UNIVERSITY OF CAMBRIDGE

DEPARTMENT OF
APPLIED ECONOMICS

FIFTH REPORT
ACTIVITIES IN THE YEARS
1958–64

April 1965
DEPARTMENT OF APPLIED ECONOMICS

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ACTIVITIES IN THE YEARS
1958-64

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UNIVERSITY OF CAMBRIDGE
DEPARTMENT OF APPLIED ECONOMICS

Director
W. B. REDDAWAY

Assistant Director
J. E. G. UTING

Committee of Management, December 1964
Professor E. A. G. ROBINSON (Chairman)
K. E. BERRILL
J. A. C. BROWN
L. H. GOLDTHORPE
N. KALDOR
Mrs D. E. WEDDERBURN

Professor RICHARD STONE

Secretary
ROBERT DAVIES

Dr R. F. HENDERSON, Professor R. F. KAHN, Dr A. R. PREST, Mr A. D. ROY, Mr J. E. G. UTING, and Dr M. YOUNG were also members of the Committee of Management during the period covered in this Report.

FIFTH REPORT OF THE DEPARTMENT OF
APPLIED ECONOMICS
(covers the period January 1958 to December 1964)

I. GENERAL

1. The following Report describes the role and work of the Department of Applied Economics with particular reference to developments during the years 1958-64.

2. The Department is a research institute within the Faculty of Economics and Politics. The decision to establish such a Department was taken by the University in 1939, but it did not come into active existence until 1945 when Mr Richard Stone was appointed as the first Director. In 1955 Mr Stone was elected to the P. D. Leake Chair of Finance and Accounting, and was succeeded as Director of the Department by Mr W. B. Reddaway, M.A., Fellow of Clare College.

3. The work of the Department is under the general control of a Committee of Management consisting of the Director, six members appointed by the Faculty Board to serve for three years, and up to three members co-opted annually to serve for the remainder of the calendar year in which they are elected. The Chairman of the Committee of Management is Head of the Department. The Director of the Department, who is appointed by the Appointments Committee of the Faculty, is responsible for promoting and directing research in his subject and supervising the work of the Department.

4. Although the Department has a separate identity it is closely associated with the rest of the Faculty of Economics and Politics. Holders of University posts on the research staff of the Department are automatically made members of the Faculty, and are eligible for election as members of the Faculty Board. They may also be appointed by the Faculty to serve as members of the Department's Committee of Management. Teaching officers of the Faculty who are not members of the Department's research staff take an active part in the research activities of the Department. The majority of the research projects being undertaken by the Department in 1964-65 were initiated by teaching officers of the Faculty and were under their immediate direction. In particular, Professor Richard Stone directs the Department's research into the problems of a faster rate of economic growth and, as the P. D. Leake Professor of Finance and Accounting, has his office and his own research unit within the Department.

5. It had originally been envisaged that the constitution of the Department would involve 'the appointment of a University officer to undertake and direct research in applied economics with a few (say, half-a-dozen) research workers under his general supervision and a small staff of computers and other assistants'. However, by the end of the first decade of its existence the number of research workers, in addition to the Director, had increased to twenty-four, and in 1956 the University approved the establishment of twenty-five University posts in the Department, in addition to the Directorship, one of these posts being that of Assistant Director. The remaining twenty-four posts were to be in the grades of Special Appointment, Senior Research Officer, Research Officer, and Junior Research Officer, the number of posts to be filled in each of these grades being determined by the General Board on the recommendation of the Committee of Management and subject to the concurrence of the Financial Board. In 1964 the University agreed to increase the number of University posts in the Department to twenty-nine in addition to the Directorship, and also agreed to the employment, on an unestablished basis, of up to ten graduate research workers subject to the necessary finance being available. Approval was also given to increase to twenty-nine the number of assistant staff employed in the Department, plus an assistant employed on domestic duties.

6. The Department's maximum permitted staff accordingly now consists of the Director, the Assistant Director, twenty-eight other holders of University posts, up to ten graduate research workers not holding University posts, and thirty assistants: a total of seventy. This number does
not include research associates and visiting members who are not employed by the Department; nor does it include research consultants appointed on a fee basis.

7. The actual working strength of the Department, however, has never in practice reached the permitted limit. At the time when this Report was prepared (March 1965), the actual staff and associated members of the Department, in addition to the Director and the Assistant Director, was made up as follows: one Special Appointment, five Senior Research Officers, thirteen Research Officers, six Junior Research Officers, three holders of unestablished research posts, five research consultants, four visiting members, eleven research associates (teaching officers of the Faculty actively associated with research projects within the Department), and thirty full-time or part-time assistants.

8. The principal developments during the years 1958-64 have been:

First, an increase in the scale and scope of the Department’s research activities, notably in the field of sociological research (after the scope of the Faculty had been enlarged to cover sociology) and in the provision for research into the economic problems of developing countries (which now constitutes an optional paper in the Tripos).

Secondly, increased support and collaboration from government departments and public institutions, and from industrial and financial institutions.

Thirdly, wider and more active participation by teaching officers of the Faculty in the Department’s research programme.

Fourthly, the occupation with the Faculty and the Marshall Library of Economics of a new building on the Sidgwick Avenue Site.

Fifthly, the increased use of more advanced methods of electronic computing and data analysis—partly on the machines in the Mathematical Laboratory, and partly on an H.E.C. 720 computer provided at a very low rental by International Computers and Tabulators for the joint use of the Department and the Cambridge Language Research Unit.

Sixthly, the provision in the Department of equipment and facilities for tape and card punching for use in connexion with the above mentioned or with a counter-sorter, which has been installed in the Department for simple operations.

Seventhly, the introduction of two new series of publications, both designed to ensure more rapid publication of research results than is possible with the monograph series—A Programme for Growth, published by the Department by Chapman and Hall Limited and containing progress reports on the work on economic growth by Professor Stone, and a series of Occasional Papers published by Cambridge University Press covering all other topics.

II. FINANCE

9. The increasing scale of the Department’s research activities during 1958-64 is reflected, along with their price-and-pay-scales, in its annual expenditure, which rose from £38,115 in 1958-59 to £66,869 in 1963-64. Over eighty per cent. of this expenditure is on stipends, wages, and related payments.

10. Since 1956 the Department has received a fixed grant from the University, rather than an annual grant based on approved estimates, and in this respect differs from other University Departments. The University’s grant is increased from time to time by a proportion (eleven-eighteenths) of the increase in the costs of salaries and wages for a notional establishment comprising, in addition to the Director and the Assistant Director, one Special Appointment, four Senior Research Officers, ten Research Officers, nine Junior Research Officers, and twenty-one assistants in various grades. This represents the proportion of Department staff in these grades not covered by outside finance in 1956, when a fixed grant for the Department was first instituted. Increases in University grant do not, therefore, correspond to the actual cost to the Department of the increase in salaries and wages, quite apart from the fact that no accout has been taken of the increase in the Department’s permitted establishment of research and assistant posts, or in the numbers of research workers and assistants actually employed in the Department. In addition, no allowance is made for higher prices of the things the Department has to buy, or of the increased quantities required for a larger staff. The grant from the University has in consequence been increased only from £26,000 in 1957-58 to £33,800 in 1963-64, while expenditure in the same period rose from £38,700 to £66,869.

11. The Department also differs from other University Departments in that, in proposing research appointments, it must be able to show that sufficient funds are at its disposal, including the fixed grant from the University, to cover all its commitments for the whole period of the appointments. Since the University’s grant now covers only about half of the Department’s annual expenditure, which necessarily includes a considerable overhead element, it is essential for the Department to have the support of outside bodies for the majority of its research projects in order to maintain the present level of its research activity.

12. A substantial reserve fund is also needed to absorb the very large year to year fluctuations in the amount of outside finance which can be obtained. During 1958-64 the proportion of Department expenditure covered by outside finance has varied between only seven per cent. in 1960-61 and as much as fifty-one per cent. in 1963-64. In 1960-61 the reserve fund was practically exhausted and financial limitations prevented the recruitment of staff to finish one project (see page 12) and the starting of others.

13. During 1958-64, or at least in the second half of the period, the Department has received very generous support from a number of outside bodies, grants worth over £75,000 being promised to the Department in this period, Seventeen of the thirty-seven research projects mentioned in this Report have attracted outside finance, while thirteen of eighteen projects included in the 1964-65 research programme are supported by outside bodies.

14. The following is a list of the grants offered to the Department during the period under review:

<table>
<thead>
<tr>
<th>Donors</th>
<th>Year</th>
<th>Amount</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockefeller Foundation</td>
<td>1962</td>
<td>£15,550</td>
<td>Capital Formation and the Stock of Asset in Britain</td>
</tr>
<tr>
<td>Ford Foundation</td>
<td>1961</td>
<td>£30,000</td>
<td>Empirical Models of Economic Growth</td>
</tr>
<tr>
<td>Nuffield Foundation</td>
<td>1958</td>
<td>£6,000</td>
<td>The Economic Circumstances of Old People</td>
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<tr>
<td></td>
<td>1961</td>
<td>£7,600</td>
<td>Economic Aspects of the British Patent System</td>
</tr>
<tr>
<td>Social Science Research Council</td>
<td>1958</td>
<td>£3,125</td>
<td>Abstract of British Historical Statistics</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>£3,841</td>
<td>The Growth of the U.K. Economy</td>
</tr>
<tr>
<td></td>
<td>1964</td>
<td>£1,577</td>
<td>Since the War</td>
</tr>
<tr>
<td>Esmée Fairbairn Trust</td>
<td>1962</td>
<td>£7,000</td>
<td>The Growth of Public Companies and its Finance</td>
</tr>
<tr>
<td></td>
<td>1964</td>
<td>£3,500</td>
<td>Various Financial Institutions</td>
</tr>
<tr>
<td></td>
<td>1965</td>
<td>£25,000</td>
<td>Capital Appropriation of British Economic Growth</td>
</tr>
<tr>
<td>Ministry of Overseas Development</td>
<td>1964</td>
<td>£45,000</td>
<td>The Economics of Developing Countries</td>
</tr>
<tr>
<td>Department of Scientific and Industrial Research</td>
<td>1962</td>
<td>£3,315</td>
<td>Attitudes to Work in relation to Production Systems and Community Structure</td>
</tr>
<tr>
<td></td>
<td>1964</td>
<td>£3,420</td>
<td>The Causes of Small Strikes</td>
</tr>
<tr>
<td></td>
<td>1964</td>
<td>£2,542</td>
<td>Demarcation Rules and Related Practices</td>
</tr>
<tr>
<td></td>
<td>1964</td>
<td>£8,738</td>
<td>Conditions of Employment of Manual and Non-manual Workers</td>
</tr>
</tbody>
</table>

Compos1t10n.

provided only a rough approximation to observed patterns of family expenditure are contained

object of testmg the hypothesis that equivalent adult scales can satisfactorily describe the observed

changes

between the

expenditure

of

Sociological Research.

The Analysis of Family Budgets

The results of

Econometric Studies.

A Dynamic Approach to the Theory of Consumer Demand', by J.S. Cramer (Review of Economic

Studies, vol. xxv, no. 67, 1958; Reprint no. 140).


Private Motoring and the Demand for Petrol', by J.S. Cramer (J.R.S.S. (Series A), vol. ccxx, part 3, 1959; Reprint no. 159).

The Averaged Expenditure in 1963, by J.S. Cramer (Department Monograph no. 10).

Factors Determining Stock Exchange Prices

19. This project, described in paragraphs 40 and 41 of the Fourth Report, was completed by

Mr G.R. Fisher in September 1958. Mr Fisher presented a paper on the project to the European

meeting of the Econometric Society in August 1957, and subsequently read two papers sum-

marizing the results of the work to the Research Seminar in Quantitative Economics at the

University of Michigan in October 1958 and April 1959.

20. The following articles by Mr Fisher arising out of the inquiry have been published:

'Maximum Likelihood Estimators with Heteroscedastic Errors' (Review of the International

Statistical Institute, vol. ccxx, no. 1/3, 1957; Reprint no. 146).


'Some Factors Influencing Share Prices' (Economic Journal, vol. lxxx, no. 281, 1961; Reprint

no. 175).

Iterative Solutions and Heteroscedasticity in Regression Analysis' (Review of the International


Input-Output Tableau

21. Work on this project, which was undertaken by Dr A. Ghosh, Miss D.C. Paige, and

Mr J.M. Bates was completed by Dr Ghosh in 1960. Using a model of the United Kingdom

economy based on an input-output table for 1948, values were predicted for 1948-55 and com-

pared with those predicted by other methods of forecasting. The results obtained led to the conclu-
sion that quantitative predictions made by input-output models are superior to those made by simple 'blow-up' methods, and possibly also to those made by

reversion methods, but that predictions about prices are less accurate than those about quan-
tities. An account of the work was published in a volume by Dr Ghosh entitled Experiments with

Input-Output Models: An Application to the Economy of the United Kingdom, 1948-55 (Cam-

bridge University Press, 1964; Department Monograph no. 9).

The Dynamics of Consumer Demand

22. This project was undertaken during 1957-58 to 1959-60 with the object of developing a

theory of consumers' behaviour which takes into account the past and expected future income and

composition of the individual household, and the accumulation and decumulation of durable

goods and other assets during its normal life cycle. The inquiry was undertaken under Professor

Stone's direction by Messrs J.A.C. Brown, J.S. Cramer, A.D. Bain, F.G. Pyatt, J.M. Bates, and

M.O.L. Benschur.

23. The results of the investigation are contained in the following books and papers:

'Sazonality and Elasticity of the Demand for Food in Great Britain since Derationing', by J.

A.C. Brown (Journal of Agricultural Economics, December 1958; Reprint no. 145).

'Trends in the Consumption of Citrus Fruit in the United Kingdom', by J.A. Croft-


A Dynamic Approach to the Theory of Consumer Demand', by J.S. Cramer (Review of Economic

Studies, vol. xxi, no. 64, 1957; Reprint no. 130).

Ownership Earnings of Durable Consumer Goods', by J.S. Cramer (Review of Economic

Studies, vol. xxi, no. 67, 1958; Reprint no. 140).

'The Depreciation and Mortality of Motor Carse', by J.S. Cramer (J.R.S.S. (Series A), vol. ccxx, part 1, 1958; Reprint no. 145).

'Private Motoring and the Demand for Petrol', by J.S. Cramer (J.R.S.S. (Series A), vol. ccxx, part 3, 1959; Reprint no. 159).

The Ownership of Motor Consumer Durables, by J.S. Cramer (Cambridge University Press, 1962; Department Monograph no. 7).


'Models of Consumers' Behaviour and their Application', by Richard Stone and Giovanna Croft-

Empirical Models of Economic Growth

24. Work on this project began in 1960 under Professor Stone's direction with the object of indicating various courses which the British economy could take over the years 1960-70. In addition to Professor Stone, the following have been engaged on the project: Mr. J. A. C. Brown, Dr. L. J. Magee, Dr. Z. Pavlovsk, Dr. F. G. Pyatt, Mr. O. T. Hooler, Mr. K. J. W. Pigor, Mr. G. Armstrong, Mr. M. O. L. Buchan, Mr. J. M. Bates, Mr. C. S. Leicester, Mr. C. J. Ross, and Mr. R. Lecomber (who was seconded from the National Economic Development Office).

25. The project is built around a mathematical model of the economy with the following three features: First, it has an accounting framework in which every transaction in the economy appears at the national and at the industrial level. The consequences of different growth rates, and thus to provide a basis for policy discussions both for Britain and the rest of the world.

26. Second, it contains numerical estimates of the technological and behavioural relationships which run between production, consumption, and accumulation in Britain and between Britain and the rest of the world.

27. Thirdly, the model is convertible into a computing programme, so that the equations in which the accounting, technological and behavioural relationships are expressed can be solved either simultaneously or, successively, and solved more than once, allowing the different assumptions to be examined.

28. The purpose of constructing this model has been to develop a suitable tool for exploring the consequences of different growth rates, and to thus provide a basis for policy discussions both at the national and at the industrial level.

29. Progress reports of the work on the project are being issued in a series, entitled A Programme for Growth, of which six numbers have so far been published (see page 29).

30. The following is a list, arranged under headings in approximate order of writing, of the main published and unpublished papers based on the project:

General


*Possible Worlds*, by Richard Stone (The Investment Analyst, vol. 6, 1963; Reprint no. 209).


The Accounting Framework


Demand Relationships


Supply Relationships


Minipower

Computing Problems


Results


Financial Aspects of British Economic Growth
31. The object of this project, which began in October 1963, is to add a study of the financial problems involved in British economic growth to the above work on Empirical Models of Economic Growth.

32. Work on the project will be spread over three or four years and will proceed in three stages:
(a) an accounting statement of financial flows and stocks in the base years;
(b) an analysis of the trends in financial relationships into the future; and
(c) a projection of financial flows and stocks into the future obtained by combining the results of stages (a) and (b) with the projections of real flows and stocks worked out in the parent project.

33. During the first year, when it was not possible to engage academic staff for the project, the work concentrated on a survey of the holders of ordinary shares, analysing the shareholders of a sample of 180 companies quoted on the London Stock Exchange in order to determine the pattern of changes in share ownership from 1963 to 1965 and the extent of transactions during 1963. The results, now being compiled, will be published during the summer of 1965.

34. The major task during the current year is to compile a complete set of financial accounts for the year 1963, comprising opening and closing balance sheets, flow-of-funds tables, and tables showing the revaluations of assets and liabilities.

35. The eventual aim is to project probable financial relationships in the year 1970 and to consider the implications for the different types of financial institution.

36. The research staff working under Professor Stone on the project are Messrs J. R. S. Revell, D. R. Gray, M. S. J. Wright (seconded for two years from the Bank of England), J. P. Moorby, and E. E. Townsend. The following papers have been published: "Insurance Company Investments", by J. R. S. Revell (The Policy Holder, January 1964), and "Private Saving in Britain, Past, Present and Future", by Richard Stone (The Manchester School, vol. XXXII, no. 2, 1964; Reprint no. 224).

(No Studies in Economic Analysis

Capital, Employment, and Output
37. This project was begun in October 1956 with the object of obtaining a satisfactory measure of changes in industrial efficiency which would take account of changes in the quantity of both labour and capital. The method adopted was to find the rise in output at 1948 prices, first in the case of industry groups and later industries, and to attempt to discover how much would be needed to remunerate extra labour and extra capital, and how much represents net technological progress.

38. The work was undertaken by Miss M. C. Vidakovic and Mr A. D. Smith, under Mr Reddaway's direction. Miss Vidakovic, however, left the Department in September 1958, and the following September Mr Smith left to join the International Labour Office, at first temporarily and later on a permanent basis. In view of the Department's difficult financial position in 1960-61, and the possibility of an overlap with work on models of economic growth, it was decided not to replace him on the project.

39. The results for the fourteen industrial orders of the standard industrial classification were published in a paper by Mr Reddaway and Mr Smith entitled "Progress in British Manufacturing Industries in the Period 1948-54" (Economic Journal, vol. LXX, no. 277, 1960; Reprint no. 157). Some unpublished material is available on the work undertaken to produce corresponding figures for about thirty specific trades, and to explain the varying rates of progress in different industries and the varying proportions in which the fruits of progress were shared among consumers, workers and the providers of capital.

British Export Performance
41. This research was carried out by Dr S. T. Wells during 1958-61. Interim results were given in a paper by Dr Wells entitled "U.K. Export Performance: A Comparative Analysis" (London and Cambridge Economic Bulletin, no. 30, June 1959; Reprint no. 159), and the final results in British Export Performance: A Comparative Study (Cambridge University Press, 1964). In this book Dr Wells analyses, on a commodity and country market basis, the decline in Britain's share of world trade in manufactures which took place between 1952 and 1959. Domestic economic conditions and policies in the U.K., and their effect on export performance, are compared with those in Germany, France, Japan, and Italy. Detailed case studies of certain industries—motor vehicles, electrical engineering, pharmaceuticals, tobacco, and pottery—illustrate various aspects of the U.K. export problem. Dr Wells' conclusions emphasize the importance of growth policies and the need for an alternative to 'stop-go' policies, such as a flexible exchange rate.

Forward Business Orders
41. This inquiry, which began in 1956, investigated some of the economic implications of the placing of forward orders by distributors and by manufacturers (for their components) and of the booking of forward orders by manufacturers. Its purpose was to obtain information about the normal business practices in this respect of a number of industries, and to examine the order book in practice. Mr Wright's conclusions emphasize the importance of growth policies and the need for an alternative to 'stop-go' policies, such as a flexible exchange rate.

A Study of National Capital
43. This project started in 1957 with the object of examining an annual series of sector balance sheets for the years 1957-61. A monograph giving the results of the study is ready for the press. Balance sheets will be provided for the conventional sectors used in national income accounting as well as for five further sectors of financial institutions. Assets and liabilities, distinguished under a large number of categories, will be carried into the balance sheets at current market value or the nearest possible approach to this value.

44. The tasks involved in this work were of two kinds: first, obtaining balance sheet information for those sectors lacking regular statistical series for the whole or part of the period, and secondly, adjusting to market values items reported in the balance sheets of different types of economic units. Among tasks of the first kind are sample studies of the balance sheets of banks, merchants, and other companies not covered by the regular Board of Trade statistics, as well as many sample studies designed to provide more detailed information for various sectors than official statistics provide. Under this heading the problem of using estate duty statistics for building up balance sheets of the personal sector has received a great deal of attention. Under the second heading the major tasks have concerned the valuation of land and buildings and the translation into market values of the book values available for the security holdings of insurance
companies and some other financial institutions. Studies were also undertaken, from the registers of the issuing bodies, of the distributions of the holders of different types of securities.

45. The staff working on the project were Mr J.R.S. Revell, Mr G.C. Hockley, Mr J.P. Moyle, and Mr F.E. Townson.

46. The following papers have been published:

- Investments of Building Societies*, by G.C. Hockley (The Building Societies Gazette, September 1961; Reprint no. 184).

**Asset Portfolios**

47. This project, which is being undertaken by Dr M.R. Fisher with assistance from the Department, is an attempt to test simple theories of decision-making under uncertainty against observed movements in the principal categories of assets held by British investment trusts over the period 1950-61. It is hoped to publish the results of this study in an Occasional Paper.

**Take-over Bids in the British Economy**

48. This project, which began in 1962, is being undertaken by Mr R.L. Marris and Mr A. Singh. It is a systematic study of take-overs, and take-over bids, for public quoted companies in the U.K. during 1948-61, with the object of developing and testing a theory to explain take-overs in terms of the economic and financial characteristics of the firms concerned. The work is based on the standardized accounting data for quoted public companies during 1948-61 made available by the Board of Trade.

49. It is hoped to publish the results of the inquiry in an Occasional Paper. The following papers have been written in connection with the work:

- 'A Measure of a Firm's Average Share Price', by R.L. Marris (available in mimeographed form).
- Determinants of Rates of Return on Capital, 1950-60

50. Mr R.L. Marris and Mr A. Singh began work on this project in 1964. It is an investigation into the rates of return on capital, dividend retention policies, and related aspects of the public companies in the United Kingdom. The results of the work are likely to be of great interest for their implications in connection with the National Policy, and for the light they will throw on various problems in the general area of the theory of the firm. In the latter field it is intended to test directly the assumptions and predictions of the theory of the firm contained in Mr R.L. Marris's Economic Theory of Managerial Capitalism (Macmillan, 1961). Variations from the data obtained for the study of take-over bids will also be used in this research.

51. It is proposed to publish the results of this investigation in the form of journal articles.

A paper on 'Incomes Policy and the Rate of Profit in Industry' by R.L. Marris was presented to the Royal Statistical Society in December 1964. The paper is being published in the Society's Proceedings.

**The Growth of Public Companies and its Finance**

52. This project began in 1962 and is being carried out by Mr J.K.S. Chandhri and Mr G. Whittington. It aims to systematize and analyse the accounts of all public companies quoted on a U.K. stock exchange during the period 1949-61 which are engaged in manufacturing or trading, shipping, property, and agricultural companies, those engaged primarily in overseas trading, and financial institutions, are included. The work is an extension of an earlier study undertaken by Tew and Henderson at the National Institute of Economic and Social Research, and utilizes in addition the data subsequently collected by the Board of Trade.

53. The main object of the research is to examine, over a wide range of industries and over a long period, whether, and, if so, how, the financial structure of firms is related to economic performance. The highly disaggregated data provide an opportunity to study other problems, such as the effects of policies on different industries and different types of firms. At a later stage it is hoped to study, for a sample of firms, the effect of different types of control of the firm. Unfortunately, the large amount of data processing required has been delayed by a series of setbacks and machine failures in connection with the new TITAN computer.

**The Economics of Car Parking**

54. Work on this project was carried out during 1960-64 by Mr G.J. Roth with the assistance of a Committee on which the Department of Land Economy were represented. The object of the inquiry was to estimate the demand for parking space and the cost of providing it.

55. Information was obtained from local authorities and commercial operators and by surveys in Cambridge, Luton, and Liverpool. The results of the work are to be published shortly in an Occasional Paper, Parking Space for Cars—Assessing the Demand. A number of papers were prepared by Mr Roth for the Smecd Committee on Road Pricing, of which he was a member. The following articles have also been published in connexion with the inquiry:

- 'A Pricing System for Road Space in Town Centres', by G.J. Roth (Journal of the Planning Institute, November 1963).

**The Economics of Developing Countries**

56. In 1964 the Ministry of Overseas Development (then the Department of Technical Cooperation) agreed to provide up to £9,000 a year for five years to enable the Department to appoint three research workers to study the economic problems of developing countries. In return, the Department agreed to make three research workers available when required to meet requests received by the Ministry for economists to work in overseas countries. Mr E. Bennett and Mr A. R. Jolly were appointed to research posts in the Department in connexion with this arrangement from October 1964, and the latter was immediately seconded to work for eighteen months as Adviser on Manpower Planning for the Government of Zambia. It is hoped to make a third appointment in 1965.

**Current Economic Assessments**

57. Assessments of the current economic position continued to be published quarterly during 1958-64, with the co-operation of The Times, in the London and Cambridge Economic Bulletins, which is edited by Mr R. MacEwan. The statistical and computing work for these assessments was done in the Department, which also provided secretarial assistance for the L.C.E.S. Dr C.H. Feinstein was statistician to the Service from 1959 until June 1962, when he has been Assistant Editor. The position of statistician has since been filled by two other members of the Department's research staff, first by Mr G.J. Mengausen, and, from December 1963, by Miss T. Seward.
Domestic Capital Formation in the United Kingdom, 1920-38

This work has now been completed, and a volume will be published in 1965 containing annual estimates of capital formation, capital stock and depreciation for each sector of the economy, with separate details for each type of asset. In addition to a full description of the sources and methods of estimation there is a brief summary of findings and a comparison with previous estimates.

60. Work on the project was begun in 1950 by Dr. K. Maywald; he was assisted by Mr. J. C. McGibbon until 1956 and also by the late Mr. Arthur Adams. In 1959 the work of revising the estimates and preparing a final version of the text for publication was taken over by Dr. C. H. Feinstein.

61. Articles covering preliminary aspects of the work were published by Dr. Maywald as follows:

- "Fire Insurance and the Capital Coefficient in Great Britain, 1866-1932" (Economic History Review, vol. IX, no. 1, 1956; Reprint no. 122).

62. The final, and completely revised, work will be published as Domestic Capital Formation in the United Kingdom, 1920-1939 by Charles Feinstein (Cambridge University Press, 1965).

Long-term Economic Growth in the United Kingdom

This inquiry into long-term trends in the national income and its major components was started in 1954-55. It was one of a series of similar studies for selected countries sponsored by the Committee on Economic Growth of the Social Science Research Council under the inspiration and direction of Professor Simon Kuznets. A conference of research workers concerned in some of the separate studies was held at Portoroz in Yugoslavia in the course of the 1959-60 economic growth in the United Kingdom. Miss P. M. Deane and Dr. B. R. Mitchell began work on the inquiry while the monograph and abstract from the earlier study were going through the press, but it was not until 1962 that the project was effectively launched.

Dr. C. H. Feinstein, whose prior capital formation estimates constitute a major part of the basic material, took part for the first year of full operation; and Miss Thelma Seward, who joined the Department’s research staff in autumn 1962, was also working on the inquiry at that stage. At present (spring 1965) the team consists of B. A. Mercer, Dr. Maywald, and Mr. M. P. Ward with Miss Deane in general charge of the project, and is assisted by an advisory committee including Professor E. A. G. Robinson, Dr. C. H. Feinstein, and Mr. D. G. Championwone.

65. This inquiry is a continuation of the study of long-term growth (see previous paragraph), with the object of exploring in greater depth the relationship between potential for economic growth in the United Kingdom. Miss P. M. Deane and Dr. B. R. Mitchell began work on the inquiry while the monograph and abstract from the earlier study were going through the press, but it was not until 1962 that the project was effectively launched.


(c) Studies in Economic History

Vertical Integration in British Industry

70. During 1958-59 Dr P.L. Cook investigated the causes and implications of vertical integration in industry, making a detailed study of the slate industry in which marketing outlets are particularly important and where the relationship between marketing and structure is complex and difficult to analyse. The results of this study are published in a volume by Dr Cook. During 1960 he undertook a similar study of the blanket industry, and published the results in an article entitled 'Orderly Marketing or Competition? The Blanket Manufacturers' Agreement' (Economic Journal, vol. LXX, no. 283, 1961; Reprint no. 176).

The Utilization of Industrial Capacity

71. Dr P.L. Cook and Mr G. J. M ungeam worked on this subject during 1960-63 following the study of vertical integration (see previous paragraph). A detailed study was made of the brick industry where the difficulties and consequences of fluctuations in the level of utilization are clearly and neatly demonstrated. It is hoped to publish a volume by Dr Cook based on this study.

The Contraction of Railway Workshops

72. This was a study by Dr P.L. Cook of the plan, announced by British Railways in 1962, for the contraction and reorganization of their main workshops, involving a substantial reduction in their staff and the closure of several large workshops. Special facilities were given to Dr Cook by the Railways Board to enable him to investigate the facts underlying the proposals which were involved. The results of this unique opportunity to study a major industrial reorganization while it was taking place were published in Railway Workshops: The Problems of Contraction by P. L. Cook (Cambridge University Press, 1964; Departmental Occasional Paper no. 21). A related study by Mrs D.E. Weiderburn of the social consequences for the men employed in the railway workshops is described in paragraph 84 below.

Economies of Large-scale Production

73. This research began in March 1961 and is still continuing. It is under the general direction of Mr A. Silberston but both Professor Robinson and Mr Reddaway have taken a keen interest in the work. Mr R.M. Dean worked with Mr Silberston on the project until December 1962, when he left the Department, and he was succeeded in July 1963 by Mr C.E. Pratten. The first results of this research, based on case studies, of the steel industry, oil refining, footwear manufacture, and book printing, are being published in 1965 in an Occasional Paper by Pratten and Dean entitled Economies of Large-scale Production in British Industry: An Introductory Study. Research is now being undertaken on a further group of industries. It is hoped eventually to publish a comprehensive volume bringing together studies of economies of scale made by various authors, and discussing how far the research gives rise to generalizations about the scope for economies of large-scale production in British industry.

Productivity in the Coal Industry

74. During 1958 and 1959 Mr J. F. Farrell, with the assistance for a short period of Mr A. R. Jolly, undertook an analysis of a large body of statistical information on roller-tip cards made available by the National Coal Board. This consisted of observations on fifty variables for each of 818 collieries in 1955. A first analysis of the data has been published in an article by Farrell and Jolly entitled 'The Structure of the British Coal Mining Industry in 1955' (Journal of Industrial Economics, vol. xv, no. 3, 1965; Reprint no. 207). Much of the information was transferred to tape and analysed by multiple regression methods. This analysis, involving the number of observations mentioned above and regression equations with up to twenty predetermined variables, was performed with the help of Dr L. J. Slater on EDSAC II, for the use of which we are indebted to the Cambridge University Mathematical Laboratory. It is hoped to publish the results of this analysis as soon as the final computations can be performed on TITAN.

80. The main report on the study has been delayed by the prolonged failure of outside contractors to complete tabulations, but is expected to be published in 1966, probably incorporating some more recent work done by Dorothy Wedderburn. In 1961 she became co-director, with Professor Peter Townsend of the University of Essex, of the British contribution to a cross-national study of the older poor in three countries (U.S.A., Britain, and Denmark). This was financed by the National Institute of Mental Health of the Public Health Service of the United States. Dorothy Wedderburn is joint author of, and has contributed the financial section to, the first national report on this inquiry which is to be published in 1965 as *The Aged in the Welfare State*, by the Cotehese Press, Welwyn.

Survey of Graduate Employment, 1961–63

81. This inquiry, which was undertaken by Mrs J.C. Craig for the Cambridge University Appointments Board, was carried out at the Department under the general direction of Mr J. E. G. Utting. The object of the survey was to obtain information about the careers of Cambridge graduates who had left the University some years before. A postal questionnaire was sent out in the summer of 1961 to 4,200 men and women graduates of 1952 and 1953. Completed questionnaires were returned by 1,125 graduates and the findings of the survey were published in a book by Mrs Craig entitled, *The Employment of Cambridge Graduates* (Cambridge University Press, 1963).

Adaptation of Engineering Graduates to Industry

82. This project, on which Mr F. Bechhofer began work in 1964, follows a thesis on which he was engaged in 1960 under the general direction of the Engineering Department of Industrial Management. Its aims are, first, to describe and examine the changes in the attitudes of a sample of young engineering graduates to their work, to the engineering profession, and to their University and post-graduate training; secondly, to determine the effects of differing technological and industrial environments on these attitudes; thirdly, to relate certain internal differentiations in the sample to their changing attitudes; and, fourthly, to investigate the extent to which these differences result from adaptation or from role selection. Questionnaires and a programme of interviews have resulted in a considerable body of data, which is now being analysed. It is hoped to bring the project to a successful conclusion in 1965 or 1966.

White-collar Redundancy

83. This was a study by Mrs Dorothy Wedderburn of the social and economic repercussions of redundancy, following the cancellation of a government missile contract, in the new town of Stevenage. Interviews were conducted in the winter of 1962 with a random sample of 120 of the dismissed men. The report was published as *White-collar Redundancy—A Case Study by Dorothy Wedderburn* (Cambridge University Press, 1964; Department Occasional Paper no. 1).

The Effects of Redundancy in Railway Workshops

84. As a follow-up to the white-collar study a more ambitious inquiry began in 1963 into the economic and social consequences, for the men employed, of the closure of British Railway workshops. In this we had the active support of the British Railways Board who made a grant towards the cost of the study. Two workshops were selected for study, one in Darlington, the other in Newcastle. The inquiry was designed to discover the impact of the closure upon a stable workforce, consisting of skilled men with long service with the railways, and with older men predominating. The fieldwork of interviews with a random sample of 200 men of each workshop was completed in 1963 and 1964 by Mrs Dorothy Wedderburn, Mr F. E. L. Cook, Mr F. H. Jenne, and a small team of interviewers. They investigated how long it took the men to find other work, what sort of jobs they found, and how well they adjusted to them. The inquiry also studied the hardhships suffered by and the extent to which the financial provisions made by the British Railways Board for handling the redundancy went towards minimising such hardships. The final report, *Redundancy and the Railways*, by Dorothy Wedderburn, will be published in 1965 as an Occasional Paper. (A study by Dr P.L. Cook of the industrial aspects of the contraction of the railway workshop is referred to in paragraph 72 above.)

Attitudes to Work in relation to Production Systems and Community Structure: The New Working Class

85. Mr J.H. Goldthorpe and Dr D. Lockwood are directing this project, which began in 1962. Miss J. Platt and Mr M. Rose have worked on the project; Mr F. Bechhofer is now working on it. Its main aim is to test the proposition that the "affluent" manual worker in Britain is becoming "middle-class." Two hundred and fifty manual workers, all married men between the ages of twenty-one and forty-five and earning relatively high incomes, have been interviewed at their place of work in three Luton factories with different types of production systems. Most of them, as well as fifty-three white-collar workers from two of these factories, have also been interviewed at their homes. These interviews have produced data on the relationship between workers and their jobs as determined by the production system; the structure of social relationships between workers and supervisory staff; norms and attitudes to work; leisure time activities, conjugal roles, kinship and community affiliations, social and economic aspirations, and political attitudes; and data on income, savings and possessions. Analysis of this data should throw light on two alternative explanations of the class position of affluent workers— that they are being assimilated into a traditional middle-class; or that they and lower white-collar workers are converging towards a new style of life, neither traditionally working class nor traditionally middle-class.

A seminar on "Attitudes and Behaviour of Assembly Line Workers", based on the first results of the analysis, was given by Mr Goldthorpe in December 1964. Mr Goldthorpe and Dr Lockwood have published two articles arising from the project—"Not so Bourgeois After All" (New Society, vol. ix, no. 3) and "Affluence and the British Class Structure" (Sociological Review, vol. xi, no. 2, July 1965; Reprint no. 213).

The Causes of Small Strikes

86. This study began in 1962 at Leeds University. It was transferred to the Department on Professor H.A. Turner's appointment to the Monash Buron Chair of Industrial Relations at Cambridge in 1964. Throughout this period Dr Garfield Clack has been working with Professor Turner on the project.

87. In the first instance the study has been based on systematic analysis of the Ministry of Labour's records of industrial disputes. It was then decided to concentrate on one of the industrial sectors where the increased frequency of small disputes had been most marked. In view of previous work by Professor Turner (together with Mr John Besoboy, now of Newcastle University) in this area, the motor vehicle industry was chosen. Dr Clack has carried out a programme of interviews with management and trade union representatives, and has also worked as a "participant observer" in several motor and engineering factories. This part of the research is now at the writing-up stage.

Demarcation Rules and Related Practices

88. The objective of this investigation, which began in 1964, is to study the social and industrial conventions defining the allocation of work between workers of different skill or different degree of skill. It is being carried out by Mr G. Roberts under the direction of Professor H.A. Turner.

Conditions of Employment of Manual and Non-manual Workers

89. This is a study of the differences which exist in the industrial work of the terms and conditions of employment of manual and non-manual workers. The object is to build up a picture of the differences in the total economic situation of different strata of employees. This will cover differences in income and job security, fringe benefits, etc., together with any status differentiation arising from the work environment (tavatories, canteens, etc). It is hoped to relate this information to current discussions about changes in the class situation of different groups of workers as well as to the attitudes both of management and of workers to the maintenance or narrowing of differentials of this kind. It is intended to conduct a large-scale postal inquiry among a random sample of some 3,000 firms to collect basic information about fringe benefits. Parallel with this will be some intensive case studies of a group of some thirty firms. The work is being undertaken by Mrs Dorothy Wedderburn and Mrs J.C. Craig.
Political Socialization

91. During 1964 the Department assisted Dr Philip Abrams with a study of the political and social attitudes of young people in the fifteen to thirty age group. A sample of young people are being interviewed in Cambridgeshire and the West Riding of Yorkshire in connection with this inquiry. This work forms part of a series of comparative studies by Dr Abrams designed, first, to analyze the content and organization of political knowledge in a variety of environments, and then to try to establish relationships between patterns of ideology and particular forms of political behaviour and commitment.

Seminar IV. Other Activities

92. The Department has continued to hold periodical seminars in applied economics conducted either by its own members or by others closely associated with its work, and by a number of distinguished visitors. Since the Easter Term of 1963 these seminars have been under the joint auspices of the Department and of the Faculty of Economics and Politics. Sixty research papers have been read at seminars during the years under review, of which thirty-eight have been contributed by visiting economists.

93. Beginning in 1962 a series of seminars in Mathematical Economics and Econometrics, arranged by Dr F.H. Haigh and Professor Richard Stone, have also been held. Visiting economists have contributed ten of the nineteen papers presented.

University Relationships

94. During the years 1958-64 the Department has progressively become more closely integrated with the Faculty of Economics and Politics, with which it now shares accommodation and a number of common services. Secretarial and computing assistance, and advice on electronic programming and data analysis, have been made available to teaching officers, and help has been given to research students attached to the Faculty. Both the Chairman and the Secretary of the Faculty Board are members of the Department’s Committee of Management. During the period teaching officers of the Faculty have increasingly participated in the Department’s research programme, and the majority of projects are now under their immediate direction. Many members of the Department’s staff have contributed to Faculty teaching by giving courses of lectures and by taking classes.

95. The Department is indebted to the University Mathematical Laboratory for the computational facilities and advice which it has provided. The mechanical failures of EDSAC II and delays in getting the new computer, TITAN, into working order have seriously delayed work on a number of projects (notably the research on the finance of public companies described in paragraphs 33 and 53), and the Department is very grateful to the Laboratory’s staff for their efforts to overcome these difficulties. The Chemical Engineering Laboratory has also been of great assistance in enabling the Department to use equipment for transferring data from punched cards to tape.

96. Valuable financial assistance and co-operation have been received from the Department of Land Economy in connexion with the study of the economics of car parking, with which they were associated.

97. From 1963 onwards the Director has been a Syndic of the Cambridge University Press.

Relationships with Other Bodies

98. The grants which the Department has received from various bodies have been indicated in Section II. In addition, the Department has received a great deal of help of a non-financial kind from many sources.

99. The Department has continued to receive valuable co-operation from a number of government departments and institutions, particularly the Central Statistical Office, the Inland Revenue, the Ministry of Labour, the Board of Trade, the National Economic Development Office, the Ministry of Overseas Development (formerly the Department of Technical Co-operation), and the Department of Scientific and Industrial Research.

100. Co-operation and assistance have been given by a number of local authorities, notably Luton, Cambridge, and Liverpool, in connexion with work on the demand for parking space (see paragraphs 54 and 55).

101. The Bank of England agreed in 1964 to second Mr M.S.J. Wright, a member of their Economic Intelligence Department, to work in Cambridge during 1964-65 and 1965-66 in connexion with the study of the financial aspects of economic growth (see paragraphs 31-6).

102. The Department’s work on models of economic growth (see paragraphs 24-30) has involved continuous consultation with a large number of firms, trade associations, and government departments, in order to keep abreast of technical trends in the use of materials and manpower and in the modernization of capital.

103. The British Aircraft Corporation gave invaluable co-operation in connexion with the study of the redundancy which occurred at their factories in Stevenage and Luton (see paragraph 83). Two of the main unions concerned, A.S.S.E.T. and D.A.T.A., also co-operated fully.

104. The British Railways Board helped in every way, both nationally and at local level, with the studies of railway redundancy and of the plan for contraction (see paragraphs 72 and 84). The National Union of Railwaymen at local and national level were also extremely co-operative.

105. Valuable contacts with the Industrial Welfare Society have been made in connexion with the Department’s study of the conditions of employment of manual and non-manual workers (see paragraph 90).

106. Much of the data for Mr Beshkofer’s study of the adaptation of engineering graduates to the requirements of industry (see paragraph 82) has been provided by employees of the English Electric Company.

107. The Department has given financial and other assistance to the Social and Economic Archive Committee, which was set up in 1964 following a conference of social scientists held at the Department in December 1963.

108. During 1958-61 the Director served as a member of the Committee of Inquiry into the Fishing Industry under the chairmanship of Sir Alexander Fleck (now Lord Fleck), and from 1962 to 1963 was a member of the Royal Commission on the Press.

International Conferences and Visits Abroad

109. The Department has continued to keep in touch with economic and social research abroad by attendances at international conferences and visits abroad, and by affording facilities to foreign scholars to work for a time in Cambridge.

110. The following is a list of visits abroad and of international conferences attended during 1958-54 by members of the Department and by research associates:

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958</td>
<td>Pakistan</td>
<td>Mr. W.B. Reddaway</td>
</tr>
<tr>
<td>1958</td>
<td>Italy</td>
<td>J.A.C. Brown</td>
</tr>
<tr>
<td>1959</td>
<td>Brazil</td>
<td>Miss P.M. Deane</td>
</tr>
<tr>
<td>1959</td>
<td>Yugoslavia</td>
<td>Miss P.M. Deane, Dr W.A. Cole</td>
</tr>
<tr>
<td>1959</td>
<td>India</td>
<td>Dr J.E.G. Utting, Mrs D.E. Weldon, Mr W.B. Reddaway</td>
</tr>
<tr>
<td>1960</td>
<td>Poland</td>
<td>Professor R. Stone</td>
</tr>
</tbody>
</table>

Purpose of visit:

- Ezra course for Pakistani economists organized by International Economic Association, at Warsaw
- Work for United Nations Food and Agriculture Organization, at Rome
- Conference of International Association for Research in Income and Wealth, at Rio de Janeiro
- Conference of I.A.R.I.W., at Portoroz
- Work as Research Associate at Center for International Studies (M.I.T.), at Delhi
- Lecture on consumers’ behaviour to School of Planning and Statistics, at Warsaw
Year | Country | Visitors | Purpose of visit
--- | --- | --- | ---
1960 | Italy | Professor R. Stone | O.E.E.C. Conference on Regional Economic Development at Bellagio
1960 | Ethiopia | Miss P. M. Deane | Conference of I.A.R.I.W. at Addis Ababa
1960 | Hong Kong | Miss P. M. Deane | Conference of I.A.R.I.W.
1960 | Germany | Miss P. M. Deane | Conference of International Economic Association, at Konstanz
1961 | Irish Republic | Professor R. Stone | Lecture to Economic Research Institute, at Dublin
1961 | Germany | Professor R. Stone | Conference of I.A.R.I.W., at Tooting
1961 | France | Professor R. Stone | Conference of Centre National de Recherches Scientifiques, at Grenoble
1961 | Hungary | Mr. J. M. Bates | International conference on statistical problems, organized by Hungarian Academy of Sciences, at Budapest
1961 | Argentina | Miss P. M. Deane | To advise Faculty of Economics of the University of Buenos Aires on their teaching programme
1962 | Austria | Mr. J. A. C. Brown | Conference of International Economic Association, at Vienna
1962 | Turkey | Miss P. M. Deane | Conference of I.A.R.I.W., at Istanbul
1962 | Argentina | Miss P. M. Deane | To advise Faculty of Economics of the University of Buenos Aires on their teaching programme
1962 | England | Professor R. Stone | Conference of Operational Research Society, at Cheltenham
1963 | Iraq | Mr. W. B. Reddaway | To give special address (Economic Progress for Under-Developed Countries, Repint no. 217) to annual conference of Iraq Federation of Industries, at Baghdad; also to conduct a seminar at University of Baghdad
1963 | Argentina | Mr. W. B. Reddaway | To give a special Seminar Course for selected economic students from University of Buenos Aires
1963 | India | Mr. W. B. Reddaway | Representing British Association for the Advancement of Science, at meeting of Indian Science Congress, at Delhi
1963 | U.S.S.R. | Mr. W. B. Reddaway | To give a talk (on the economic position in the U.K.) to the U.S.S.R.—Great Britain Society, at Moscow,
1963 | England | Professor R. Stone | To read a paper to the Conference of the International Economic Association, at Cambridge
1963 | Denmark | Professor R. Stone | European Conference of the Econometric Society, at Copenhagen
1963 | England | Mr. R. C. O. Matthews | London Conference of participants in S.S.R.C. inquiry into long-term trends in national income
1963 | England | Dr. C. H. Feinstein | Conference of the British Society for the Philosophy of Science, at Oxford
1963 | Vatican City | Professor R. Stone | Study Week of the Pontifical Academy of Sciences
Dr. R. H. Khan, of the Government Planning Commission, Pakistan.
Mr. D. V. Besso, of Andhra University.
Mr. M. T. Wegener of the University of Heidelberg.

1961-62
Mr. E. L. Jenkins of the Department of Primary Industry, Canberra.
Professor A. Jezierski of the University of New Wales.
Professor L. Kohr of the University of Puerto Rico.
Mr. D. V. Ramana of Andhra University.
Professor S. Reiter of Purdue University, U.S.A.

1962-63
Professor E. J. R. Booth of Oklahoma State University.
Dr. S. Divičegil of Istanbul University.
Professor L. Fishman of the University of Colorado.
Professor W. F. Railing of South Dakota State College.
Dr. T. Suzuki of Waseda University, Japan.

1963-64
Mr. G. Floyd of the Michelsen Institute, Norway.
Mr. S. Hoshi of the Economic Planning Agency of the Japanese Government.
Professor A. Hunter of the University of New Wales.
Mr. J. Kordon of the Central Statistical Office, Warsaw.
Mr. C. Sirison of the National Economic Development Board, Thailand.
Dr. W. Weile of the University of Lodz, Poland.

V. PUBLICATIONS

112. During 1958-64 ninety-three titles have been added to the Department's reprint series, and further seven monographs have been published. In addition, two new series of publications have been instituted: A Programme for Growth containing progress reports on the work of the Growth project, and a series of Occasional Papers. Details of these and other publications during the period are given below.

Reprint Series

113. This series contains selected papers contributed to learned journals and other publications by members of the Department's research staff and others working in direct collaboration with the Department. During the seven years, ninety-three new titles have been added to the series, of which fifty-four have been mentioned in Section III in connection with the research projects to which they are related. The following is a list of the other thirty-nine reprints published during 1958-64, arranged in alphabetical order of authors:

BARDO, F. E. A. The Estimation of Regression Equations when Independent Variables are Otherwise Related to the Dependent Variables (Metroeconomica, vol. xx, nos. 2-3, 1960; Reprint no. 193).
COLE, D. E. The Income, Expenditure and Saving of Old People Households in Cambridgeshire (Proceedings of the Fourth Congress of International Association of Gerontology, 1957; Reprint no. 156).

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FOREY, F. G. A Further Study of the Productivity of Large and Small Farms in Cambridgeshire (Farm Economist, vol. viii, nos. 11 and 12, 1959; Reprint no. 141).
GHOSH, A. A Note on Leontief Models with Non-Homogeneous Production Functions (Metroeconomica, vol. xiv, no. 1, 1960; Reprint no. 174).
REDDAWAY, W. B. The Argentine Economy, A Visiting Economist's Questions to the Argentine Chamber of Commerce, February 1964; Reprint no. 211).

REDDAWAY, W. B. Economic Progress for Underdeveloped Countries (Address to the 1963 Conference of the Iraq Federation of Industries; Reprint no. 217).
REDDAWAY, W. B. The Implications of a Free Trade Area for British Taxation (British Tax Review, March 1958; Reprint no. 137).
REDDAWAY, W. B. Planning a Development Plan (Economic Weekly, June 1960; Reprint no. 164).
REDDAWAY, W. B. Wage Flexibility and the Distribution of Labour (Lloyd's Bank Review, New Series, no. 34, 1959; Reprint no. 155).
REVELL, J. R. S. Building Societies and the Common Market (Building Societies' Gazette, June 1962; Reprint no. 189).
REVELL, J. R. S. Settled Property and Death Duties (British Tax Review, May-June 1961; Reprint no. 180).
STEWART, I. G. Input-Output Table for the United Kingdom (London and Cambridge Economic Bulletin, no. 28, 1958; Reprint no. 147).
STONE, RICHARD. A. The Profit and the Empirical in Economics L'I industria, iv, no. 4, 1963; Reprint no. 223).

STONE, Richard. The Housekeeper and the Steersman (L'Industrie, October, 1962; Reprint no. 190).


Monograph Series

114. This series, which is published by the Cambridge University Press, contains reports of investigations which have been carried out by members of the Department's research staff and others directly collaborating in its work. The titles of the first five volumes were listed in the Fourth Report. Subsequent titles are as follows:


Studies in the National Income and Expenditure of the United Kingdom

This series is published by the Cambridge University Press under the joint auspices of the Department and the National Institute of Economic and Social Research, and contains the results of research undertaken in both institutions under the general direction of Professor Richard Stone. The titles of the first three volumes were given in the Fourth Report. No further volumes were published in the years under review, but much work has been done on the following three volumes, published:


Other Books

117. This series is published by Chapman and Hall Limited, and describes the progress of the work on economic growth undertaken at the Department under the direction of Professor Richard Stone. The aim of the project is to study quantitatively as in great detail as possible the present structure and future prospects of the British economy, the possibilities of stimulating its rate of growth, and the problems to which this would give rise. The following have been published:


Forthcoming titles:

Production Functions and Technical Change.

Premises

VI. Premises and Facilities

119. In January 1962 the Department moved to a new building on the University's Sidgwick Avenue site. This building was designed by Sir Hugh Casson and Partners. In addition to accommodation for the Department it contains the offices of the Faculty, rooms for Faculty teaching offices, a joint common room, a lecture-room and two seminar rooms, the Marshall Library of Economics, an African Studies Centre, and the offices of the Royal Economic Society. Some forty rooms on the third and fourth floors of the building are occupied by the Department, including the P. D. Leake Professor and his staff. Ten of these offices are occupied by the administrative, statistical, and secretarial staff. Most of the remaining research rooms are capable, when necessary, of accommodating two persons and are at present being used in this way. Storage space and accommodation for the counter-sorter, which is used jointly by the Faculty and the Department, have been provided in the basement of the building.

120. Thanks to a grant from the University Grants Committee for initial furniture and equipment, and a generous subvention from the Mary Marshall Fund, it was possible to re-furnish the Department on moving into the new building.
121. The Department's working library, which is on the third floor of the new building, receives seventy-one British and eighty-five foreign periodical series. Of the periodicals received, thirty-one are in exchange for the Department's reprint series and fifty-three are gifts, the remainder being purchased.

122. During 1958-64, some 459 books, 2,040 pamphlets and reprints, and 1,414 British government publications have been added to the library.

Equipment

123. During 1958-64 the Department has obtained a Creed reproducer and, more recently, a Friden Flexowriter for punching data and programme tapes in connexion with electronic computations, together with Hollerith card-punching and verifying equipment and a counterfoil machine.

124. In 1963 the Department made arrangements with the Cambridge Language Research Unit for the joint use with them of a Hollerith 1202 electronic computer with a card input, primarily for use in analysing survey data. The Department pays the rental and maintenance costs and provides an assistant to service and operate the equipment, and to write programmes for it.

125. The Department now has twenty-two electrical desk calculating machines, which are used both by the computing staff and by research workers, together with four hand-operated calculating machines, and five simple adding machines.

126. More elaborate calculations are undertaken on the University Mathematical Laboratory's electronic computer, and the Department is greatly indebted to the Director of the Laboratory, Dr M.V. Wilkes, for this assistance.

127. The Department possesses the usual office equipment. Together with the Faculty of Economics and Politics, it shares the use of a Xerox 914 copier with the Cambridge Language Research Unit.

Research Staff

128. The following is a list of the research staff at December 1964:

- Mr W.R. Reddaway, M.A. (Cantab.), Fellow of Clare College.


Senior Research Officers: Mr J.E. Bennathan, M.Com. (Birmingham), M.A. (Cantab.), Fellow of Jesus College; Mr J.M. Drayton, M.A. (Oxon.), B.Sc. (Econ.) (London); Mrs D.E. Wedderburn, M.A. (Cantab.).

Research Officers: Mr M.O. Bacharach, B.A. (Cantab.); Mr G. Clack, Ph.D. (London), B.A. (Oxford), B.Econ. (Nottingham); Mrs J.C. Chadwick, B.Sc. (London); Mr K.D. Gordon, M.A. (Wales); Mr J.K. S. O'Mahony, Ph.D. (Cantab.), M.A. (Oxon.); Mr E. P. Paterson, B.Sc. (Econ.) (West Indies); Mr G. Whitington, B.Sc. (Econ.); Mr K. J. Willey, M.A. (Cantab.).


Holders of Unestablished Research Posts: Mr A.G. Armstrong, B.A. (Cantab.); Mr G. Roberts, B.Com. (Manchester); Mr A. Simon, M.A. (Howard), B.A. (Punjab).


129. The following, although not formally holding University posts in the Department, are closely associated with the Department's research activities:

Faculty Teaching Officers

- Mr P. A. Rankin, Ph.D., M.A. (Cantab.); Fellow of Peterhouse; Assistant Lecturer in Sociology.
- Miss M. P. Deane, M.A. (Cantab.); M.A. (Glasgow); Fellow of Newnham College; Lecturer in Economics.
- Mr C. H. Feinstein, Ph.D. (Cantab.); B.Comm. (Witwatersrand); Fellow of Clare College; Assistant Lecturer in Economics.
- Mr J. H. Goldthorpe, M.A. (Cantab.); M.A. (London); Fellow of King's College; Lecturer in Economics.
- Mr D. Lockwood, Ph.D. (Econ.), B.Sc. (Econ.) (London); Fellow of St John's College; Lecturer in Sociology.
- Mr R. L. Mark, M.A. (Cantab.); Fellow of King's College; Lecturer in Economics.
- Mr R. C. O. Matthews, M.A. (Oxon.); M.A. (Cantab.); Fellow of St John's College; Lecturer in Economics.
- Mr M. V. Popen, M.A. (Oxon.); M.A. (Cantab.); Fellow of Pembroke College; Lecturer in Economics.
- Professor E.A. G. Robinson, C.M.G.; M.A. (Cantab.); F.B.A.; Fellow of Sidney Sussex College; Professor of Economics.
- Mr A. Silverston, M.A. (Cantab.); Fellow of St John's College; Lecturer in Economics.
- Professor Richard Stone, C.B.E.; Sc.D., M.A. (Cantab.); F.B.A.; Fellow of King's College; P.D. Lecturer in Finance and Accounting.
- Professor H.A. Turner, Ph.D. (Manchester); M.A. (Cantab.); B.Sc. (Econ.) (London); Fellow of Churchill College; Montague Burton Professor of Industrial Relations.

Other Research Associates

- Professor J.A.C. Brown, M.A. (Cantab.); Professor of Econometrics at the University of Bristol.
- Mr J.R.C. Lecomber, M.A. (Oxon.); on secondment from the National Economic Development Office.
- Mr S. T. Wright, M.A. (Oxon.); on secondment from the Bank of England.

130. The following is a list of members of the research staff during the period covered in this Report who have left the Department:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Post in Department</th>
<th>Abbreviation *</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958</td>
<td>T.A.B. Cobley, M.A. (Oxon.)</td>
<td>J.R.O.</td>
<td>S.A.</td>
</tr>
<tr>
<td>1958</td>
<td>M. C. P. Mares, B.A. (Cantab.); B.C. (Econ.)</td>
<td>J.R.O.</td>
<td>S.R.O.</td>
</tr>
<tr>
<td>1958</td>
<td>M. C. P. Mares, B.A. (Cantab.); B.C. (Econ.)</td>
<td>J.R.O.</td>
<td>S.R.O.</td>
</tr>
<tr>
<td>1958</td>
<td>M. C. P. Mares, B.A. (Cantab.); B.C. (Econ.)</td>
<td>J.R.O.</td>
<td>S.R.O.</td>
</tr>
<tr>
<td>1958</td>
<td>M. C. P. Mares, B.A. (Cantab.); B.C. (Econ.)</td>
<td>J.R.O.</td>
<td>S.R.O.</td>
</tr>
<tr>
<td>1958</td>
<td>M. C. P. Mares, B.A. (Cantab.); B.C. (Econ.)</td>
<td>J.R.O.</td>
<td>S.R.O.</td>
</tr>
</tbody>
</table>

* Abbreviations: A.S., Special Appointment; S.R.O., Senior Research Officer; J.R.O., Research Officer; J.R.D., Junior Research Officer.
<table>
<thead>
<tr>
<th>Year of Leaving</th>
<th>Name</th>
<th>Post in Departmen</th>
<th>Post Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>Miss P. M. Dewar, M.A. (Cardiff), M.A. (Gloucester)</td>
<td>Lecturer, Faculty of Economics and Politics, University of Cambridge.</td>
<td>S.R.O.</td>
</tr>
<tr>
<td>1967</td>
<td>Mr G. C. Housley, B.A. (Nottingham)</td>
<td>Lecturer, Department of Industrial Economics, University of Nottingham.</td>
<td>J.R.O.</td>
</tr>
<tr>
<td>1962</td>
<td>Mr J. Longden, M.A. (Oxon.)</td>
<td>Lecturer in Economics, University College of Adelaide, O.R.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1963</td>
<td>Miss P. L. Cook, Ph.D., M.A. (Cardiff)</td>
<td>Lecturer in Economics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1963</td>
<td>Mr G. C. Housley, B.A. (Nottingham)</td>
<td>Lecturer in Economics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr G. E. Mungavan, M.A. (Nottingham)</td>
<td>Private practice, as Consultant.</td>
<td>J.R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr J. A. C. Brown, M.A. (Cardiff)</td>
<td>Professor of Econometrics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr P. J. Harvey, B.A. (Cardiff)</td>
<td>Assistant Lecturer in Sociology, University of Sheffield.</td>
<td>J.R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Miss J. A. Prue, B.A. (Cardiff)</td>
<td>Research Fellow, Department of Management Studies, College of Advanced Technology, Salford.</td>
<td>S.R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr F. G. Pyatt, M.A. (Cardiff), B.A. (Mancster)</td>
<td>Lecturer in Economics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr M. J. Renf, B.A. (Cardiff)</td>
<td>Lecturer in Economics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr G. J. Roth, M.A. (Cardiff), B.Sc. (London)</td>
<td>Lecturer, Faculty of Economics and Politics, University of Cambridge.</td>
<td>S.R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Miss J. A. Prue, B.A. (Cardiff)</td>
<td>Lecturer in Economics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr F. G. Pyatt, M.A. (Cardiff), B.A. (Mancster)</td>
<td>Lecturer in Economics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1964</td>
<td>Mr M. J. Renf, B.A. (Cardiff)</td>
<td>Lecturer in Economics, University of Sussex.</td>
<td>R.O.</td>
</tr>
<tr>
<td>1964</td>
<td></td>
<td>Research Fellow, Department of Management Studies, College of Advanced Technology, Salford.</td>
<td>R.O.</td>
</tr>
</tbody>
</table>

**Abbreviations:** S.A., Special Appointment; S.R.O., Senior Research Officer; R.O., Research Officer; J.R.O., Junior Research Officer.

**Assistant Staff**

131. The following is a list of assistant staff at December 1964:

- **Secretary:** Mr R. M. D. Davies, B.A. (London).
- **Administrative Officer:** Mr H. L. L. Davies.
- **Librarian:** Miss O. E. Hindson.
- **Secretarial and Clerical Staff:** Mrs E. J. S. E. (Senior Typist); Mrs S. B. Butler; Miss J. Chapman; Mrs P. M. C. E. (Senior Typist); Miss J. E. E. (Senior Typist); Mrs C. A. H. (Senior Typist); Miss E. M. L. (Senior Typist); Miss V. A. S. (Senior Typist); Miss S. D. S. (Senior Typist); Miss A. C. T. (Senior Typist); Miss M. W. (Senior Typist).
- **Computing and Statistical Staff:** Mrs B. K. Adams; Miss R. Bakerdale, B.Sc. (Sociology) (London); Mrs B. Bellaby, B.A. (Oxford); Mrs E. C. E. (Senior Typist); Miss J. E. E. (Senior Typist); Mrs J. M. M. (Senior Typist); Mrs J. M. (Senior Typist); Mr M. P. R. (Senior Typist); Miss J. M. S. (Senior Typist); Miss S. U. (Senior Typist), M.A. (Agit.

**132.** We record with regret the death of Mr G. W. W. Warrington, Senior Computer, on 6 December 1962.