' for implementing national policy models, including construction of a databank, time-series estimation and examination of 'goodness of fit', definition and simulation of a model, and analytic tabulation. The package, now nearly complete, works from largely verbal and algebraic user input and provides for full documentation of the model being constructed. It may be useful to other economists interested in establishing their own simulation models and we shall seek advice in due course on how best to make it generally available. The package has been designed in such a way that it should be possible to extend it - e.g. to include a 'regional' dimension or to process quarterly instead of annual data.

(ii) a general multi-dimensional data processing package. This is a longer-term project for which we are preparing more basic and abstract software. The intention is to implement a convenient general language for data manipulation within which more restricted special-purpose facilities could be implemented as necessary for particular research applications.

Members of the Group:

Michael Anyadike-Danes
(joined October 1980)

Graham Gudgin

Iain Begg

Barry Moore

Kenneth Coutts

John Rhodes

Francis Cripps

Roger Tarling

Wynne Godley

Terry Ward

Frank Wilkinson

1. The effects of the abolition of wages councils

The manuscript for a DAE Occasional Paper based on this project has now been prepared and will be published by the Cambridge University Press in 1982. The title will be: Labour market structure, industrial organisation and low pay.

2. The determinants of informal payment structures

This is a two-year project which started in January 1980, financed by the Department of Employment. The research staff involved are Frank Wilkinson, Christine Graig and Jill Rubery, and Elizabeth Garnsey who is retained as a consultant.

Aim

The aim is to explore the relationship between workforce characteristics, the structural constraints within which firms operate, and the development of payment structures. The emphasis is on the employment of women in small firms which tend not to have formalised payment systems:

Background

The Department of Employment's interest arises from recent research into the implementation of the Equal Pay and Sex Discrimination Acts, which has shown that sex differences are still widespread, and that the overall pay differential between men and women began to widen after an initial narrowing when the Acts first became effective. The Department of Employment wishes to find explanations of these differences in terms of the factors which influence the structure and level of payment systems in firms.

Our recently completed study of manual workers in ex-wages council industries provided a good deal of evidence relevant to labour market analysis. It showed that sex differentiation cannot be explained by prejudice alone, but that industrial structure, product market conditions and technology are all important determinants of the structure and level of payment systems, and that the sex composition of the workforce may of itself influence the skill status of jobs, and systems of work organisation and the type of payment system. In this project we aim to explore these relationships more systematically in order to try and identify the relative importance of the various factors, and to cover white collar jobs as well as blue collar, in both manufacturing and service industries. We are concentrating the enquiry on small firms and establishments because these are much more likely than large firms to have informal, non-job evaluated payment structures, and it is in this area that information is most lacking.

Scope of the enquiry

The main work involves interviewing employers in firms in four manufacturing and two service industries. The manufacturing industries are footwear, general printing, plastics processing and electronics. These provide a range of technologies from traditional to advanced, and a range of methods of wage determination from highly organised collective bargaining to entirely local rate-fixing by management. All the industries employ a significant proportion of women, and cover a range of different occupations and skills.

The two service industries are Building Societies and retail pharmacy. The latter industry was substituted for retail food distribution with the Department of Employment's approval as it was felt that retail pharmacy would be better than food distribution in providing interesting examples of different types and levels of skill, and would also be less dominated by family-only firms in the small establishment sector.

The project also included a pilot survey of employees in a small number of case-study firms in three of the manufacturing industries. This has provided information on how employees view the content of their jobs and the structure of pay and working arrangements. The aim of the survey was to provide some check on the information provided by employers, and to identify areas for future research.

Progress

Over 120 interviews with employers have now been completed leaving about 20 more interviews, the majority in retail pharmacy, to finish the fieldwork. The interview survey of employees has been completed. Proposals for the structure of the final report have been submitted to the Department of Employment and accepted by them. Each industry study will be analysed separately and form a chapter of the final report. A final section will draw together the results from the separate industries and discuss the importance of industrial characteristics, collective bargaining organisation and local labour market conditions in determining payment structures, with particular emphasis on employment opportunities for women. The employees' survey will be written up separately as a series of case-studies, and the information will also be drawn upon in writing the main report.

Work is already in progress on preparing two of the industry chapters and we hope to submit three to the Department of Employment by the end of December, together with the employees' survey report. The remaining three industry chapters and the final section to the report will be submitted by the end of March 1982. This time-table has been discussed and agreed with the Department of Employment.

In September a preliminary paper on 'Strategies towards the employment of women', based on the research project, was presented to the third Meeting of the International Working Party on Labour

Market Segmentation in Modena, Italy.

3. International Working Party on Labour Market Segmentation

Steering Committee Members: Jill Rubery, Roger Tarling,
Frank Wilkinson.

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

1. Frank Wilkinson edited the papers from the Berlin conference and these are to be published by Academic Press in November 1981 in a volume entitled 'The Dynamics of Labour Market Segmentation'. One paper by Roger Tarling, one by Jill Rubery and Frank Wilkinson, one by Tony Lawson and the introduction by Frank Wilkinson are included in the volume.

2. The material for the EEC funded project on European comparisons of Labour market segmentation based on industry case-studies has been assembled, and amounts to over 20 case study reports. A meeting of the steering committee was held in Brussels in April to discuss the implications of the research and the structure of the final report.

3. Professor Sebastiano Brusco from Modena University visited Cambridge in January and gave two seminars, and Jill Rubery visited Modena in April to give a seminar.

4. Members of the International Working Party attended and gave papers at the EEC conference on Capital, technology and employment at Pont-a-Mousson, France in September. Roger Tarling was a member of the steering committee and Frank Wilkinson gave a paper.

5. The Third meeting of the International Working Party on Labour Market Segmentation was held in Modena, Italy in September, funded by the regional government and by the US German Marshall Fund. The theme for the conference was: Strategies in the labour market;

workers, employers and the state. The papers are being collected together and it is hoped to publish a collection of the papers in 1982.

Seminars and Conferences

Jill Rubery presented a paper on: 'New development in labour market segmentation theory at:

- 1) the Faculty of Economics, University of Modena, Italy, April 1981
- 2) the British Sociological Association study group on labour markets, June 1981

Jill Rubery presented a paper on 'Low pay in Britain' at the Faculty of Statistics, University of Padua, April 1981

Jane Humphries and Jill Rubery presented a paper on 'Do we need a supply-side theory of the labour market' to the Cambridge Journal of Economics conference on the New Orthodoxy, Cambridge, June 1981

Christine Craig, Elizabeth Garnsey and Jill Rubery presented a paper on 'Strategies towards the employment of women' at the Third Meeting of the International Working Party on Labour Market Segmentation, Modena, Italy, September 1981

Jill Rubery and Roger Tarling prepared a paper on 'Women in the recession' for the second Socialist Economic Review conference, September 1981

Frank Wilkinson presented a paper on 'Scale of production, technical change and employment' at an EEC conference on Technology, Capital and Employment, Pont-a-Mousson, France, September 1981

Publications

C. Craig, J. Rubery, R. Tarling, F. Wilkinson:

Abolition and After: the Jute Wages Council, Department of Employment Research Paper No. 15

Abolition and After: the Cutlery Wages Council, Department of Employment Research Paper No. 18

F. Wilkinson, (ed).

The Dynamics of Labour Market Segmentation, Academic Press, 1981

including: Introduction by Frank Wilkinson.

'Outwork and segmented labour markets' by Jill Rubery and Frank Wilkinson

'The Relationship between employment and output: where does segmentation theory lead us?' by Roger Tarling

R. Tarling

'Some thoughts on the adjustment process of the labour market' in Garonna, P. (ed) Disoccupazione e Pieno Impiego, Marsilio, Venezia.

LABOUR MARKETS IN DECLINING INNER CITY AREAS

Project members: Barry Moore and John Rhodes

The aims of this project were to investigate the causes of relatively high unemployment in the inner parts of the large conurbations in the UK and to consider the types of government policy which would be appropriate. The main approach was to construct labour market balance sheets for the inner city areas of the six large conurbations over the period 1951 to 1976 and to compare the outcome with that for other types of area - namely the outer city areas of the six conurbations, a group of smaller 'free-standing cities', smaller towns and rural areas and Great Britain as a whole. One conclusion is that high unemployment in inner city areas has arisen partly as a consequence of selective inward and outward migration which leaves a concentration of groups of people in inner city areas, such as the unskilled and immigrants, which suffer nationally from high unemployment rates. Another contributory cause has been the steady growth in commuting of people living outside the inner city to take up an increasing proportion of jobs in the inner city. Inner city residents have taken an increasing share of those growing occupations in inner cities associated with casual work, less stable employment, high turnover rates, and low skills in the service industries such as catering and hotels. Policies to combat high inner city unemployment would have to be designed very carefully indeed and directed specifically at the concentrations of unemployed residents in the inner city. General job creation would mainly provide more jobs for inward commuters.

The project started at the end of 1977 and the grant terminated in 1980. A first draft of a report summarising the methodology and results was completed in 1980. This report has been used extensively by the Department of Environment as part of their programme of research in Industry in the Inner City. A summary paper was present to a DOE conference held in Sunningdale in

December 1980. The results have also been presented at a Seminar at the LSE and to SSRC Urban and Regional Economics Workshop.

The work is now being written up for publication in two parts. The first part, of which a first draft is nearing completion, will take the form of an article which outlines what the inner city labour market problem is, what have been the contributory causes and what kinds of policy interventions would be appropriate in combating inner city unemployment. The second part will take the form of a Report, in the LSE Progress in Planning Series, which will present in detail the methodology used in constructing labour market balance sheets. Full details of the results will also be presented.

It was initially intended to publish this second article early in 1982 but it has now been decided to defer publication until the results of the 1981 Census of Population can be incorporated. There are good reasons for this decision. A major data problem was to update the Census of Population into the 1970s. This required reconciling Census data with Department of Employment data and estimating commuting flows from traffic survey information and other sources. The result was that our estimates for the 1970s, a critical period in the development of the inner city problem, are not sufficiently good to allow a confident diagnosis of the changing intensity of the inner city labour market problem. The 1981 Census will greatly help in this respect.

PRICING, EMPLOYMENT AND WAGES IN SERVICES

The final report on this project, by Mr. T.S. Ward with the aid of Professor R.R. Neild, was sent to the SSRC in the summer. The main findings related largely to retail pricing behaviour. In particular, it was found that a good explanation of retail price movements for the 8 commodity groups selected for study could be obtained from whole-sale price data, information about stock turnover and indirect tax changes and the assumption of a constant mark up. Neither changes in demand nor the level appeared to have any systematic effect on the distributive mark up for most of the product groups. The exceptions were domestic electrical appliances and TV and radio. So far as other aspects of the study are concerned, the conclusions reached were that the evidence - which cannot be regarded as entirely reliable - seems, firstly, to support the view that employment, and wage costs per unit of sales in distribution, adjusts to the margin available; secondly, broadly to confirm the Reddaway finding of significant gain in productivity following the imposition of SET, a gain which appears only partly to have been lost as SET was abolished; and thirdly, to indicate a pronounced rise in wages in distribution relative to those in manufacturing since the early 1970s, reflecting the narrowing of the pay differential between men and women, who are far more important in distribution than in manufacturing, as well as the greater sensitivity of manufacturing earnings to the state of the economy.

Other activities

Mr T.S. Ward continued as part-time specialist adviser to the Treasury and Civil Service Committee of the House of Commons in January 1980.

During the year, Mr Ward gave numerous talks on economic policy to academics, politicians, trade unionists and businessmen.

Publications

- T. Ward, 'The Case for an Import Control Strategy for the UK' Socialist Economic Review, 1981
- K. Coutts, R. Tarling, T. Ward and F. Wilkinson, 'The Economic Consequences of Mrs Thatcher', Cambridge Journal of Economics, Vol 5, No 1, March 1981
- T. Ward, 'The Chancellor's November 1980 Statement' in The Government's Economic Policy: Autumn Review, Second Report from the Treasury and Civil Service Committee, Session 1980-81
- T. Ward, 'The March 1981 Budget and Economic Prospects', in Fifth Report from the Treasury and Civil Service Committee, Session 1980-81

Work on this project, by B.M. Deakin and C.F. Pratten, was finished during the year, and the lengthy process of analysing the results and writing them up in a form suitable for publication undertaken. The principal aim of the research has been to estimate the various effects of the Temporary Employment Subsidy (TES) upon firms, industries and the economy in terms of output, productivity and employment.

The effects of the subsidy upon employment are estimated net; the different from the gross being various losses and leakages which occurred during the operation of TES. These losses take the form of (1) the 'deadweight' effect of supporting jobs which in the absence of TES would not have been lost; (2) the 'displacement' effect upon unsupported firms where jobs were lost due to the price and other market effects arising from the actions of supported firms; (3) the 'domino' effect, which in some cases followed the 'displacement' effect, and which was due to firms taking the subsidy because of the adverse effects on their sales of the market actions of supported firms. Offsetting such losses in part are effects which generate extra jobs in supported firms, suppliers and elsewhere in the economy via multiplier effects.

Studies have also been made of the macro-economic effects of TES upon the overseas, company, personal and government sectors of the economy. The cost of the subsidy to the government is calculated and the effect of such expenditure upon the economy is estimated so as to satisfy a balanced-budget condition.

The completed typescript was sent to the Cambridge University Press in June 1981, for publication in January 1982 as no 53 in the DAE Occasional Paper Series, Effects of the Temporary Employment Subsidy.

Project members: A. Hughes, M. Kumar and A. Singh,
Associate member: A.D. Cosh

1. Aims and methods of research

This research, sponsored by the SSRC, is concerned with the investigation of certain central issues in the analysis of the causes and effects of mergers. In this area the work being carried out provides, firstly, for an examination of a number of previously ignored empirical questions about the impact of management control upon the frequency and financial implications of merger (including the impact upon corporate profitability), and about the impact of merger upon managerial salaries and remuneration. Secondly, it provides for an analysis of the profitability effects of merger by all quoted companies (whether management controlled or not) which builds upon and extends the authors' previous work in this area. Finally, it investigates a fresh range of questions about the economic impact of merger which arise from an entirely new approach to the definition of economic efficiency. This approach emphasises the disequilibrium nature of the UK's economic position, and the necessity to define efficiency and assess the impact of mergers within that context. The development of this approach is of central importance in the assessment and evolution of an appropriate competition policy.

The study makes extensive use of data made available as a result of the Companies Act of 1967. This data relating in particular to the remuneration and shareholding interests of management, and the exports of quoted companies is now available over a sufficiently long span of years to make possible, for the first time, a systematic analysis of the issues outlined above.

2. Publications, working papers and conferences-

- M. Kumar, Do mergers reduce corporate investment? Evidence from United Kingdom experience, Cambridge Journal of Economics, June 1981
- M. Kumar, Profitability of Mergers. Mergers Project Working Paper 4
- M. Kumar, Size Acquisition and Exports. Mergers Project Working Paper 5
- A. Cosh and A. Hughes, Ownership, Control and Success of large firms revisited. Mergers Project Working Paper 6
- A. Cosh and A. Hughes, Mergers, economic performance and managerial control. Mergers Project Working Paper 7
- Mr. Hughes and Mr. Kumar presented a paper at a conference on the 'Impact of large firms on the European Economy' in Brussels in June 1981. Mr Kumar refereed a paper at the European Association's Conference in Basle in September 1981

IMPACT OF TRADE WITH THE DEVELOPING COUNTRIES ON THE UK ECONOMY

1. Aims of the Project

This research, by Dr A. Singh, forms a part of a wider project, sponsored by the United Nations Industrial Development Organisation in Vienna, on the impact of the industrialisation of the third world on the economies of the advanced countries. Research teams from France, the US, the UK, Belgium, the Netherlands, Austria, Switzerland, West Germany, Sweden and Austria are studying problems of structural adjustments in advanced economies as a result of trade and economic growth in developing countries.

Publications

- A. Singh, 'Industrialisation of the Third World, De-industrialisation in Advanced countries and the Structures of the World Economy', forthcoming in Proceedings of the VIIth Seminar on International Industrial Restructuring, UNIDO, Vienna, 1981.

COMPANY FINANCE AND PERFORMANCE

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

Associate member: J.G. Meeks

The project is a continuation of earlier research on the company sector at Cambridge, Edinburgh and Bristol. It aims have been to extend and develop a data bank of quoted companies' accounts; to use these accounts in modelling the financial decisions of individual companies; to incorporate these models in the Cambridge Growth Project's disaggregated model of the British economy; and to use the integrated models for forecasting and policy evaluation. The basic models were completed this year. Refinements of the models and their application to a number of policy questions are already underway as part of the new programme of research started in 1981 with finance from the Esmee Fairbairn Charitable Trust.

Papers published, accepted for publication or given to conferences during the year

- A.W. Goudie and G. Meeks, 'Medium-term projections of companies' financial flows', Accounting and Business Research, Autumn, 1981
- J.G. Meeks and G. Meeks, 'Profitability measures as indicators of post-merger performance', Journal of Industrial Economics, June 1981
- G. Meeks, 'Cash flow and investment', in Martin, (ed). The Economics of the Profits Crisis, HMSO, 1981
- A.W. Goudie and G. Meeks, 'Macroeconomic developments and individual companies', flows of funds', forthcoming in Omega
- J.G. Meeks and G. Meeks, 'The case for a tighter merger policy', Fiscal Studies, July 1981
- G. Meeks and M.V. Clark, 'The UK workforce of larger listed companies involved in merger and takeover', in Millward and McQueeney, ed. Company Takeovers, Management Organisation and Industrial Relations, HMSO, 1981

J.G. Meeks and G. Meeks, 'Post-merger performance and merger policy', paper given to SSRC Conference, Bristol, 1981

A.W. Goudie and G. Meeks, 'The exchange rate and company profitability', paper given to CGP/CE Conference, Cambridge, 1981

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

Project members: J.E. Meade and David Vines

The purpose of this project is to consider the administrative and economic feasibility (though not the political acceptability) of a two-pronged set of policies:-

- (1) monetary, budgetary, and foreign-exchange policies so designed as to ensure a steady but restrained rate of growth (e.g. at a 5-per-cent-per-annum rate) of the total of money demands for the goods and services produced in the UK; and
- (2) 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.

It is an essential feature of the proposal that these two sets of policies make up a single package and that one could not in fact operate set (1) without set (2) or set (2) without set (1). Nevertheless they do raise very different issues. Set (1) raises a number of specialised issues in macro-economic analysis ranging, for example, for the construction and use of a suitable dynamic control model of the UK economy to the administrative question how promptly and frequently a rate of tax (e.g. VAT) could be reasonably varied in order to influence expenditure on goods and services. Set (2) is centred on labour economics and is necessarily much more speculative in that it describes various conceivable changes in wage-fixing institutions.

All the work on Wage Fixing has been written up and a book by James Meade entitled Stagflation Volume 1: Wage Fixing is now in proof and will be published by Allen and Unwin on 21 January 1982.

The work on Demand Management will be completed by the end of 1981 and written up into a form suitable for publication as a book by mid 1982. The details of this work and the expected dates of its completion are given below.

1. Statistical problems in the choice of demand management target.

A draft statement is complete, and has been sent to Mr. Terry Burns, Chief Economic Advisor, HM Treasury. It is possible that the CSO may be able to provide more detailed information on this question, in which case this draft would need rewriting.

2. Administrative problems in the varying of tax rates.

Draft reports on this subject are complete.

3. Investigation of feedback control rules for demand management using a quarterly dynamic model.

The basic investigation of these rules is almost complete. This investigation is explained in the following three papers.

a) "Demand Management" by D. Vines. This discusses the reasons underlying the proposed policy-rules, and rests heavily upon J.E. Meade "Targets and Weapons for Domestic Stabilization and the Balance of Payments" It has been circulated within HM Treasury.

b) "The Design and Performance of New Keynesian Economic Policies" by D. Vines and J.M. Maciejowski. This discusses the latest results of our investigations, and was presented by David Vines at HM Treasury on 10 July 1981 and at a conference on the Money Study Group in Oxford on 22 September 1981.

c) "Decoupled Control of a Macroeconomic Model Using Frequency Domain Methods" by D. Vines and J.M. Maciejowski. In this paper the methods used for the investigations are discussed. It was presented at the 3rd Economics and Control Conference at Lyngby, Denmark, in June 1981, and is about to be submitted in revised form to the Journal of Economic Dynamics and Control.

4. There remain however two major problems with the investigation of feedback rules described above.

a) We have now obtained control rules which operate reasonably successfully, but it is essential to discover how robust they are and how effective they would remain if we made less optimistic assumptions about the unavoidable delays in applying the controls. We have done an exercise on this which suggests that there are further important problems to be investigated, but that the controllers can be made sufficiently robust.

b) We have a set of rules for wage fixing which lead to satisfactory results in promoting employment, but we have not yet properly investigated the extent to which these results would be worsened if in fact it was necessary to accept a less thoroughgoing reform of wage fixing institutions. We feel that it is essential to enquire how our present control rules would operate with a less satisfactory wage fixing equation.

Both these problems raise the question of whether and to what extent the control rules would need to be redesigned in the face of less optimistic basic technical work necessary is being done by Jan Maciejowski (The Nuffield Foundation have made a grant of £1000 to pay for Dr. Maciejowski's work on this exercise).

5. Our investigation of control rules has been carried out for the small model of the UK developed by David Vines using equations and parameter values taken from the UK Treasury model. But so far the rules have been developed by Dr Maciejowski on a black box linear representation of that model constructed using a newly developed model reduction algorithm. These rules have been partly checked on the actual small model, but it will be necessary to thoroughly try out their operation on that model. In order to do this they are being used to replay history over the 1970s and early 1980s so as to investigate their performance in the face of realistic shocks to the economy. This exercise is suggesting some necessary amendment of the control rules.

A COMPARISON OF LABOUR PRODUCTIVITY WITHIN INTERNATIONAL COMPANIES

This project by C. Pratten is financed by the Department of Industry. Its purpose is to update an earlier comparison of productivity within international companies, to find the current differences in productivity and the reasons for changes since the early 1970s.

Progress with the project has been hampered by the difficulty of getting information from companies. However nearly one hundred estimates of differences in productivity between operations in the UK, the USA, France and Germany have been obtained or companies have agreed to send them. The average results are that productivity in the UK was lower than in the other countries at the time the comparisons were made. The differences are more diverse than they were in the early 1970s and some UK operations have greatly improved productivity. Some still have much lower productivity.

At a meeting in July the Department of Industry asked for a report on the project by March 1982. Before completing this report a check is to be made on the changes in productivity at UK operations in 1981.

AN INDUSTRIAL ENQUIRY TO EXAMINE THE CAUSES OF DE-STOCKING MANUFACTURING AND RETAIL INDUSTRIES IN 1980

The purpose of this enquiry by C. Pratten is to find the causes of the sharp de-stocking during 1980. Companies which have de-stocked according to their published accounts are asked to provide information about changes in their stocks at an interview. So far forty companies have provided information or have agreed to do so. The response rate is about fifty per cent. The information obtained at interviews is to be supplemented by an analysis of company data from accounts of about five hundred companies, and national income data. The interviews so far indicate the project will produce estimates of the causes of the run down of stocks, and interesting comparisons of the way holding companies control subsidiary companies and stocks.

RISK, INFORMATION AND QUANTITY SIGNALS IN ECONOMICS

The aim of this SSRC project is to investigate both at a fairly general and abstract level and in particular contexts the consequences of 'missing markets' asymmetric information, market dependent information, quantity signals and constraints. The theory which is emerging has strikingly different implications than does the Walrasian one (on which, for instance, much Government and Monetarist policy is based). To get things right we have also aimed at an understanding of what really is required to make the traditional theory work ('no surplus', 'adding up' etc) in particular when the number of firms is taken as endogenous as is product variety. This work - which is rather different from the Core approach - has given us a satisfactory benchmark for our more ambitious departures from Arrow-Debreu.

The work of the project is written up in the series Economic Theory Discussion Papers in which there are 52 titles to date. During the year the following titles were added:

38. Labour Supply under Uncertainty with Piecewise Linear Tax Regimes
by S.M. Kanbur, October 1980.
39. Risk Taking and Taxation: an Alternative Perspective
by S.M. Kanbur. November 1980.
40. Optimal Commodity Stock-Piling Rules
by David M.G. Newbery and Joseph E. Stiglitz. March 1981.
41. The Theory of Incentives: an Overview
by Jean-Jacques Laffont and Eric Maskin. January 1981.
42. On the Possibility of Speculation under Rational Expectations
by Jean Tirole. May 1980, revised December 1980.
43. On the Fundamental Theorems of General Equilibrium
by Eric S. Maskin and Kevin W.S. Roberts. November 1980.
44. "Expected Utility" Analysis without the Independence Axiom
by Mark J. Machina. Revised April 1981.
45. Nash Bargaining and Incomplete Information
by Ken Binmore. February 1981.

46. "Rational" Decision Making versus "Rational" Decision Modelling?
by Mark J. Machina. June 1981.
47. A Stronger Characterization of Declining Risk Aversion
by Mark J. Machina. July 1981.
48. Implicit Contracts Under Asymmetric Information
by Sanford J. Grossman and Oliver D. Hart. February 1981
49. No Surplus in Large Economies
by Louis Makowski. January 1980.
50. Characterizing Perfectly Competitive Sequential Equilibria
by Louis Makowski. February 1980.
51. Two Essays on No Surplus Theory
by Louis Makowski. June 1980.
52. Competitive Stock Markets
by Louis Makowski. February 1981.

The main aim we have set ourselves is to take careful and rigorously argued steps away from the classical market theory in the hope of an eventual synthesis which can accommodate more features of the world than is at present the case.

Members of the DAE research staff: Dr M. Machina
Dr L. Makowski

Teaching Officers who participate
in the Project: Dr O.D. Hart
Professor F.H. Hahn
Dr S.M. Kanbur
Dr D.M.G. Newbery
Visitors: Professor K. Binmore
Professor E. Maskin

Individual Reports

Professor F.H. Hahn Large Survey Paper on "Stability" for the Handbook of Mathematical Economics (ed. Arrow and Intriligator). It is relevant to the Project, because one needs to study price changes without the auctioneer and because in disequilibrium agents are quantity constrained. It is clear that the existing literature provides no satisfactory theory of price adjustment and he proposes to study a

conjectural process where both prices and conjectures change during adjustment.

Conferences attended

December 1980: Institut de Mathématiques Economiques, Université de Dijon. Lecture given on 'Inflation and Sequence Economics'.

Project Papers delivered at University of Warwick, University of Oxford and Civil Service College.

Dr. O.D. Hart

1. Articles and Books resulting from the research

2. Implicit Contracts, Moral Hazard, and Unemployment (with S. Grossman), American Economic Review, Papers and Proceedings, May 1981.

3. Visits abroad in connection with the Project

1 October - 31 December 1980 spent at the University of Pennsylvania, part of which time was spent on research work connected with the Project.

Dr. L. Makowski

1. Articles and Books resulting from the research

A General Equilibrium Theory of Organization (revised November 1980), to appear in Markets, Organization and Quality of Life, J.E. Stiglitz and U. Pagano (eds.)

"Some Simple Macro examples" (work in progress)

Dr. D.G.M. Newbery and J.E. Stiglitz

The Theory of Commodity Price Stabilisation: A Study in the Economics of Risk, OUP.

TESTING FOR UNIT ROOTS OF STOCHASTIC DIFFERENCE EQUATIONS

Project Members

N.E. Savin

G.B.A. Evans

A. Drobný

The hypothesis that economic agents have rational expectations has played a key role in the development of recent macroeconomic models. Such models have produced policy implications which are

different from those of the traditional Keynesian models. Hence it is of interest to test the rational expectations hypothesis. This hypothesis does not assume the model is stable. In practice, testing this hypothesis often involves testing whether certain economic variables follow a random walk, i.e. if certain stochastic difference equations have unit roots. By contrast the policy implications of the traditional Keynesian model are derived on the assumption that the model is stable. Testing the stability assumption also involves testing hypotheses about the root of stochastic difference equations. These tests about roots are relevant for assessing the current policy debates.

The research involves calculating by exact or Monte Carlo methods the power functions of tests about the roots and coefficients of a stochastic difference equation with independently and identically distributed errors when stationarity is not assumed. The main focus of the research is on tests about the coefficient of the lagged endogenous variable in a first order equation with and without exogenous variables. In the context of this equation the random walk hypothesis that this coefficient is unity is of particular interest. We also propose to investigate higher difference equations and the robustness of our results to nonnormal errors.

Publication and working papers:

Evans, G.B.A. and N.E. Savin, "Testing Unit Roots: 1", Econometrica 49 (1981), 753-779.

Evans, G.B.A. and N.E. Savin, "The calculation of the Limiting Distribution of the Least Squares Estimator of the Parameter in a Random Walk Model", The Annals of Statistics, 9 (September 1981) 114-119.

Evans, G.B.A. and N.E. Savin, "Conflict Among Testing Procedures in a Linear Regression Model with Lagged Dependent Variables", forthcoming in Advances in Quantitative Economics, Cambridge University Press.

Evans, G.B.A. and N.E. Savin, "Conflict Among the Criteria Revisited, The W, LR and LM Tests", forthcoming Econometrica.

Evans, G.B.A. and N.E. Savin, "Testing Unit Roots, 2", Revised October 1981, Submitted to Econometrica.

Conferences:

SSRC Model Selection Conference, Southampton, April 1980. Paper: "Testing for Unit Roots: 2".

World Meetings of the Econometrics Society, Aix-en-Provence, September 1980, Invited Symposia Paper: "Conflict Among Testing Procedures in a Linear Regression Model with Lagged Dependent Variables".

European Meetings of Econometric Society, Amsterdam, 1980 Paper: "Testing for Unit Roots: 2".

Seminars:

Seminars on "Testing for Unit Roots: 2" have been given at Stanford, Berkeley, Chicago Business School, Northwestern, UCLA, UC San Diego, University of British Columbia and University of Washington.

HOUSING MARKETS AND LABOUR MOBILITY

This project which is financed by the Department of the Environment and directed by Dr. G.A. Hughes and Dr. B. McCormick, was established to examine the hypothesis that the British housing system discourages labour mobility by increasing the cost of moving from one part of the country to another. The work of the project has been both theoretical and empirical, since it is necessary to construct better analytical models of the relationship between housing and migration which can be estimated in order to test various hypotheses.

With the completion of the initial phase of the project work which established a strong link between the probability that a household would migrate between regions and its tenure - see Hughes and McCormick (1981a) - we have extended our research to encompass a wide range of issues which affect household behaviour with respect to both housing and job mobility. The work may be summarised under five headings:

(i) Hierarchical Models of Job and Housing Mobility

Our initial work on migration and house movement suggested that decisions about job and house mobility should be modelled as being interdependent. Further work has confirmed this suspicion - see Hughes and McCormick (1981b) - but has also shown that the relationship between them is complex. As a result we have formulated a hierarchical decision model which includes choices concerning migration and house movement as well as whether to move from one employer to another. The estimation of the full model requires an exceedingly large set of data combined with some highly efficient computer programs, so that we have not yet been able to implement it fully. However, we have carried out a considerable amount of preliminary work focussing on a hierarchical model of job mobility and housing mobility, which will be reported in a forthcoming paper. In the longer term we expect to attempt to estimate the full hierarchical model using data taken from the Labour Force Surveys but this will be done under the aegis of a new research project and will require the use of the new IBM 3081 computer being installed by the University of Cambridge Computer Service in August 1982.

(ii) Pensions and Job Mobility

Discussion of job mobility in newspapers and elsewhere has generally assumed that occupational pensions may represent a barrier to job mobility. In view of the substantial loss of pension rights which some employees may suffer if they change job one would expect that, ceteris paribus, employees who belong to occupational pension schemes would have a lower probability of changing job in a given period than those who do not belong to a pension scheme. However, surprisingly little work had been done previously on this issue: this may partly be due to the fact that it is very difficult to distinguish between the effect of belonging to a pension scheme and that of working for a 'good' employer or in a 'good' job since the availability of a pension scheme and of

other non-pecuniary benefits tend to be highly correlated. By using data on job satisfaction as well as pension scheme membership we believe that we have been able to control for the influence of other job characteristics and our results suggest that membership of a pension scheme does reduce the probability of job mobility quite significantly - see McCormick and Hughes (1981). An interesting aspect of this work is the conclusion that the influence of pension scheme membership may be represented quite simply in terms of the product of the length of time that an employee has held his job and the difference between the employee's current age and the standard retirement age. As an extension of this work we have also examined how membership of a pension scheme affects the process of on-the-job search for employees thinking of changing their job - see Hughes and McCormick (1981c). This reinforces the conclusions of the previous paper by showing the pension holders are substantially less likely to be successful in job search than are non-pension holders.

(iii) Housing Subsidies and Taxation

Hughes has continued his work on housing subsidies and the impact of alternative tax reforms on the distribution of income and the allocative efficiency of the housing market. The results of this work show both that the current system has highly erratic and, almost certainly, undesirable distributional consequences and that any reform which might make economic sense would probably arouse large scale opposition from various tenure groups - see Hughes (1981). As an extension of this work he has also examined the incidence of domestic rates and various alternative local taxes - see Hughes (1982). The conclusions of this paper are that domestic rates are not a notably regressive tax, particularly if they are regarded as an indirect tax on housing services, though as such they imply an average tax rate of nearly twice the general level of VAT. Of the alternatives to domestic rates considered in the paper a local income tax would be the most progressive, but a local payroll tax might be preferable since it would involve a smaller increase in the typical marginal rate of direct taxation and would

be almost as progressive. However, on other criteria Hughes favours a composite local tax structure combining a local property tax for distinct authorities and a local income/payroll tax for county or regional authorities.

(iv) Housing and Jobs for Black Workers

McCormick has extended his work on housing segregation and black workers in the UK - see McCormick (1981). The conclusions cited in our last report concerning the longer travel-to-work time of black workers than of comparable white workers have been strengthened and a more detailed picture of the consequences of housing segregation is given.

(v) Econometric Methods

In order to carry out the econometric work underpinning the empirical conclusions of the papers discussed above and future work, a considerable amount of time has been devoted to extending and improving computer programs designed to estimate a variety of qualitative and limited dependent variable models. We are greatly indebted to the late G.B. Aneuryn Evans who, until his untimely death in February 1981, collaborated with us in improving a set of programs to carry out the estimation of logit and related models. Since then Hughes has been working on the problems involved in choosing efficient numerical techniques to carry out maximum likelihood estimation of complex models for large cross-section data sets. The results of this work will be described in a forthcoming paper but they suggest that the methods currently used by econometricians are typically rather inefficient and may be prone to report convergence to a maximum of the likelihood function quite incorrectly. These investigations have facilitated the rewriting of a package of computer programs which enable the user to carry out the maximum likelihood estimation of quite general models with relatively little difficulty and in due course it is hoped to extend this to include maximum likelihood estimation

subject to constraints on the parameters.

Papers and Publications:

G.A. Hughes (1981), 'The Distributional Effects of Housing Taxation and Subsidies in Britain', Bulletin of the National Swedish Institute for Building Research

G.A. Hughes (1982), 'The Incidence of Domestic Rates and Alternative Local Taxes', Fiscal Studies, Vol. 3

G.A. Hughes and B. McCormick (1981a), 'Do Council Housing Policies Reduce Migration between Regions?', Economic Journal, Vol. 91, December

G.A. Hughes and B. McCormick (1981b), 'House Tenure, Occupational Pensions and Job Mobility'

G.A. Hughes and B. McCormick (1981c), 'Occupational Pensions and the Length of Job Search'

B. McCormick (1981), 'Housing Segregation and the Journey to Work for Blacks in the UK'

B. McCormick and G.A. Hughes (1981), 'The Influence of Pensions on Job Mobility'

Main Seminars, Conferences, etc.

Anglo-Swedish Conference on 'Social Housing Policies' January 1981 - presented Hughes (1981).

LSE Workshop on Urban and Regional Economics, February 1981 - presented Hughes and McCormick (1981a) (by Hughes).

AUTE Conference, April 1981 - presented Hughes and McCormick (1981a) (by McCormick).

ECONOMIC DEVELOPMENT AND SOCIAL DIFFERENTIATION IN THE ANDEAN PEASANT ECONOMY

The field work for this project which began in July 1980 is now largely complete. David Lehmann was in Ecuador from August 1980 for one year and his colleague Professor Miguel Murmis of the University of Toronto was there from August 1980 until early 1981. This is a joint project with the Centro de Planificacion y Estudios Sociales (CEPLAES), an independent research centre in Quito, Ecuador, and is financed by the Overseas Development Administration

The work has been in two parts: a survey of 100 farming units and documentary research in archives. The survey was carried out in the province of Carchi - which is the focus of the research, since in that province we found a stratum of peasant producers who had been through a cycle of enrichment - and the research is intended to cover 'rich peasants'. Three pilots were tested in some 30 interviews before the final questionnaire was designed, and obviously the pilot stage also included a great deal of qualitative, 'anthropological' observation. The final questionnaire was administered by David Lehmann and two assistants. It covers a wide range of issues: life histories, social mobility, use of purchased inputs, forms of tenure, use of labour, credit, migration, and so on. So far analysis has concentrated on share-cropping as a form of production, on the basis of manual elaboration of the results. Soon it is hoped that the data - which have already been coded - will be processed by a computer and that more sophisticated analysis will then be possible.

The other aspect of our work covers the structural and historical conditions which condition the process of peasant enrichment. For this purpose, archival material on the history of land tenure and trade in the region has been found, and also lengthy unstructured interviews with key informants in the field have also been carried out.

The results of the research will at first be produced in the 'Studies in Peasant Economy' series initiated by the project, as Discussion Papers. Subsequently papers will be sent to suitable journals, and it is expected that a book will also be produced. On present plans, the first draft of a book-length manuscript should be ready by October 1982.

SOCIOLOGY GROUP

REPRODUCTION OF SOCIAL INEQUALITY

This project, which commenced in May 1978, is being carried out by Dr R.M. Blackburn, Dr K. Prandy and Mr A. Stewart. It is designed to continue and extend the work of the group, and earlier projects (described in previous reports) have been 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 has involved a number of themes relating to social stratification including white-collar unionism, the labour market, careers, and perceptions, understandings and evaluations of social inequality.

Dr. L. Miller-Bernal was a visitor to the Department and joined the research team in the later part of the year.

Publications

A. Stewart, K. Prandy and R.M. Blackburn 'Stratification and careers into management' in Management and Industrial Relations, Proceedings of the University of Wales Colloquium, 1979. Also in M. Poole and R. Mansfield (Eds.), Managerial Roles in Industrial Relations, Gower, 1980.

R.M. Blackburn, A. Stewart and K. Prandy 'Part-time education and the "alternative route"', Sociology, November 1980.

J.M. Holmwood and A. Stewart, 'Social reproduction in British stratification theory and research', mimeo, DAE, 1980.

K. Prandy, 'Residential segregation and ethnic distance in English cities', Ethnicity, 7, 1980.

A. Stewart, K. Prandy and R.M. Blackburn 'Fallacies of the new middle class' (Paper to SAANZ Conference), mimeo, DAE 1980.

A. Stewart, K. Prandy and R.M. Blackburn, Social Stratification and Occupations, (Cambridge Studies in Sociology), Macmillan, 1980.

R.M. Blackburn, 'Social stratification' in P. Abrams and P. Lewthwaite (eds), Development and Diversity: British Sociology 1950-1980 (Proceedings of B.S.A. Conference 1980) B.S.A. 1981.

R.M. Blackburn 'The market for skill' in P. Windolf (ed.) Selection and Allocation: Strategies of Enterprises in the Labour Market (Proceedings of Conference on Labour Market Policies) Wissenschaftszentrum Berlin, 1981.

J.M. Holmwood and A. Stewart, 'The Role of Contradiction in Modern Theories of Social Stratification', (Paper to BSA Conference), mimeo, DAE, 1981.

Accepted for publication

J.M. Holmwood and A. Stewart, 'Social Action and Social Reproduction' British Journal of Sociology.

J.M. Holmwood and A. Stewart, Social Action and Social Structure B.S.A. Macmillan.

K. Prandy, A. Stewart and R.M. Blackburn, White-Collar Work, (Cambridge Studies in Sociology), Macmillan.

K. Prandy, A. Stewart and R.M. Blackburn, White-Collar Unionism (Cambridge Studies in Sociology), Macmillan.

Papers given:

R.M. Blackburn, 'The Sociology of the Labour Market', Cambridge Seminar on Unemployment, Cambridge 1980.

'Method and theory in the study of social mobility', Portsmouth Polytechnic, 1980.

'The market for skill', Conference on selection and allocation in the labour market, International Institute of Management, Berlin 1980.

'Unemployment, class and political response' Cambridge seminar on employment and unemployment Cambridge, 1981.

'Education, careers and social stratification', S.S.R.C. Ethnic Relations Unit, Aston, 1981.

K. Prandy 'Practical understanding and social reproduction', University of Lancaster, 1980.

A. Stewart and J. Holmwood 'The role of contradiction in modern theories of social stratification', British Sociological Association Conference, Aberystwyth, 1981.

OTHER ACTIVITIES OF THE SOCIOLOGY GROUP

The group has maintained its association with colleagues in other institutions. In particular Dr M. Mann of the London School of Economics, Mr J. Holmwood of the University of Edinburgh, and Mr D. Donald and Mr Al Hutton of the Policy Analysis Research Unit at Glasgow College of Technology have collaborated in our work. Dr E. Garnsey was also associated with the work of the group. Dr L. Miller Bernal was a visitor to the Department.

As in previous years, the group were hosts to the SSRC Social Stratification Seminar.

Dr R.M. Blackburn continued to act as the local sociology representative for the SSRC Survey Archive.

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

II PUBLICATIONS

ECONOMIC POLICY REVIEW

Every year since 1975 the Cambridge Economic Policy Group has published an analysis of Britain's economic situation and medium term prospects. Since 1979 this has been published by the Gower Publishing Co.

During the academic year 1980-81 the CEPG has produced two separate reviews.

The first (vol 6 no. 3) published in December, was World Trade and Finance: prospects for the 1980s by Paul Atkinson, Iain Begg, Francis Cripps, Michael Anyadike-Danes and Graham Gudgin.

This analysed prospects for world development in the 1980s, using trade and GNP accounts for major countries and blocs incorporated in a simulation model designed to assess the impact on the world system of alternative national and international policies.

The second, (vol. 7 no. 1 Economic Policy in the UK) was published in April 1981. This consisted of an assessment of the UK economy and its response to recent government policies, with particular reference to the implications of the 1981/2 Budget. In conjunction with this revised version (seventh edition) of the Technical Manual for the CEPG Model of the UK Economy was prepared by M.K. Anyadike-Danes, K.J. Coutts and T.F. Cripps.

DAE MONOGRAPHS

This series contains investigations by members of the Department's staff and its associates, and is published by Cambridge University Press. No. 27 in the Series, Wages Policy in the British Coalmining Industry by L.J. Handy was published in 1981.

DAE OCCASIONAL PAPERS

One new title appeared in this series this year, no. 52, The Political Economy of Nasserism: a study in employment and income distribution policies in Urban Egypt, 1952-72 by Mahmoud Abdel-Fadil.

CAMBRIDGE STUDIES IN APPLIED ECONOMETRICS

This series, originally published for the Department by Chapman and Hall and now taken over by the Cambridge University Press, provides an outlet for the results of the research undertaken by the Cambridge Growth Project. One new title was added to it this year, An Econometric Model of the Export Sector by Alan Winters.

DAE PAPERS IN INDUSTRIAL RELATIONS AND LABOUR

This series is published for the Department by Cambridge University Press. It provides a medium for rapid publication of studies on issues in industrial relations and labour policy. Two new titles appeared in the series during the year under review, no. 5 The Last Colony: But Whose? A study of the labour movement, labour market and labour relations in Hong Kong by H.A. Turner *et.al.*, and no. 6 The Active Trade Unionist by Patricia Fosh.

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 one book was published:

A. Stewart, K. Prandy and R.M. Blackburn, Social Stratification and Occupations.

The following was in press:

K. Prandy, A. Stewart and R.M. Blackburn, White-Collar Work.

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:

- 37 Structured Labour Markets, Worker Organisation and Low Pay. Jill Rubery.
- 38 Industrial Relations and Uneven Development: A Comparative Study of the American and British Steel Industries. Bernard Elbaum and Frank Wilkinson.
- 39 Total Factor Productivity in the UK: A Disaggregated Analysis. William Peterson.
- 40 Brazil and The Post - 1973 Crisis in the International Economy. John R. Wells.
- 41 Growth and Income Distribution in Iran. Hashem Pesaran and Farooz Gahvary.
- 42 Towards Strategic Paths in Economic Planning. T.S. Barker.
- 43 The 'Basic Needs' Approach to Development vs The New International Economic Order: The Significance of Third World Industrialisation. Ajit Singh.
- 44 Some Reflections on the Presence of 'Rural' or of 'Urban Bias' in China's Development Policies 1949-1976. Suzanne Paine.

DAE SOCIOLOGY REPRINTS

The following titles were added to the series during the year:

- 5 Greater Indeterminism in Causal Analysis. Ian Birnbaum.
- 6 Ethnic Discrimination in Employment and Housing. Kenneth Prandy.
- 7 Part-time Education and the 'Alternative Route'. R.M. Blackburn, A. Stewart and K. Prandy.
- 8 Residential Segregation and Ethnic Distance in English Cities. K. Prandy.
- 9 Alienation and interests in the analysis of Social Cognitions. K. Prandy.

III OTHER ACTIVITIES

DAE LIBRARY

During the period October 1980 to September 1981 the Department received 140 periodicals: 16 of these were in exchange for the Department's reprint series and 46 were gifts, the remainder being purchased. The library has acquired 121 books, 776 pamphlets and 405 British government publications.

COMPUTING UNIT

The unit, under the direction of Dr L.J. Slater, continued to provide help for almost all the projects in the Department, in their programming and calculating problems. The Economic Policy Group and the Cambridge Growth Project were the heaviest users. There are now six direct links to the main University computer and they are heavily used by all members of the research staff. A small computer, the RAIR 'black box', is now in use. Advice and help were given to many members of the Faculty of Economics and Politics, to research students and to other institutions and individuals both inside and outside the University.

Activities

Dr Slater attended the British Association for the Advancement of Science conference at York in September 1981. Roger Smith attended several exhibitions of computing equipment in London.

UNIVERSITY RELATIONSHIPS

Members of the Department's research staff served on University committees during the year, including the Department's Committee of Management, the Faculty Board of Economics and Politics and the Social Sciences Committee.

TEACHING FOR THE UNIVERSITY AND FOR COLLEGES

During the year members of the research staff gave some lectures for undergraduate Tripos courses in various fields, including current economic problems, economic policy issue, incomes policy and inflation, and statistics. They gave courses for the M.Phil in Economics, and supervised students preparing for that degree. They also supervised and examined students for the degree of Ph.D.

Most members also undertook undergraduate teaching for Colleges.

Eight were Directors of Studies in Economics and two in Social and Political Sciences.

IV FINANCE

During the financial year (1 August 1980 to 31 July 1981) the Department's annual expenditure was £558,230 compared with £451,437 in 1979/80. 89.4% of the expenditure was on stipends, salaries and wages.

The University Grant rose from £167,311 in 1979/80 to £211,075 in 1980/82, an increase of £43,764. Expenditure went up by £106,793.

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

	£
Social Science Research Council	89,255
Esmee Fairbairn Charitable Trust	30,000
Dept. of Industry	4,250
	<hr/>
	123,505

V STAFF

RESEARCH STAFF

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

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

SPECIAL APPOINTMENT Miss L.J. Slater, ScD, PhD (Cantab), D. Litt,
PhD (London), Head of Computing

SENIOR RESEARCH OFFICERS

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

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

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

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

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

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

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

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

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

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

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

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

V.H. Woodward, MA (Cantab), BA (Nottingham), St. Catharine's College (resigned 31 March 1981)

RESEARCH OFFICERS

M.K. Anyadike-Danes, B.A. (London)

P.E. Atkinson, BA (Cantab), Trinity College (resigned 31 December 1980)

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

V.K. Borooah, MA (Bombay), MA (Southampton), PhD (Southampton), Fellow of Queen's College

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

J.C. Craig, MA (Cantab), BSc (London)

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

A. Lawson, BSc (London), MSc (London), King's College

M. Landesmann, MA (Vienna)

L. Makowski, MA (UCLA), PhD (UCLA), Emmanuel College

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

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

JUNIOR RESEARCH OFFICERS

A. Drobný, MSc (LSE)

A.W. Goudie, BA (Cantab), Queen's College

M.S. Kumar, BA (Cantab), Trinity College

M.J. Machina, BA (Michigan State University)

F. van der Ploeg, BSc (Sussex)

M. Weale, BA (Cantab), Clare College

PUBLICATIONS SECRETARY

Mrs A. Newton

RESEARCH ASSOCIATES

Dr A.D. Cosh
 Mr. P. Crossman
 Dr. G.B.A. Evans (died February 1981)
 Dr E.F. Garnsey
 Professor F. Hahn
 Dr O.D. Hart
 Mr A. Hughes
 Dr G. Hughes
 Professor the Lord Kaldor
 Dr D. Livesey
 Professor J. Meade
 Dr B. McCormick
 Dr G. Meeks
 Professor R. Neild
 Dr D. Newbery
 Mr P. Nolan
 Dr H. Pesaran
 Dr N.E. Savin
 Dr A. Singh
 Professor Sir Richard Stone

VISITING SCHOLARS, OCTOBER 1980 - SEPTEMBER 1981

Dr M. Alexsic, Economic Institute, Belgrade, Yugoslavia.
 Ms M. Baglioni, University of Parma, Italy.
 Dr J.M. Barbalet, Australian National University, Canberra, Australia.
 Mrs V.K. Borooah, University of Southampton.
 Mr S. Brodersen, Danmarks Statistik, Copenhagen, Denmark.
 Dr P. Gligoric, Economic Institute, Belgrade, Yugoslavia.
 Profesor M. Myoken, Nagoya City University, Japan.
 Mr M.K. Peterson, Roskilde University, Denmark.
 Professor G. Petrovich, Universita Degli Studi di Venezia, Italy.
 Mr G. Pireddu, National Hydrocarbon Authority, Italy.
 Professor L. Rampa, University of Venice, Italy.
 Dr K. Starzec, University of Warsaw, Poland.
 Professor G. Tattana, University of Venice, Italy.
 Dr G. Tomaszewicz, University of Lodz, Poland.
 Mr S. Tveitereid, Central Bureau of Statistics, Oslo, Norway.
 Dr M.J. Waters, University of Tasmania.
 Mr G. Wolleb, Palermo, Italy.

ASSISTANT STAFF, OCTOBER 1979 - SEPTEMBER 1980

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 J.M. Leverett	Mrs K.M. Wilson