DEPARTMENT OF APPLIED ECONOMICS

SIXTH REPORT
ACTIVITIES IN THE PERIOD
JANUARY 1965 TO SEPTEMBER 1966

March 1967
UNIVERSITY OF CAMBRIDGE

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SIXTH REPORT OF THE DEPARTMENT OF APPLIED ECONOMICS
(covering the period January 1965 to September 1966)

I. GENERAL

1. The Fifth Report of the Department of Applied Economics covered the period January 1958 to December 1964. In order to bring the Department into line with usual University practice the present Report deals with the period January 1965 to September 1966, and its future Reports will cover periods of academic, not calendar, years.

2. Mr W. B. Reddaway, whose appointment as Director of the Department dates from October 1955, resigned the Directorship from 1 October 1965. He was re-appointed for a further five years, which will bring his tenure of the post to fifteen years, the maximum permissible under the regulations for the Director of the Department of Applied Economics as revised in 1965 (Reporter, 1964-65, p. 1686).

3. In the period under review the Department's research activities have continued to increase both in number and in scope. This increase has been reflected in the maximum permitted staff, which now consists of the Director, the Assistant Director, thirty-two other holders of University posts, up to six graduate research workers not holding University posts, and thirty-three assistants; a total of seventy-three, as against seventy when the Fifth Report was published in 1965. This number does not include research associates and visiting members not employed by the Department, nor research consultants appointed on a fee basis.

4. The actual staff and associated members of the Department at the time this Report was prepared (December 1966) was as follows: the Director (on sabbatical leave), the Acting Director, one Special Appointment, five Senior Research Officers, sixteen Research Officers, six Junior Research Officers, four research consultants, four visiting members, fourteen research associates (teaching officers of the Faculty of Economics and Politics actively associated with research projects within the Department), and twenty-five full-time assistants.

II. FINANCE

5. As a result both of higher prices and pay-scales and of increased research activities the Department's annual expenditure rose from £66,869 in 1963-64 to £89,303 in 1965-66. Nearly 85 per cent. of this expenditure is on stipends, wages, and related payments.

6. The annual grant which the Department receives from the University is not increased to take account of increased activities, a larger establishment, or higher costs. It is increased to allow for higher scales of stipends and wages, but only in respect of eleven-eighteenths of the establishment fixed in 1956. In consequence, the University grant rose from £33,800 in 1963-64 to £41,400 in 1965-66, an increase of £7,600, while expenditure in the same period rose by £22,434.

7. The University grant now covers only about 47 per cent. of the annual expenditure of the Department, which is therefore more than ever dependent upon the support of outside bodies in order to maintain its research activities.

8. During the period covered by this Report the following are the principal new payments by outside bodies which have been accepted, for payment over various periods, either as grants in support of specific research projects or as donations to the Department's Research Account (which can be used for a wide range of purposes, not necessarily connected with any specified project):

- Ford Foundation
- Social Science Research Council
- Confederation of British Industries
- National Ports Council

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>Ford Foundation</td>
<td>£50,000</td>
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<tr>
<td>Social Science Research Council</td>
<td>£20,188</td>
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<tr>
<td>Confederation of British Industries</td>
<td>£25,000*</td>
</tr>
<tr>
<td>National Ports Council</td>
<td>(up to) £7,000</td>
</tr>
</tbody>
</table>

* This grant is to reimburse the Department for the entire cost of the research into The Effects of the United Kingdom Direct Investment Overseas (see paragraph 25). The figure of £25,000 is given as an indication of the order of magnitude of the grants, the exact amount of which will not be known until the research is completed.
Empirical Models of Economic Growth

9. The nature and progress of this project, which is under the direction of Professor Stone, was described in our Fifth Report up to the appearance of the paper 'Modelling Economic Systems' (in Russian), by Richard Stone ('Mathematical Models of the Economy', by Richard Stone, published in The Review of Income and Wealth, no. 1, 1966).

10. In addition to Professor Stone, the following have been engaged on the project during the period of this Report: Professor J. A. C. Brown, M. O. L. Barchark, and M. C. J. Bliss (to October 1965); Mr A. G. Armstrong, Mr R. Lecomber (who was seconded from the National Economic Development Office), Mr C. S. Lecister, Dr J. J. Slater, and Mr K. J. Witt (from October 1965); Mr T. S. Barker and Mr M. J. Green (from October 1965). During parts of this period a number of visitors to the Department, Dr B. Isaev, Dr J. W. Lee, Dr S. J. Loccurette, Dr S. R. Rossi, and Mr H. Bhattacharyya, were associated with the project.

11. Since the publication of 'Modelling Economic Systems', a number of steps have been taken to improve and extend the model with a view to making a new series of calculations relating to 1972 at the end of October 1965; Mr A. G. Armstrong, Mr R. Lecomber (who was seconded from the National Economic Development Office), Mr C. S. Lecister, Dr J. J. Slater, and Mr K. J. Witt (from October 1965); Mr T. S. Barker and Mr M. J. Green (from October 1965). During parts of this period a number of visitors to the Department, Dr B. Isaev, Dr J. W. Lee, Dr S. J. Loccurette, Dr S. R. Rossi, and Mr H. Bhattacharyya, were associated with the project.

12. With two exceptions, the papers referred to as unpublished in the Fifth Report have now been published. In addition, the following further papers have appeared: 'The Cambridge Growth Project', by Richard Stone (Cambridge Research, October 1965; Reprint no. 250).

13. The major part of the work on this project during the period has been concerned with constructing the social accounting framework. The study of the national balance sheet of the United Kingdom for the years 1957-61 has now been completed, and a monograph by Jack Revell entitled 'The Wealth of the Nation: The National Balance Sheet of the United Kingdom: The National Balance Sheet of the United Kingdom: 1957-61' is due to be published in the near future.

14. The other studies which have been made or are in train are largely concerned with the finances of the personal sector. Some work has been done on the growth of life and pension funds and a study has been started on building societies with the aim of setting out a mathematical model of their working and of examining the determinants of personal saving through building societies. The study of the owners of ordinary shares quoted on the London Stock Exchange referred to in the Fifth Report has been published.

15. The research staff working under Professor Stone on the project have been Mr J. K. S. Revell, Mr R. Gray, Mr M. S. J. Wright (seconded for two years from the Bank of England), Mr J. P. Moyle, and Mr E. E. Townsend.

16. The following papers and articles have been produced:


   'Changes in the Social Distribution of Property in Britain in the Twentieth Century', by Jack Revell (read to the International Economic History Association, Munich, August 1965).


   'The Wealth of the Nation', by Jack Revell (in Mooye and Wall Street, Spring 1965; Reprint no. 249).

   The Owners of Quoted Ordinary Shares: A Survey for 1963, by Jack Revell and John Moyle (Number 7 of A Programme for Growth).

The Growth of Public Companies and its Finance

17. The inception and aims of this project, and its progress until 1964, were described in the Fifth Report. Mr. G. Whittington, in close association with Mr. A. Singh, has been engaged on the project throughout the period. Dr. J. K. S. Gandhi worked on the project until September 1965. Mr. H. T. Burke has carried out the computer programming since March 1965. The Imperial College of Science and Technology, University of London, has made its IBM 7090 computer available for the purposes of this project.

18. Computing difficulties encountered in the early stages have now been overcome; by September 1966 over 40 per cent. of the available data had been transferred to magnetic tape, standardized, and tested.

19. Mr. Singh and Mr. Whittington have undertaken a preliminary analysis of four industries, with commentaries and assistance from Mr. Burke. This analysis concentrates on the size, profitability, and growth of quoted companies, with growth as the principal dependent variable. Mr. Singh is using results from this project for a study of the determinants of the valuation ratio and take-over bids. Mr. Whittington is undertaking a study of trade credit and company liquidity. It is also hoped to provide data for other research projects, such as that on Productivity in Distribution.
20. 'The Profitability, Growth and Valuation of Quoted Companies: A Preliminary Report', by A. Singh, Q. Whittington, and H. T. Barley, is to be published early in 1967 as no. 7 of the Occasional Papers. Some results from this Occasional Paper were given in a paper presented by Mr Singh to the University of Ancona Congress in September 1966. This paper, 'The Profitability, Valuation and Growth of Firms: A Preliminary Report on the Post-war British Experience', with Mr. Whittington, is to be published in the Proceedings of the Ancona Congress.

The Economics of Developing Countries

21. In 1964 the Ministry of Overseas Development (then the Department of Technical Co-operation) 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.

22. Under this arrangement Mr. A. R. Jolly was seconded for almost two years to Zambia as Adviser on Manpower Planning in the Office of National Development and Planning, where he directed Zambia's national survey of skilled and educated manpower. His report, containing detailed tabulations of actual and normally required levels of education and training of all wage-earning employees in the country, together with projections of employment and skilled manpower requirements in 1970 and 1980, was published as Zambianisation: A Report on Manpower, Education and Training (Government Printer, Lusaka, 1966). He formulated the basic manpower and education sections of Zambia's first National Development Plan 1966-70. The following articles also have been, or are to be, published in connexion with Mr. Jolly's work in Zambia:


23. Mr. E. Panumath has been engaged on a major study of the cost of ocean transport and the trade of developing Asia, with the object of computing comparable information on relative shipping costs between different developing countries in Asia and between those countries and North America and Western Europe, in order to assess the impact of these shipping costs on the growth and structure of trade. Most of the Asian developing countries suffer from severe shortages of foreign exchange. The possibility of increasing trade between them provides an opportunity to provide for the development of a more rational distribution of ocean shipping. Professor A. A. Walters, of the University of Birmingham, is closely associated with this study, which is being carried out in collaboration with research departments in the Universities of Bombay, Hong Kong, Singapore, and Thames, in the Bank of Thailand, and in the Institute of Development Economics in Karachi. In connexion with this research Mr. Panumath has been in Thailand since May 1966. Pilot studies have been completed. It is hoped to have an interim report ready by April 1967 and a final version of the study later in the year.

24. Mr. M. P. Ward has been seconded to the Bureau of Statistics in Malawi, Lusaka, and he has been engaged since August 1966 in setting up a national accounts system and an import/export matrix.

The Effects of United Kingdom Direct Investment Overseas

25. Originally intended in 1965 as the Department's own study, this project was greatly increased in scope as the result of an approach by the Confederation of British Industry, following the Finance Bill of 1965. The C.B.I. is providing finance for the project, of which it is expected to complete two research workers full-time for about two years, and has required, especially in the first year, considerable part-time assistance from other members of the research staff. Work began on the project in September 1965.

Mr. R. D. Matthews, who is in charge of the project, is largely responsible for the general strategy of the study and for the methodological approaches used. Mr. S. J. Potter and Mr. C. T. Taylor are carrying out the research under his direction. Assistance in interviewing companies is being given by Mr. B. M. Dukin, Mr. K. D. George, and Mr. C. F. Prasen of the Department; by Professor J. H. Dunning of the University of Reading; and by Professor S. J. Wells of the University of Salford.

In addition, Dr. J. D. C. Perkins of the University of Melbourne, who visited the Department during 1966, has worked full time on the project.

27. The objective of the research is to identify, and if possible quantify, the main effects of direct overseas investment by British companies on the British balance of payments and on the economy generally. The method of approach was firstly to discover in depth what has actually happened over a recent ten-year period in terms of flows of net investment, rate of return, local production by overseas companies controlled in this country, and U.K. trade in goods affected by such overseas production; and secondly to suggest, through a hypothetical 'alternative scenario', which would have happened if less investment had been undertaken. Detailed information has been collected, by means of a questionnaire and interview procedure, from some fifty major manufacturing and mining companies, together accounting for about 70-75 per cent. of U.K. direct overseas investment in those industries. Information of a somewhat less detailed nature has been obtained from the leading British oil companies, with the result that the coverage of total U.K. overseas investment will be about 80 per cent.

28. Preliminary findings of an analysis of the company returns are to appear in an interim report to the C.B.I. early in 1967, together with some discussion and figures relating to the 'alternative position'. It is proposed to produce a final report in 1967-68. This will be an expanded version of the interim report and will cover certain industries with large overseas interests which, for reasons of time, will not be included in the interim report. It will also deal more fully with aspects of the subject which receive less than adequate treatment in the interim report.

Current Economic Assessments

29. Assessments of the current economic position continued to be published quarterly during 1965-66 in the London and Cambridge Economic Bulletin, but December 1965 saw the last issue of the Bulletin in its traditional format. Since then it has appeared as an official publication of the Times. A new analytical approach, suitable for both broad and detailed use, has been published by that newspaper's Special Publications Department. The statistical and secretarial services required for the production of the quarterly articles continue to be provided by the Department. Dr. C. H. Feinstein became secretary of the L.C.E.S. at the beginning of 1966; Miss T. Seward was statistician until March 1966, when she was succeeded by Mr. S. J. Potter.

Capital Formation and the Stock of Assets in Britain, 1830-1960

30. The object of this inquiry is to explore some aspects of the relationship between capital formation and economic growth in Britain since the beginning of the railway age. Over the period January 1830 to December 1965 Britain continued with the task of filling in the gaps in the capital formation and national expenditure statistics for the period 1830-1914 where the existing data are most deficient, while Miss B. A. Mercer and Mr. M. P. Ward used the material of the nineteenth century occupation censuses to construct a more comprehensive picture. In 1965-66 Miss B. A. Mercer left the Department in the spring of 1966 to take up a post in the Research Division of the United Nations Conference on Trade and Development, but is completing her work on the labour force statistics. It is hoped to publish the results of this project during 1967 and 1968.

The Growth of the U.K. Economy since the War

31. The objectives and methods of this enquiry were described in the Fifth Report. Mr. R. C. Matthews, Dr. C. H. Feinstein, and Mr. J. C. Odling-Smee worked on the project in the Department between January and September 1965. On the appointment of Mr. Matthews as Drummond Professor of Political Economy at the University of Oxford in October 1965, the project was transferred to the Oxford Institute of Economics and Statistics. Dr. Feinstein has continued to undertake research in the Department for the purposes of this project.

National Income, Expenditure, and Output of the United Kingdom 1850-1960

32. This project has been designed to complete the series of Studies in the National Income and Expenditure of the United Kingdom edited by Professor R. C. Matthews. It will provide a consistent and up-to-date series of national accounts for all years from 1850, with detailed estimates of income, expenditure, and real output. Some of the material has already been published, but it will also include new estimates, in particular, for profits, personal incomes, and personal and corporate savings in the inter-war years.
33. Some preliminary results have been published in papers listed in the Fifth Report and it is hoped to have the complete study, which is being undertaken by Dr C.H. Feinstein, ready for publication by July 1967.

Economies of Large-scale Production

34. The research on this topic has been continued by Mr C.F. Pratten during the period under review and is now nearing completion. It is intended to publish the results in a book describing the economies of scale in twenty-five manufacturing industries. The estimates of economies of scale for individual industries are based on information obtained from companies engaged in the industries concerned and from published studies. The volume will also contain sections discussing the use of company accounts and census of production data for the estimation of economies of scale, and a discussion of how far the research enables generalizations to be made about scope for, and the relative importance of, economies of large-scale production in British industry.

35. One of the industries included in the study is the manufacture of rubber products (other than tyres). This study was prepared at the request of the Economic Development Committee for the industry.

Economic Aspects of the British Patent System

36. Research on the economic effects of the patent system started in the Department of Applied Economics in 1961 with the help of a grant from the National Foundation. Mr. A. Silverston was in charge of the project and Mr. K. H. Boehm was engaged to carry out the research from 1961 to 1965. Its results are to appear in two volumes. The first is a study of the history, law, and administration of the British Patent System, and the second a study of the economic effects. The first volume is on history, law, and is administration and has been completed and is to be published by the Cambridge University Press in the autumn of 1967. The volume containing the results of a new investigation into patent statistics completed by the Department. For the purposes of this investigation, patents were reclassified according to the Standard Industrial Classification of 1958. For the first time, therefore, statistics of patents by industry rather than by type of invention will be available.

37. Work is now proceeding on the second volume which will be concerned with the economic implications of the patent system. The core of this volume will be a study of individual industries. These will include chemicals, electronics, pharmaceuticals, and oil refining. In addition, the relationship between the statistics of patents granted and other economic magnitudes will be investigated, and attention will be paid to other patent systems. The volume will end with an appraisal of the economic effects of the British Patent System, together with any proposals for changes in the system that the analysis suggests.

38. A further investigation has now been started in which an attempt will be made to study historic trends since the start of patenting over the last hundred years or so. The approach adopted will be that of a stock analysis by industry and compared with other economic series to see whether the results suggested by work carried out in this field in the United States are supported by British experience. The work is to be undertaken by Dr B.R. Mitchell. An article, 'The Patent System', by Aubrey Silverston, is to appear in Lloyds Bank Review early in 1967.

Service Industries

39. This investigation into post-war trends in capital, employment, output, productivity, and technical change in the service industries in the United Kingdom began in October 1964. The first stage of the work was undertaken by Mr B.M. Deakin and Mr K.D. George under the general direction of Mr W.B. Reddaway. The main results include a comparison of productivity trends in "measured" services as a whole (i.e., an aggregation of those service industries where output measures were judged sufficiently accurate for meaningful productivity calculations) with those in the 'goods' sector of the economy. The fitting of a Cobb-Douglas type production function to these results enabled attributions to be made of productivity change to changes in labour and capital input separately and, as a residual and combined element, change in technical and organizational knowledge. Labour input was adjusted for hours and quality for changes over time in the composition of the part-time workers and female workers engaged. These results appeared in 'Productivity Trends in the Service Industries, 1948-63', by B.M. Deakin and K.D. George, published in the London and Cambridge Economic Bulletin, March 1965 (Reprint no. 237). Later stages in this investigation are reported below under Productivity in Distribution and Capital, Employment, Output, Productivity, and Technical Change in Transport and Communication.

Productivity in Distribution

40. The first stage of this research, which has been carried out by Mr K.D. George, has been a statistical analysis based on the 1961 Census of Distribution. The main objectives were: to examine productivity in retailing by studying inter-town differences in labour productivity as measured by the sales per man engaged; to see whether any relationship between productivity and retail size was consistent with any systematic patterns; to examine whether productivity differences could be related to some other systematic factors such as the tightness of the labour market, or the size of shop, or the proportion of sales done by multiple shops; and to examine the extent to which a regression analysis would give a satisfactory explanation of differences in productivity between towns. The results of this research have been published in an Occasional Paper by K.D. George entitled Productivity in Distribution.

41. The next stage in the research is to examine the role of investment in increasing productivity in large retail companies.

Capital, Employment, Output, Productivity, and Technical Change in Transport and Communication

42. This research was started in April 1965 as a development of the Service Industries project. The work is being undertaken by Mr B.M. Deakin and Miss T. Seward under the general direction of Mr W.B. Reddaway. The project has three principal objectives. First, to investigate post-war trends in capital, employment, output, quality of output, productivity, technical change, and capacity utilization in passenger and freight transport in Great Britain. Second, to study economic relationships between transport and the economy in average and marginal terms, and third, to examine alternative organizational concepts for a road service industry supplying road facilities and traffic regulation facilities to all road users, and to measure productivity trends in such an industry. It is hoped to publish the results of this work in the form of an article by Mr B.M. Deakin on relationships between transport and the economy, and an Occasional Paper by Mr B.M. Deakin and Miss T. Seward on all the other aspects of the project. It is expected that the research will be completed in the autumn of 1967.

The Investment Policies of Nationalized Industries

43. Mr R.W. Pryke is undertaking this project under the general direction of Mr M.V. Posner. Its original purpose was to examine how the nationalized industries draw up their investment programmes and assess rates of return on particular items of capital expenditure. However, it became apparent that such a restricted investigation was not feasible. Investment is decided upon by the pricing policy adopted, by the economic guidelines laid down in 1961, and, in the case of coal, gas, and electricity, by general fuel and power policy and prospects. After Mr Pryke and Mr Posner had written a lengthy paper on the economic and financial rules by which the nationalized industries should operate, it was decided to divide the project into two parts. First, a collection of studies, including the paper on economic and financial rules, will present and round out the material assembled in the course of the investment study. Second, a study of the fuel and power industries. It is hoped to publish this paper, together with the material assembled in the course of the investment study, in the autumn of 1967.
Industrial Relations in a British Car Factory, by Garfield Clack (Department of Applied Economics, Occasional Paper no. 9).

45. This project in connection with this project has also been used extensively in Labour Relations in the Motor Industry: A Study of Industrial Unrest and an International Comparison by H.A. Turner, Garfield Clack, and Geoffrey Roberts (London: Allen and Unwin, 1967).

Job Evaluation

46. The main objective of this project is an assessment of the possible use of job evaluation techniques for national wage and income policy. The study began in 1965 and is being carried out by Dr Clack under the direction of Professor H.A. Turner.

47. The main work to date has consisted in (a) a review of the technical literature, (b) discussion with the relevant trade associations, firms, consultancies, and trades-union officials having experience of the techniques concerned—as well as with management departments and universities and departments having knowledge of (or opinions on) these systems, and (c) an on-the-spot following through of the detailed negotiations for the revision of the jute industry’s wage-structure, as a substantial case study of an attempt to apply job evaluation on an “industry-wide” basis.

48. Offers have been received from two engineering firms to co-operate in detailed studies of revisions of their own wage-systems, but it has seemed preferable—whilst keeping in touch with their experience—to concentrate on a wider survey of the practice of industrial consultants in this regard, and on a report of the Civil Service Pay Review Unit, in an effort to reach broader ranges of information and material.

Demarcation Rules and Related Practices

49. The objective of this study is to survey and analyse the trade union rules, collective agreements, and industrial conventions which define the allocation of work between workers of different skills or degrees of skill. The Shipbuilding and Printing Industries were chosen as an area suitable for investigation. The study was started in 1964 and is being undertaken under the direction of Professor H.A. Turner. A general examination has been made of the extent and operation of demarcation rules in the shipbuilding industry. To find out how differences in such rules, and in yard or local practice, influence decisions on demarcation a detailed study was carried out on the North East Coast. From Ministry of Labour records detailed statistical analyses have been made of the historical part played by demarcation disputes in shipbuilding strikes, of the distribution of disputes between areas and the shipbuilding crafts, and of the particular incidence of disputes in the North East centres. An analysis has also been made of the “expressive agreements” and other negotiations for the re-organisation of labour use and conditions of employment which have recently taken place in a number of yards and districts. An investigation along similar lines is now being carried out in the printing industry. From the shipbuilding section of the study, an Occasional Paper, Demarcation Rules in the Shipbuilding Industry, and a Report for the Royal Commission on Trade Unions and Employers’ Associations, are being prepared.

Labour Relations in Mining

50. The object of this study, which began in October 1965, is to survey and analyse post-war developments in labour relations in the U.K. coal industry. Among several topics of interest the recent developments in the demarcation wages structure and the post-war course of strike frequency figure very prominently in the research programme. The project is being conducted by Mr J.I. Handy under the direction of Professor H.A. Turner. Both the N.C.B. and the N.U.M. have been of considerable assistance. Discussions have been held with union officers and management within the industry and several pits have been visited. The N.C.B. has supplied raw statistical information of both a general and detailed nature and an analysis has been made of Ministry of Labour strike records for coal mining.

51. Attention was directed recently to coal-miners’ absenteeism and an article by Mr Handy and Mr J. H. Goldthorpe, "Absenteeism in the Mines", appeared in New Society, 7 April 1956. A more detailed analysis of absence trends by Mr Handy is now in draft form. Indirectly related to the project, a paper, 'Research Needs in Automation' was prepared and read by Professor Turner and Mr Handy for the Social Science Research Council in London in January 1966.

Conditions of Employment of Manual and Non-manual Workers

52. The objects of this enquiry were outlined in the Fifth Report of the Department (p. 21, paragraph 90). Mr Bechhofer and Mr H. A. Turner are engaged on the research under the direction of Mrs D.E. Widdershoven. Mr P. Jenner also worked on it until mid-1965.

53. Since January 1965, two detailed case-studies have been made in very different industrial settings, but both in firms where management was considering the introduction of new ‘status’ schemes.

54. The first was at Star Paper Mills in Blackburn. This is a ‘family’ firm with about 500 employees. 132 hourly paid workers and 25 male staff were interviewed early in 1965, and a full report on the findings was presented to the company and the trade unions in June 1965. The object of these interviews was to investigate attitudes to existing differentials, and to test certain questions and approaches with a view to future case-studies.

55. In June 1965 I.C.I. agreed to a larger scale enquiry being made at their Wilton chemical site, on Teesside. This site includes six major production works in addition to services and maintenance works, and this was an ideal opportunity to investigate worker attitudes to large and complex organisation, with a variety of technologies, at a time when management was negotiating with the union on the granting of ‘staff status’ for manual workers in return for the right to re-organize the content of jobs in a way which would cut across craft and non-craft lines. By November 1965, 490 hourly paid men and 77 staff and foremen had been interviewed. A first report was ready by April 1966, and a final report is in preparation.

56. In addition to these separate reports, a paper is being prepared for publication describing the two case-studies. It throws light on the nature and extent of differentials between different groups of workers, the awareness of, and attitudes towards, such differentiations, and the relative importance of differentials as a source of satisfaction or dissatisfaction compared with other aspects of the work situation.

57. Such general background information as already exists which illustrates differences in terms and conditions of employment has been analysed, and this analysis is also being prepared for publication.

58. Discussions have been held with trade unions, employers’ organisations, and individual firms about their policies on matters affecting differentiation of various kinds. The Ministry of Labour have agreed to co-operate in drawing a sample for a large-scale postal enquiry among manufacturing industries to collect basic information about fringe benefits. It is hoped that this enquiry will start early in 1967.

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

59. The data described in the account of this project in the Fifth Report have now been analysed and the work of writing-up is well advanced. The following papers have already appeared—'Attitudes and Behaviour of Car Assembly Workers: A Descriptive Case and Theoretical Critique', by J.H. Goldthorpe (British Journal of Sociology, September 1966); 'Some Sources of Variation in Working Class Images of Society', by D.Lockwood (Sociological Review, November 1966); 'The Affluent Worker and the Ties of Emplacement: Some Preliminary Research Findings', by J.H. Goldthorpe, D. Lockwood, E. Bechhofer, and J. Platt (Sociology, January 1967); Mr Goldthorpe also presented two papers reporting on the project to the Sixth World Congress of Sociology, held at Evian in September 1966. In September 1965 the project was the subject of a documentary feature film made by British Film Institute Limited. Two monographs, The Affluent Worker: Industrial Attitudes and Behaviour, and The Affluent Worker: Industrial Attitudes and Behaviour, are nearing completion. It is intended that they should be the first publications in a new series of Monographs and Occasional Papers to be called Cambridge Studies in Sociology.

Adaptation of Engineering Graduates to Industry

60. This project was described in the Fifth Report. Mr Bechhofer has carried out some coding and analysis of the data which had been collected, but was unable to complete the work before he left the Department in September 1965. It is hoped that the next Report will announce the completion of this project.
Visitors from Abroad
70. The following distinguished economists from abroad have worked in the Department as visiting members:
1954–55  
Dr J. W. Lee of the University of Indiana.
Dr S.J. Loeckster of the University of Ghent.
Mr Stanislav of the Institute of Economics, Zagreb, Yugoslavia.
1963-64  
Mr H. Blustatchaya of the Indian Statistical Institute, Calcutta.
Mr M. Cuglas of the Turkish State Institute of Statistics.
Mr B. Isack of the Central Economics and Mathematical Institute, Science Academy of the U.S.S.R.
Dr S. Ross of the University of Florence.

Reprint Series
V. PUBLICATIONS
71. This series consists of selected papers which members of the Department's research staff and others working in direct collaboration with the Department have contributed to learned journals and other publications. During the period the following twenty-six new titles have been added. They are listed in alphabetical order of authors:

ARMSTRONG, ALAN and SILBERSTON, AUBREY. Size of Plant, Size of Enterprise and Concentration in British Manufacturing Industry 1935-38 (Journal of the Royal Statistical Society, Series A (General), vol. cxxv, part 5, 1955; Reprint no. 246).
BROWN, A., LECRERRE, C. and PYATT, F. G. Output, Manpower and Industrial Skilled in the United Kingdom (The Residual Factor and Economic Growth, O.E.C.D., Paris 1964; Reprint no. 244).
HARRIS, R. L. Esnounce Policy and the Rate of Profit in Industry (paper read to the Manchester Statistical Society, December 1964; Reprint no. 239).
HARRIS, R. L. and SINGH, A. A. Measure of a Firm's Average Share Price (Journal of the Royal Statistical Society, Series A (General), vol. cxxv, part 1, 1966; Reprint no. 258).
MATTHEWS, R. C. O. Some Aspects of Post-War Growth in the British Economy in Relation to Historical Experience (paper read to the Manchester Statistical Society, November 1964; Reprint no. 240).
PICKER, RICHARD. Towards a Problems Surplus (Bankers' Magazine, September 1965; Reprint no. 247).
REDWAY, W.B. Mees for Rising Prices (English version of a paper published in Italian in Rivista Internazionale di Scienze Economiche e Commerciali, October 1964; Reprint no. 230).
REDWAY, W.B. Rising Prices for Ever? (Lloyd's Bank Review, July 1966; Reprint no. 255).
REWEY, L. L. The Wealth of the Nation (Manchester and Wall Street, Spring 1966; Reprint no. 249).
SILBERSTON, AUBREY. Problems Involved in International Comparisons of Labour Productivity in the Automobile Industry (Labour Productivity, edited by J.T. Dunlop and V.P. D'Autremont, 1964; Reprint no. 231).
SILBERSTON, AUBREY. The Cambridge Business Game (Cambridge Research, April 1966; Reprint no. 254).

64. Mr Pyatt left the Department in late 1964 before it was possible to start collecting data. As Mr Boehm was also to leave in September 1965 it seemed best to limit the immediate aims to (1) the publication of a book containing the basic data of recent electoral history in a form more convenient for psephologists than anything previously published, and (2) recording these data on Cope-Chat cards for future analytical work. These aims were achieved during 1965. British Parliamentary Election Results 1950-1964, by D.R. Mitchell and Klaus Boehm, was published by the Cambridge University Press in March 1966. The completed Cope-Chat cards have been sent to Mr Pyatt. The further analytical work is to be carried out by him, together with the Department.

IV. OTHER ACTIVITIES

Seminars
65. During the period under review sixteen research papers, of which five were contributed by visiting economists, have been read at seminars held under the joint auspices of the Department of Economics and Politics.

Sixteen papers were given in the series of seminars on Mathematical Economics and Econometrics. Visiting economists contributed ten of these.

University Relationships

67. Teaching officers of the Faculty of Economics and Politics continue to participate in the Department's research programme, many of the projects being under their immediate direction. Several members of the Department's staff have given lectures or taken classes for the Faculty. Almost all members of the Department are engaged in supervising undergraduate students, teaching economics, economic history or sociology, thus making it possible to provide supervision for the growing numbers of students in the Faculty. The Department has provided secretarial and computing assistance, as well as advice on electronic programming and data analysis, to Faculty teaching officers. In various ways it has also assisted Research Students attached to the Faculty.

The University Mathematical Laboratory has helped the Department with computational facilities and advice which are greatly appreciated.

Relationships with Other Bodies

68. In addition to financial assistance, mentioned in Section II, which outside bodies have given the Department, help of other kinds has come from many sources, including the Board of Trade, the National Economic Development Office, the Ministry of Overseas Development, the Ministry of Labour, the Central Statistical Office, the Social Science Research Council, the Bank of England, the Industrial Welfare Society, and a large number of industrial and business firms, trade associations, and trade unions.
Forthcoming titles:


STONE, RICHARD. The Cambridge Growth Project (Cambridge Research, October 1965; Reprint no. 250).

WARD, MICHAEL. Are Credit Cards Inflationary? (Banker, July 1966; Reprint no. 257).

WIEDERBORN, DOROTHY. Financial Resources Available to Older People: Lessons for Social Policy (Age with a Future, Munksgaard, Copenhagen 1964, being the Proceedings of the Sixth International Congress of Gerontology, Copenhagen 1963; Reprint no. 259).


WIGLEY, K.J. The Development of the National Plan (Journal of the Royal Statistical Society, Series A (General), vol. cxxix, part 1, 1966; Reprint no. 259).

Monograph Series

72. No further volumes were added during 1965-66 to the twelve listed in previous Reports, but a new edition has appeared of:


The Wealth of the Nation: The National Balance Sheet of the United Kingdom, 1957-61. By JACK REVELL, assisted by GRAHAM HOCKLEY and JOHN MOYLE.

Studies in the National Income and Expenditure of the United Kingdom

73. This series, published by the Cambridge University Press under the joint auspices of the Department and the National Institute of Economic and Social Research, contains the results of research undertaken in both institutions under the general direction of Professor Richard Stone. Five volumes of the series have appeared, of which the following two were published during the period covered by this Report.


Domestic Capital Formation in the United Kingdom, 1920-1938, by CHARLES FEINSTEIN (using material provided by Dr K. MAYWALD).

Work on the following volume has reached an advanced stage:


Occasional Papers

74. This series, published for the Department by the Cambridge University Press, is designed for the rapid publication of research results which have a topical interest. The following six titles were added in 1965-66 to the twelve listed in the Fifth Report:

No. 3. The Economies of Larger-scale Production in British Industry: An Introductory Study. By C. F. PRATTEN and R. M. DEAN.

No. 4. Redundancy and the Railways. By DOROTHY WIEDERBORN.

No. 5. Parking Space for Cars: Assessing the Demand. By G. J. HOTH.


No. 8. Productivity in Distribution. By K. D. GEORGE.

No. 10. Growth Rate Tables. By H. T. BURLEY.

Forthcoming titles:

The Profitability, Growth and Valuation of Quoted Companies: A Preliminary Report. By A. SINGH, G. WHITTINGTON and H. T. BURLEY.

Industrial Relations in a British Car Factory. By GARFIELD CLACK.

Sterling, the Commonwealth and World Economic Growth. By J. O. N. PERKINS.

Demarcation Rules in the Shipbuilding Industry. By G. ROBERTS.

A Programme for Growth

75. This series, published by Chapman and Hall Limited, describes the progress of the work on economic growth undertaken at the Department under the direction of Professor Richard Stone. The first six volumes were listed in the Fifth Report, but the following volume was published in November 1966:

The Owners of Quoted Ordinary Shares: A Survey for 1965. By JACK REVELL and JOHN MOYLE.

Other Books

Cambridge Studies in Sociology

76. It is hoped to publish a series of sociological studies under the above general title, of which the first two titles are those mentioned in paragraph 59 of this Report:


VI. FACILITIES

77. The Department receives seventy-three British and eighty-eight foreign periodical series. Of the periodicals received, thirty-one are in exchange for the Department's Reprint Series and fifty-five are gifts, the remainder being purchased.

78. During the period January 1965 to September 1966 the library has acquired 185 books, 874 pamphlets and reprints, and 578 British Government publications.

Equipment

79. The equipment mentioned in the Fifth Report remains in use. Five additional electric desk calculating machines have been purchased, bringing the total to twenty-seven.

80. The arrangement with the Cambridge Language Research Unit to undertake translation work on books in English has been continued in 1965-66. No further volumes were added in 1965-66 to the two listed in the Fifth Report.

81. The more elaborate calculations continue to be undertaken by the Titan computer at the University Mathematical Laboratory, to the Director of which, Professor M. V. Wilkes, the Department is greatly indebted.

VII. STAFF

Research Staff

82. The following is a list of the research staff at September 1966:

Director: Mr W. R. REDDAWAY, M.A. (Cantab.), Fellow of Clare College.

Special Appointment: Miss L. J. SLATER, Ph.D. (Cantab.), D.Litt., Ph.D., M.A. (Lond.)

Senior Research Officers: Mr E. BENNATHAN, M.Com. (Birmingh., M.A. (Cantab.), Fellow of Jesus College; Mr B. M. DARWIN, M.A. (Oxon.); Mr J. R. S. REVELL, M.A. (Cantab.), B.Sc. (Econ.) (London), Fellow and Tutor of Fitzwilliam College.

Research Officers: Mr H. T. BURLEY, B.Econ. (Adelaide); Mr G. CLACK, Ph.D. (London), B.A. (Witwatersrand), B.Econ. (Natal); Mrs J. C. CRAIG, B.Sc. (London); Mr K. D. GEORGE, M.A. (Cantab.), M.A. (Widener), Fellow of Sidney Sussex College; Mr D. R. GRAY, M.Sc. (Econ.) (London); Mr D. T. HOOKER, B.Sc. (Econ.) (London); Mr A. R. JOLLY, M.A. (Cantab.), Ph.D. (Yale); Mr C. S. LESCHER, M.A. (Cantab.); Mr B. R. MITCHELL, Ph.D. (Cantab.), M.A. (Aberdeen); Mr G. P. PRATTEN, B.A. (Bristol); Mr R. W. S. PEYKE, B.A. (Oxon.); Mr G. ROBERTS, M.A. (Econ.), B.A. (Comm.) (Manchester); Miss T. SEWARD, M.A.; Mr M. S. STEWART, M.A.; Miss T. THACKER, B.A. (Edinb.); Mr M. P. WARD, B.A. (Exeter), Fellow of Selwyn College; Mr G. WHITTINGTON, M.A. (Cantab.), B.Sc. (London), Research Fellow of Fitzwilliam College; Mr K. J. WIGLEY, M.A. (Cantab.).

76


Ward, Michael. Are Credit Cards Inflationary? (Banker, July 1966; Reprint no. 257).

Widdershuis, Dorothy. Financial Resources Available to Older People: Lessons for Social Policy (Age with a Future, Munksgaard, Copenhagen 1964, being the Proceedings of the Sixth International Congress of Gerontology, Copenhagen 1963; Reprint no. 235).


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Forthcoming titles:


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73. This series, published by the Cambridge University Press under the joint auspices of the Department and the National Institute of Economic and Social Research, contains the results of research undertaken in both institutions under the general direction of Professor Richard Stone. Five volumes of the series have appeared, of which two following were published during the period covered by this Report.


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No. 10. Growth Rate Tables. By H. T. Burley.

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Equipment

79. The equipment mentioned in the Fifth Report remains in use. Five additional electric desk calculating machines have been purchased, bringing the total to twenty-seven.

80. The arrangement with the Cambridge Language Research Unit for the joint use with them of a Hollerith 1202 computer is shortly to come to an end, and the Department will instead make use of the Financial Board's newly-installed 1001 computer.

81. The more elaborate calculations continue to be undertaken by the Titan computer at the University Mathematical Laboratory, to the Director of which, Professor M. V. Wilkes, the Department is greatly indebted.

VII. Staff

Research Staff

82. The following is a list of the research staff at September 1966:

Director: Mr W. B. Reddaway, M.A. (Cantab.), Fellow of Clare College.


Senior Research Officers: Mr E. Bennathan, M.Com. (Birmingham), M.A. (Cantab.), Fellow of Jesus College; Mr B. M. Draken, M.A. (Oxon.); Mr J. R. S. Revell, M.A., B.C.Sc. (Elec.), London), Fellow Tutor of Fitzwilliam College.

Research Officers: Mr H. T. Burley, B.Econ. (Adelaide); Mr G. Clack, Ph.D. (London), B.A. (Witwatersrand), B.Econ. (Natal); Miss J. C. Craig, B.Sc. (London); Mr K. D. George, M.A. (Cantab.), M.A. (Wales), Fellow of Sidney Sussex College; Mr D. R. Gray, M.Sc. (Econ.) (London); Mr O. T. Hocker, B.Sc. (Econ.) (London); Mr A. B. Jolly, M.A. (Cantab.), Ph.D. (Yale); Mr C. S. Leichster, M.A. (Cantab.); Mr B. R. Mitchell, Ph.D. (Cantab.), M.A. (Aberdeen); Mr C. F. Pratten, B.A. (Bristol); Mr R. W. S. Peck, B.A. (Oxon.); Mr G. Roberts, M.A. (Econ.), B.A. (Cont.); (Manchester); Miss T. Steward, M.A. (Cantab.), B.Sc. (Econ.) (London); Mr P. Ward, B.A. (Exeter), Fellow of Selwyn College; Mr G. Whittemond, M.A. (Cantab.), B.Sc. (London), Research Fellow of Fitzwilliam College; Mr K. J. Willey, M.A. (Cantab.).
Junior Research Officers: Mr T.S. Barker, M.A. (Edin.), Fellow of Downing College; Mrs R. Crompton, B.Sc. (Sociology) (London); Mr M.J. Green, B.A. (Exeter); Mr L.J. Hande, B.A. (Lauder); Mr S.J. Potter, B.A. (Cantab.).

Senior Research Officers: Mr J.E. Coughlan, M.A. (Oxon.), Fellow of Trinity College; Mr D.W. Leslie, B.Sc. (Econ.) (London); Mr D.G. Shillingford, B.A. (Oxon.) (Merton). (Lecturer in Sociology.)

Holder of an Established Research Post: Ms M. Beale, M.A. (Cantab.) (Dean of Women). (Assistant Research Officer, Oxford Institute of Economics and Statistics.)

Assistant Research Officers: Mr J.C. O'Donoghue, B.A. (Cantab.), Junior Research Officer. (Assistant Research Officer, Oxford Institute of Economics and Statistics.)

Assistant Staff

The following is a list of the assistant staff at September 1966:

Secretary: Mr. H. Lohshak.
Librarian: Miss O. E. Hickson.
Secretarial and Clerical Staff: Miss L. E. Silk (Senior Typist); Miss J. S. Bushby; Miss J. E. Cawney; Miss J. Chapman; Miss J. R. Doggett; Miss C. A. Hetsop; Miss E. M. Lidlow; Miss V. A. Saddington-Shalford; Miss S. D. Seal; Miss A. C. Twynam.

Computing and Statistical Staff: Miss M. R. Clarke (Senior Computer); Mr E. Bouchard (Statistician); Miss N. L. Chapman; Miss D. M. Day; Mr J. A. Eastabrook; Miss V. J. Lea; Miss R. Leverett; Miss J. M. Scarr; Mr L. P. Tatham; Miss S. Ummat, M.A. (Agra); Miss P. A. Warren.

During the period covered by this Report the following members of the research staff left the Department to take the posts mentioned in brackets:

Mr J. E. C. Utting, M.A. (Cantab.), Assistant Director. (Professor of Economics and Dean of Chancellor College, University of Malawi.)

Mrs D.E. Wedderburn, M.A. (Cantab.), Senior Research Officer. (Lecturer at the Imperial College of Science and Technology, University of London.)

Mr M.O.I. Bacharach, Ph.D., B.A. (Cantab.), Research Officer. (Research Fellow of Nuffield College, University of Oxford.)

Mr J.K.S. Ghandhi, Ph.D. (Cantab.), M.A., B.Sc. (Econ.) (Pennsylvania), Research Officer. (Associate Professor of Finance, University of Pennsylvania.)

Mr F. Birch, M.A. (Cantab.), Junior Research Officer. (Lecturer in Sociology, University of Edinburgh.)

Mr K.H. Bosrem, B.A. (Cantab.), Junior Research Officer. (Projects Director of the Careers Research and Advisory Centre.)