Report of the
Executive Board to the Governors
of
THE ECONOMIC
RESEARCH INSTITUTE

for the year ended 30 June 1965
THE ECONOMIC RESEARCH INSTITUTE

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THE ECONOMIC RESEARCH INSTITUTE

FIFTH ANNUAL REPORT

For the year ended 30 June 1965

In this Fifth Annual Report the following matters are dealt with:—

   2. Lectures on Input-Output Analysis and Econometric Model Building.
   3. Quarterly Industrial Survey and Statistics of Economic Level and Trend.
   5. Training.
   7. Staff.
   8. Membership and Finance.

1. Publications of the Institute
   In this year's Report the publications of the Institute since it was started are set out in Appendix A in the categories:—

   I Books;
   II Publication Series;
   III Reprint Series;
   IV Articles (other than at III) in outside periodicals.

   The number of additional titles compared with the last Report is 14, most of which, however, are still in the publication pipeline, though in an advanced stage of preparation.

   The fourteen are:—

   Seasonality in Irish Economic Statistics (with printers)  C. E. V. Leser
   The Irish Economy in 1964 and 1965 (stencilled, July 1965)  C. E. V. Leser
   Housing in Ireland: Some Economic Aspects  P. R. Kaim-Caudle
   A Statistical Study of Wages, Prices and Employment in The Irish Manufacturing Sector  C. St. J. O’Herlihy
Fuel and Power in the Developing Economy of Ireland

Prices, Costs and Imports: Aspects of Economic Expansion in Ireland, 1956-1964

Cost Functions of Selected Irish Firms and the European Common Market

Regional Employment Patterns in Ireland

Determinants of Wage Inflation in Ireland

Do-It-Yourself Economics of the Firm: First Draft of a Statistical Scheme (Productivity Measurement Review OECD, February, 1965)

Recent Demographic Developments in Ireland

New Approaches to Economic Analysis (Irish Banking Review, March 1965)

Ex-Post Determination of Significance in Multivariate Regression when the Independent Variables are Orthogonal (in preparation)

The Average Critical Value Method for Adjudging Relative Efficiency of Statistical Tests in Time Series Regression Analysis (to be published in Biometrika)

J. L. Booth

G. G. Firth

J. E. Weinrich

T. J. Baker

K. Cowling

R. C. Geary

C. E. V. Leser

C. E. V. Leser

R. C. Geary

From the time when an author presents his script, invariably after having had the comments of his Institute colleagues in and out of seminar, it is sent to a professional referee as well as to other outside experts. If the paper be accepted in principle for publication the author then revises his script for the printer, in the light of comments received. The procedure has latterly been altered with a view to improving the time schedule between completion of the script and publication. A particular reason for delay in publication is that papers are tending to be more elaborate; a few indeed of the later scripts have the dimensions of a book though, as far as possible, these will be published in parts.

2. Lectures on Input-Output Analysis and Econometric Model Building

Lectures were given in the Institute Lecture Hall by R. C. Geary on Input–Output Analysis during the Hilary Term and by C. E. V. Leser during the Trinity Term on Econometric Macro-Models.

The subjects were as follows:

(i) Input–Output Analysis

(a) The national income accounts as an IO system; some basic concepts of IO.

(b) The fundamental equations of IO for the solution of output and pricing problems.

(c) The structure of the coefficient matrix A.
(d) The problem of import substitution and cognate problems.
(e) Capital and dynamism in the IO system.
(f) Regional IO.
(g) Effects of change of coefficients on solutions.
(h) Optimal aspects of IO.
(i) Conclusion: some recent thoughts and theory.

(ii) Lectures on econometric macro-models
   (a) The consumption functions.
   (b) Identification.
   (c) Estimation.
   (d) Model building.
   (e) Forecasting.
   (f) A model for Ireland.

3. Quarterly Industrial Survey and Statistics of Economic Level and Trend

The Quarterly Industrial Survey is an average of opinions designed to show the thinking of manufacturers on current trends in their industries.

The Survey issued in May 1965 indicated that sales for the first quarter 1965 were higher in Metals, Engineering and Vehicles and Other Industries but were approximately the same as the first quarter 1964 in Textiles and Clothing. The quantitative prognostic for the year 1965 compared with 1964 was that Total Manufacturing expected production to increase by 4% and exports by 3%. The largest expected production increase was 10% in the Metals, Engineering and Vehicles industry.

The full impact of the import restrictions in the United Kingdom had not then been felt by Irish Manufacturing industry.

A quarterly series of "Statistics of Economic Level and Trend" was inaugurated during the year. Its purpose is to examine the main features of development more frequently than once a year. Circulation is restricted at present, during the experimental period. A feature of this series is that a wide range of current economic statistics is corrected for seasonality using C. E. V. Leser's method.

4. Conference Activity

Staff members attended conferences, etc., as follows:


R. C. Geary addressed all three conferences listed, respectively, on “The Average Critical Value Method for Comparing Efficiency of Statistical Tests” (see below), “Some Aspects of Regional Planning” and “Some Thoughts on Wealth”. C. E. V. Leser lectured on “The Role of Macro-Economic Models in Short-Term Forecasting” at the Manchester meeting. All staff members and post-graduate students attended the Conference of Economists in Irish Universities, April 1965. C. E. V. Leser read a paper on “Recent Demographic Developments in Ireland” (see later).

Lectures were given in the Institute Lecture Hall by distinguished lecturers to selected audiences. Professor D. V. Glass, London School of Economics and Political Science, came in March 1965; his topic was “Present Day Demographic Problems and their Relevance for Ireland.” Professor D. J. Finney, University of Aberdeen, gave a lecture on “Screening Processes: Problems and Illustrations” in June 1965.

Professor K. Vonk, University of Amsterdam, came in March 1965 for consultation on a proposed study of “Research on Internal Surface Transport.”

Weekly seminars were held in the Institute during the year. Staff members and students read short papers on their current research projects. The papers were followed by discussion. A guest speaker, Dr. Andrew Brody from Hungary, read a paper at one seminar on “A Simplified Growth Model.” These seminars, which have proved useful, will be opened to University staff members and post-graduate students of economics during the coming academic year.

5. Training

The scholarship holders during the year were:

D. McAleese: whose scholarship finished in August 1964. He obtained the M.Econ.Sc. degree with First Class honours and is now a lecturer at the University of Ghana.

D. McCormack: whose scholarship finished also in August 1964. He obtained the M.A. degree with First Class honours and also the Travelling Studentship in Economics of The National University of Ireland. He is at present proceeding to the Ph.D. in Harvard, U.S.A.

F. Roland: whose scholarship ended on 30 June 1965, was appointed to the staff of Trinity College, Dublin as Acting Lecturer.

Miss M. Boland: was awarded a post-graduate scholarship in December 1964. Her chosen topic is “Labour’s Relative Share in Income: A Theoretical and Empirical Investigation.”
B. O'Loghlen: was awarded also a post-graduate scholarship in December 1964. He is interested in "The Impact of Public Authority Expenditure on The Irish Economy 1945-1965."

6. Library
There was a total of 6,286 volumes in the library at 30 June 1965. A large proportion of these has been acquired free of charge on an exchange basis. Staff and students of the Institute have received full cooperation from other libraries. In this connection it will not be invidious to record a special word of thanks to the Library of Trinity College, Dublin.

7. Staff at 30 June 1965

Director: R. C. Geary
Secretary: Mrs. M. Dempsey

Research Professor:
C. E. V. Leser

Research Officers:
T. J. Baker
D. Simpson

Temporary Assistant Research Officer:
M. Kavanagh

Scholarship Holders:
F. Boland
Miss M. Boland
B. O'Loghlen

Visiting Scholars:
G. G. Firth, Professor, Department of Commerce, University of Tasmania, Australia.
J. E. Weinrich, Professor, Department of Economics, University of Alberta, Canada.
K. Cowling, Senior Lecturer, Faculty of Economic and Social Studies, University of Manchester.

There is a clerical staff of seven.

8. Membership and Finance
There are 236 Individual and 84 Corporate Governors of the Institute. Their names and addresses are listed in Appendix B. Appendix C gives the Balance Sheet and the Auditors' Report for the year ended 30 June 1965. The fifth instalment of $56,000 (£20,027) of the generous
Ford Foundation grant, which made the work of the Institute possible, was received during the year. Subscriptions from Governors amounted to £2,936.

The Institute is grateful to the Government for a grant of £943.

Total expenditure for the year, including depreciation, was £31,956 which is an excess of £7,137 over income.

9. Summary Account of Future Research Activities

The notes which follow represent the preliminary views of the Director and of the staff of the Institute on a number of topics on which they are either working at present or on which they hope to work in the near future.

Econometric Macro-Model Construction

Following the practice in recent years, an annual survey of the Irish economy was made by C. E. V. Leser (Publication No. 27). The emphasis has this time been on the use of econometric models in short-term forecasting.

So far the main application of econometric models has been to national accounts forecasting one year ahead. Later on, it is hoped to study relationships between other economic variables and their application to quarterly changes. The new seasonally corrected quarterly economics series was designed partly with a view to very short-term analysis. More long-term problems will be studied on analogous lines. In particular; relationships between imports—or the balance of payments—and economic growth might be further investigated, though this will require a non-econometric as well as an econometric approach.

Demographic Changes

With the preparation of a paper by Leser for the Statistical and Social Inquiry Society, the first part of this project has been completed. Further work on this topic is not yet in progress but under consideration. At the same time, it is hoped that this paper will stimulate studies on the subject by research workers outside the Institute, as it seems desirable to make population studies from various angles.

Econometrics Textbook

C. E. V. Leser has revised his typescript, incorporating amendments suggested by various readers, and has submitted it to the publishers, Griffin & Co. It is at present being edited for publication in 1966.

Regional Employment Patterns in Ireland

The first draft of this paper has been completed by T. J. Baker. On the whole, the results obtained from cross-section regressions of county employment patterns in 1961 and 1951 appear to support the hypothesis originally put forward, namely, that economic activity in an area can be divided into "induced" and "autonomous" sectors, with employment in the former depending basically on employment in the latter sector.

The crucial factor appears to be the balance within the "autonomous"
sector between agricultural and non-agricultural pursuits. The greater the proportion of non-agricultural activities, the larger is the relative size of the "induced" sector. This effect is partly, but not entirely, explained by the tendency of agricultural cash incomes to rise as the relative size of the agricultural sector falls.

The non-agricultural "autonomous" activities can be divided into two main groups: (1) the commercial, comprising most manufacturing industry, hotels, sea and air transport, mining and a few small miscellaneous items—in other words those activities which can be regarded as serving the "export market" from the county point of view; (2) the social and administrative, comprising central and local government, and the social services, the levels of which, in relation to population, are set by national rather than local standards and the financing of which is also to a considerable extent a national responsibility.

In 1961 the proportion of the gainfully occupied population engaged in "induced" activities in any county could largely be explained in terms of this summary formula: ten per cent of the work force would be engaged in "induced" activities in the absence of any non-agricultural "autonomous" sector, while for each one per cent of the work-force in non-agricultural "autonomous" pursuits, a further two-thirds of one per cent would be engaged in the induced sector. Current work is principally devoted to analysing further the nature of this relationship.

Within the "autonomous" non-agricultural sector, government and social activities are more important than commercial in the poorer counties (10.5 per cent of the work-force vs. 7.0 per cent in the 11 poorest counties) while the reverse is true of the rest of the country (12.4 per cent vs. 16.7 per cent in the other 14 counties—excluding Dublin).

Several other interesting but relatively minor features emerge from the study, but the major interest remains the relationship between the "induced" sector and the non-agricultural "autonomous" sector. If the analysis of the paper is accepted, it means, broadly speaking, that a relatively small increase in "autonomous" employment either "commercial" or "public" will suffice to maintain "induced" employment unchanged in the face of a large decline in agricultural employment.

The Role of Marketing in some Irish Industries

T. J. Baker intends to study this set of problems. It is generally accepted nowadays that most industries exhibit an L-shaped curve of long-run potential costs. In other words, beyond a certain threshold size, scale is not a crucial factor in determining the production costs of a firm. Obviously different firms will have different cost structures but these variations will reflect managerial efficiency, location, age of plant or some such factor, rather than simply the scale of productive capacity.

In an Irish context, it is probable that certain heavy or specialised industries are unlikely in the foreseeable future to become established at or above the threshold size where horizontal returns to scale become technically possible. However, for the majority of industries already established in Ireland, it seems likely that the present size of firms and plants is above
the threshold limit and that they are, in fact, operating on the horizontal section of the long-term potential cost curve.

In these circumstances, the international competitiveness of Irish industry in either the home or export markets becomes dependent primarily upon the nature and quality of the management of the firms involved. In attempting to assess the likely performance at home or abroad of Irish industrial companies under conditions of freer trade, *vis-à-vis* either the U.K. or the E.E.C., a study of Irish management structure and technique is clearly of the first importance.

Equally clearly, however, it is impracticable to carry out a survey concerning all aspects of management and covering all branches of industry. It is therefore proposed to restrict this inquiry to three or four industries, each of which competes with overseas industries in both the Irish and the export market. It is also proposed to concentrate in the first instance on the marketing function, as being probably the most important aspect of management under modern market conditions, although certain other facets of management must also be considered, although in less detail, so as to provide the background for the survey of marketing.

The industries to be studied have not yet been selected. Ideally they should all be of a nature where scale is not a decisive factor in cost levels; where both imports and exports currently take place; where the number of significant constituent firms lies between 3 and 12, and where the market for the products is far from perfect. If four industries are chosen, two preferably should produce consumer goods of different types, one an industrial intermediate product, and one a capital or construction good.

**Cost Function of Selected Irish Firms and the European Common Market**

During a short stint in the Institute, J. E. Weinrich inaugurated the study of this problem in Ireland.

Accumulating empirical findings tend to support an hypothesis that, contrary to long-held economic doctrine, after some critical size of firm necessary for lowest costs has been attained, a wide range of optimal scales of production exists for most kinds of manufacturing. The implications are many. For, if the hypothesis stands, that after an initial, and sometimes significant, decrease of long-run average costs, a firm approximately experiences neither a substantial decline or incline of costs, an alternative hypothesis is vitiated that concentration of power in giant firms is essential to economic efficiency. It would suggest to the Irish manufacturer that, neither in theory nor practice, is his American or European rival more efficient because of his greater size.

It would also strongly underscore the notion that theoretical and managerial economics and linear programming analysis would be better served if a more realistic L-shaped cost curve rather than the U-shaped curve of traditional analysis be incorporated into economic thinking.

To test the hypothesis of approximately constant costs over a wide range beyond some minimum optimal level of output, this paper will attempt to evaluate what is the minimum optimal size of output in selected
Irish industries, and to compare the results with studies of a similar nature undertaken in more advanced economies. Firms in the following Irish industries will be undertaken:

- Bacon curing and meat packing,
- Dairy products,
- Tobacco,
- Woollens and worsteds,
- Grain milling,
- Boot and shoe,
- Clay products and cement, and
- Brewing.

These industries have been selected essentially because comparative data are available, and they represent some of the important industries of Ireland.

**Relationship between Quantity and Quality in Economic Change**

The relationship between quantity and quality in economics is engaging the attention of D. Simpson. It has never been systematically investigated. Nineteenth century political economy, by inclination or by necessity, concentrated upon the qualitative factors in economic growth. At the present time most studies of economic development have adopted a crude quantitative approach. The word "crude" is used to describe quantitative statements of the following types:

(a) "A comparison of the per capita growth rates of gross domestic product in constant prices from 1953 to 1959 shows that the United States rate of growth was 1.6 per cent per annum while that of Italy was 5.1 per cent per annum."

(b) "The output of transport equipment in Europe has increased by 500 per cent from 1860 to 1960."

Both of these statements describe aggregative indices. For analytical purposes it is certainly necessary to work with a small number of distinctive variables. But the purpose of analysis is to achieve an improved understanding of (in this case) the process of economic growth, and what may be important in that process is the very diversity of variables and their rate of change, which is obscured by the use of the aggregative indices. To put it simply, may not the rate of expansion of the range of available goods and services (i.e. the number of different kinds of goods available) be a more important characteristic of the process of economic growth than the rate of growth of output of a given number of goods or services?

To give a concrete illustration of this point, consider statement (a) above. Without disputing the basis on which the figures have been computed, one cannot help wondering what they mean. Accepting the interpretation that the Italian economy has in some sense grown three times faster than the U.S. economy in the period in question, one wonders whether there were not more important developments characterising the
growth process of the two economies in the same period—developments which can be quantified. For example, the number of new goods marketed, and the increase in the number of hours voluntarily devoted to leisure.

The weaknesses of the second statement are perhaps more obvious, but that may only be because we have grown accustomed to statements of the first type. It is evidently quite important to distinguish, in the growth of "transport equipment," the difference between jaunting-cars and aircraft. If it is argued that each of these vehicles has been correctly weighted in this aggregate then, as Leontief has pointed out, "this only means that these long-term series do not describe directly the observed facts, but rather represent the results of more or less arbitrary numerical manipulations."

The methodology for this study must be quantitative in the broadest sense: only observation and measurement can yield conclusive results. A simple but direct approach to the first problem might be along the following lines. Prepare a time-series of household budgets, showing at each point the quantity of goods of different types consumed. It should be interesting to observe the variation over time in the number of different types of goods. The rate of qualitative change in capital goods can be expected to be faster than that in consumer goods, but again the results may be interesting.

There is sufficient prima facie evidence to justify beginning an investigation of certain aspects of the relation between quantity and quality. The first step is to establish some hypotheses which can be tested empirically using Irish data.

Factors Limiting the Rate of Growth of the Irish Economy

Overseas experience (writes G. G. Firth) suggests that growing economies are subject to two kinds of checks. One kind arises from the pressure of demand on productive resources, which results in a tendency for costs and prices to rise. The other kind (which is often associated with the first) arises from the spilling over of internal demand into external markets, which results in imports growing faster than the means of paying for them. Until quite recently, it had seemed that Ireland, throughout the period of growth which began in 1958, had been remarkably free from either kind of check to economic growth. One object of this research was to find out why this should have been so. With the publication of statistics for 1964 and for the first quarter of 1965, however, the Irish economy is now seen to have important symptoms of rapid growth, particularly accelerating cost-price increases and continuing increases of merchandise imports.

Notwithstanding the change in emphasis towards immediate short-term considerations, however, the longer-term questions still require to be answered: in what circumstances can the Irish economy sustain a comparatively rapid rate of growth without encountering on the one hand a too-rapid rate of internal cost-price increases, and on the other hand the rise of imports to a level at which they could not permanently be sustained?
The problem of the *internal balance* of the Irish economy raises the question whether "inflationary pressure" can exist when almost 50,000 persons are unemployed and significant emigration is continuing. Analysis of the occupational distribution of the males on the Live Register has shown that, about the time of the 1961 Census, the unemployment rate was very much lower amongst skilled and semi-skilled males than amongst males described as "labourers." The evidence seems strong enough to support the thesis that significant demand pressure can develop in this important section of the Irish labour market, and that this may explain the sharp upward movement of earnings since 1961.

Analysis of the *external balance* shows how the expansion of merchandise imports has been associated with the very large relative increase in imports of finished capital equipment and the large absolute increase in materials for current non-agricultural production. Further detailed work needs to be done on the end-uses of imports, particularly in the very large proportion represented by "materials."

Factors Affecting the Level and Expansion of Irish Exports 1958-1964

M. Kavanagh is engaged on a study of Irish exports. In the year 1958, total domestic exports for the Irish economy amounted to approximately £126 million at current prices. At the end of 1964, this total had risen to approximately £196 million at 1958 prices indicating an increase of 55 per cent in real terms over the six-year period.

During this interval of time, the major export divisional classifications also registered large increases. Live animals exported increased in value (in real terms) from £47.3 million to £60.1 million (27 per cent increase); food, beverages and tobacco increased from £46.3 million to £65.6 million (42 per cent increase); raw materials and fuels increased from £7 million to £11.6 million (65 per cent increases); and manufactured goods increased from £17.5 million to £48.9 million (180 per cent increase). Increases of the magnitudes indicated are quite unprecedented for Irish exports as a whole or for the individual categories over any similar period in the past. The paper is concerned with an investigation as to the causes of this increase in export volume with a view to shedding some light on possible export policy prescriptions for the future. Research into the causes of Irish export volume increase over the period 1958-1964 has proceeded along the lines indicated below.

Initially, export experience for the period 1958-1964 must be examined in relation to the general trend of growth and development in the Irish economy as a whole. All macro-economic indicators for the Irish economy appear to show that the interval 1956-1958 was a period of recession if not stagnation in terms of growth and development. The overall growth rate of the economy has been accelerated from approximately 1 per cent to 4.2 per cent for the period 1958-63 and is estimated to continue at approximately the latter rate for at least the next few years. Attention is first directed to the thesis that the growth in Irish exports over the period 1958-1964 is a by-product of the overall expansion in the economy for this
interval and is so significant as to invalidate the hypothesis that this increase takes the form of a mere recovery from the recession of the pre-1958 period.

The invalidation of this hypothesis involves an investigation into the growth in the volume of individual export items with respect to particular market areas. Initially, conditions in the largest single market for Irish exports—the United Kingdom—are examined. Research has already indicated that many Irish exporters have considerably increased their market share in this major area over the period of the inquiry. Some attention is devoted to possible future trends in market shares with respect to the United Kingdom and the factors which may prove relevant in trend determination. Ireland’s share in market areas other than the United Kingdom is so small as to warrant the feeling that considerable increases in Irish exports will meet with little market resistance. Accordingly, the notion is established that the growing volume of exports to these areas, as also to the United Kingdom, is a function of the effort expended by exporters in securing sales abroad.

Wage Inflation

K. Cowling has been concerned with estimating the determinants of wage inflation at the industry and aggregate level. Year to year changes in wages over the post-war period are studied in seventeen individual industries and for the Transportable Goods Industries in aggregate. Wage earnings have been analysed at the industry level, while at the aggregate level wage rates, earnings and the gap between rates and earnings, have been separately examined.

Time series analysis of seventeen industries has shown that they fall into two groups with respect to the determinants of wage change; one group being demand oriented, the other being profit and/or price oriented. The first group consists of nine industries (Agriculture, Bacon Factories, Bread, Brewing, Clothing (Women's), Linen, Milling, Mining and Woollen-Worsted) in which the level of unemployment is a statistically significant determinant of the rate of change of money wage earnings. The second group consists of five industries (Boot and Shoe, Electricity, Hosiery, Printing, Vehicles) where the level of profits, and/or the rate of change in the consumer price index, appear as important factors in determining wage earnings. The first group of industries generally have a relatively poorly organized labour force, such that the forces of supply and demand in the labour market are capable of being reflected in the price of labour. This is not so in the second group where labour is generally highly organized. Here the prosperity/bargaining power hypothesis seems to be important in wage determination and is capable of obscuring the impact of supply and demand.

Mathematical Statistics

It is well-known that power function analysis for assessing the comparative efficiency of statistical tests, while theoretically impregnable,
suffers from the practical disadvantage that it is usually extremely difficult to derive the appropriate so-called "non-central" frequency distributions required. R. C. Geary has suggested that, as an alternative, what has been termed the Average Critical Value (ACV) method should be used. The ACV is the value of the parameter involved which for indefinitely large samples renders the test statistic equal to the null-hypothesis probability point. The method requires only the calculation of the first moment of the test statistic, as compared with the derivation of its frequency distribution necessary for full power treatment. It is shown to be closely related to power function theory for power=0.5.

At the present time there is great interest in the problem of *ex post* selection of independent variables of greatest significance in regression relationship: given a series of observations of a dependent variable and many series of corresponding independent variables, one wishes to choose in the most efficient way a small number of independent variables in satisfactory relationship to the dependent variable. It appears that the only approach so far to the solution of this problem, of fundamental importance in the study of relationship between economic time series, has been empirical.

Work in the Institute has extended to the special case of orthogonal independents (including orthopolynomials and harmonic series), admittedly a much simpler case than the more general and typical one of correlated independent variables. A test of significance has been evolved for the identification of the presumed few independent variables, operational when the number of sets of variables is reasonably large. The theory is applied to a well-known set of data due to R. A. Fisher and F. Yates.

Geary is in communication with outside researchers working on the general problem. One or two approaches, partly empirical and partly theoretical, are being explored in the Institute. The problem is of great practical importance in economic time series analysis.

George O'Brien
Members of the Executive Board.

R. C. Geary
APPENDIX A

LIST OF PUBLICATIONS ETC. OF THE ECONOMIC RESEARCH INSTITUTE

I Books

II Publication Series
1. The Ownership of Personal Property in Ireland (October 1961).
24. Economic Aspects of Industrial Relations (February 1965).
25. Psychological Barriers to Economic Achievement (February 1965).
27. The Irish Economy in 1964 and 1965 (stencilled, July 1965).

To be published shortly:

In preparation:
32. Cost Functions of Selected Irish Firms and the European Common Market.
33. Regional Employment Patterns in Ireland.
34. Determinants of Wage Inflation in Ireland.

III Reprint Series
2. Forms of Engel Functions (Econometrica, October 1963).

15. C. E. V. Leser
16. E. A. Attwood and M. Ross
17. E. A. Attwood and R. C. Geary
18. Edward Nevin
19. David Walker
20. David O’Mahony
21. C. E. V. Leser
22. Edward Nevin
23. C. E. V. Leser
24. David O’Mahony
25. P. Pentony
26. C. E. V. Leser
27. C. E. V. Leser
28. P. R. Kaim-Caudle
29. C. St. J. O’Herlihy
30. J. L. Booth
31. G. G. Firth
32. J. E. Weinrich
33. T. J. Baker
34. K. Cowling

R. C. Geary
C. E. V. Leser

Available shortly:
10. Recent Demographic Developments in Ireland. Edward Nevin

IV Articles (other than at III) in Outside Periodicals
APPENDIX B

Schedule of Governors

INDIVIDUAL

Barrington, T. J., Director, Institute of Public Administration, 59 Lansdowne Road, Dublin 4.
Beere, Thekla J., M.A., LL.D., 79 Pembroke Road, Dublin 4.
Black, R. D. C., Ph.D., Department of Economics, The Queen's University of Belfast, Belfast.
Blayney, E., D.P.A., 57 Upper Churchtown Road, Dublin 14.
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Boland, F. H., 60 Ailesbury Road, Dublin 4.
Bourke, J. V., The National University of Ireland, 49 Merrion Square, Dublin 2.
Bourke, P., M.A., B.L., Moyola, Bushy Park Gardens, Dublin 6.
Breathnach, Michael, M.A., Department of Finance, Upper Merrion Street, Dublin 2.
Breen, Cornelius, M.Econ.Sc., 7 Watermill Road, Raheny, Dublin 5.
Brennan, Ciaran, 4 Lower Churchtown Road, Churchtown, Dublin 14.
Briscoe, Brendan, Ardearn, 8 Roebuck Crescent, Clonskeagh Road, Dublin 14.
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Buitleir, Padraig de, Silverspring, Clonmel, Co. Tipperary.
Callan, Paul, B.L., Longfield, Carrickmacross, Co. Monaghan.
Callinan, Patrick, 15 Meispil Road, Dublin 4.
Carney, Paul, 45 Garville Avenue, Rathgar, Dublin 6.
Carter, Charles F., M.A., Vice-Chancellor, The University of Lancaster, Bailrigg House, Lancaster.
Ceann, Eamon T., B.Comm. 1 Trees Avenue, Mount Merrion, Co. Dublin.
Charleton, J., Bastow, Charleton & Co., Chartered Accountants, 7 Gardiner's Row, Dublin 1.
Chubb, F. B., M.A., D.Phil., Professor of Political Science, University of Dublin, Trinity College, Dublin 2.
Colbert, J. F., M.Econ.Sc., Carysfort House, Grove Avenue, Blackrock, Dublin.
Colley, Gordon, 92 Leinster Road, Rathmines, Dublin 6.
Conlon, M. N., County Manager, County Manager's Office, Courthouse, Cork.
Cooney, Sean F., M.A., 4 Wilton Terrace, Dublin 2.
Corbett, Alan T., B.A., B.Comm., 343 North Circular Road, Phibsboro, Dublin 7.
Costello, Declan, T.D., 8 Clonskea Road, Dublin 6.
Counihan, Rev. S. J., Rathfarnham Castle, Dublin 14.
Cox, P. G., M.A., 83 Ranelagh Road, Dublin 6.
Crichton, A. C., Rossmore, Silchester Road, Glenageary, Co. Dublin.
Cronin, P. J., M.A. (Oxon.), General Manager, Irish Tam Ltd., 21 Lower Baggot Street, Dublin 2.
Cronin, S., Department of Finance, Government Buildings, Upper Merrion Street, Dublin 2.
Crotty, T., B.E., Messrs M. Crotty & Son Ltd., Parliament Street, Kilkenny.
Crowley, Niall, F.C.A., 4–5 Westmoreland Street, Dublin 2.
Cunningham, A. C., Ph.D., 16 St. Brigid's, Clonskea Road, Dublin 14.
Cunningham, J. V., General Manager, Donnelly Dublin Ltd., Bacon Curers & Sausage Manufacturers, Cork Street, Dublin 8.
Davy, J. E., Government Stock & Share Brokers, 100/101 Grafton Street, Dublin 2.
Dennis, R. J., M.A., 71 Park Avenue, Dublin 4.
Dixon, F. E., 15 Terenure Road East, Rathgar, Dublin 6.
Donaghy, Ciaran A., B.A., B.Comm., Cherry & Smallbridge Ltd., Seville Place, Dublin 1.
Donnelly, J., 8 Nassau Street, Dublin 2.
Dooge, James C. I., M.E., University College, Cork.
Dunwoody, Alexander, B.Sc.Econ., 16 Lyndhurst Drive, Belfast 13.
Eason, John C. M., 38 Elton Park, Dun Laoghaire, Co. Dublin.
Farrell, Peter, D.P.A., 3 O'Brien's Terrace, Prospect Road, Glasnevin, Dublin 9.
Fay, James M., 19 Nutley Park, Ballsbridge, Dublin 4.
Fell, Charles F., D.P.A., B.Comrn., 82 Seville Place, North Strand, Dublin 1.
Fennell, Rosemary, 114 Merrion Road, Dublin 4.
Fitzgerald, Garret, B.A., B.L. 75 Eglinton Road, Dublin 4.
Flanagan, Thomas P., B.A., 95 O'Connell Street, Limerick.
Flynn, John P., 117 Silchester Park, Glenageary, Co. Dublin.
Forasyth, Harry H., LL.B., F.C.A., 4 Herbert Street, Dublin 2.
Freeman, T. W., M.A., Dudley House, Broughton, Cheshire.
Galvin, John B., D.P.A., Department of Fisheries, 3 Cathal Brugha Street, Dublin 1.
Garmany, J. W., M.A., Magee University College, Londonderry.
Gilbey, Frank, M.T.P.I., 8 Clyde Road, Ballsbridge, Dublin 4.
Gibson, N. J., Faculty of Economic & Social Studies, The University of Manchester, Dover Street, Manchester 13.
Gillman, C. J., Rossare Harbour, Co. Wexford.
Gilroy, Dermot J., 30 Conker Hill, Clontarf, Dublin 3.
Gray, Randal A., Director, John Halliday & Son Ltd., Quay Street, Dundalk, Co. Louth.
Gulick, Clarence S., 4702 de Russey Parkway, Chevy Chase 15, Maryland, U.S.A.
Hall, F. G., Weston, Elton Park, Sandycove, Co. Dublin.
Hannan, Eamonn, A.C.P.A., 154 Ballymun Avenue, Dublin 11.
Haughey, J., 76 Kenilworth Square, Rathgar, Dublin 6.
Healy, Rowland, Commissioner for Oaths, 21 Molesworth Street, Dublin 2.
Hegan, S., Lynton, Old Connaught Avenue, Bray, Co. Wicklow.
Herlihy, D., General Manager, The Insurance Corporation of Ireland Ltd., 33-38 Dame Street, Dublin 2.
Hogan, Sarsfield, Irish Steel Holdings, Haulbowline, Co. Cork.
Horgan, J. J., 50 South Mall, Cork.
Howley, John J., B.Comrn., 70 Lower Kilmacud Road, Stillorgan, Co. Dublin.
Hussey, F. P., A.R.C.Sc.I., 5 Sarto Road, Kilbarrack, Raheny, Dublin 5.
Hyland, John P., B.Sc., 55 Adair, Sandymount Avenue, Ballsbridge, Dublin 4.
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Jenkins, J. B., Vice-Chairman, W. & R. Jacob & Co. Ltd., Dublin 8.
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Kavanagh, Rev. James, 48 Westland Row, Dublin 2.
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Leydon, John, L.L.D., 141 Stillorgan Road, Donnybrook, Dublin 4.
Linehan, Thomas P., B.E., B.Sc., 26 Leinster Square, Rathmines, Dublin 6.
Lucey, Denis I. F., B.Agr.Sc., M.S., Department of Economics, Iowa State University, Ames, Iowa, U.S.A.
Lyons, Stanley, B.A., 62 Leinster Road, Rathmines, Dublin 6.
Meade, Bernard A., A.C.W.A., 10 Melrose Avenue, Fairview, Dublin 3.
Moran, T. A., B.L., 83 Kenilworth Square, Rathgar, Dublin 6.
Morrissey, Patrick, M.Econ.Sc., 183 Mount Prospect Avenue, Clontarf, Dublin 3.
Murphy, Declan J., 41 Highfield Road, Dublin 6.
Murphy, Edmond B., B.E., M.S., M.R.P., 77 Pembroke Road, Ballsbridge, Dublin 4.
Murphy, John, 23 St. Catherine’s Park, Glenageary, Co. Dublin.
Murphy, J., Secretary, Dublin Port & Docks Board, Secretary’s Office, 19-21 Westmoreland Street, Dublin 2.
Murphy, Nicholas A., B.A., 40 Cill Eanna, Raheny, Dublin 5.
MacAodha, Breandan S., Roinn na Tfreolafochta, Colaiste na h-Iolscoile.
Gáillimh.
McCarran, E. P., B.L., Anerley, 45 Cowper Road, Rathmines, Dublin 6.
McCarthy, M. D., M.A., Ph.D., Director, Central Statistics Office, Dublin 2.
McCaulley, Leo T., 5581 North 16th Street, Arlington, Virginia, U.S.A.
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MacDonald, Sidney L., 17 Cherbury Gardens, Booterstown, Co. Dublin.
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McEvoy, P. J., B.Comm., D.P.A., 4 Villa Park Road, Navan Road, Dublin 7.
McKenna, Rev. L., S.J., The Catholic Workers' College, Sandford Road, Dublin 6.
McKevitt, Very Rev. P. Canon, P.P., Parochial House, Termonfeckin, Drogheda, Co. Louth.
McKinley, J. G., B.A., B.Comm., Mount Avenue, Dundalk, Co. Louth.
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O'Broin, Coilin, "Glenmalure", Yellow Walls Road, Malahide, Co. Dublin.
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O'Cuircbhín, Dóirí, A.C.A., B.Sc.(Econ.), Corvin & Co., 140 University Street, Belfast 7.
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O’Loinsigh, D. S., 92 Vernon Avenue, Clontarf, Dublin 3.
O'Mahony, David P., M.A., Ph.D., B.L., Department of Economics, University College, Cork.
O'Muirnhneachain, M., D.Econ.Sc., Governor, The Central Bank of Ireland, Foster Place, Dublin 2.
O'Neill, D. J., Managing Director, Lunham Bros. Ltd., Cork.
O'Nuallain, Labhras, D.Econ.Sc., Daimh na Tráchtála, Coláiste na h-Ioscoile, Gaillimh.
O'Raghallaigh, Seamus, Dún Feannachaidh, Co. Dhún na nGall.
O'Raiðearthaigh, T., M.A., Secretary, Department of Education, Dublin 1.
O'Regan, Liam, The Cottage, Cughadown, Skibbereen, Co. Cork.
O'Reilly, P. J., Greyfort, Clonmel, Co. Tipperary.
O'Reilly, T. D., B.Comm., 3 Cherryfield Avenue, Sandford Road, Dublin 6.
O'Riordan, William K., M.Sc.(Econ.), “Lisieux”, North Road, Finglas, Dublin 11.
Parfrey, P. F. B.Comm., Crawford Municipal School of Art, Emmet Place, Cork.
Park, A. T., Tudor Lodge, Glen Road, Craigavad, Belfast.
Parkinson, J. R., Department of Economics, The Queen’s University of Belfast, Belfast.
Reamonn, S., Chairman, Revenue Commissioners, Office of the Revenue Commissioners, Dublin Castle, Dublin 2.
Rearden, J. V., Deputy Works Director, The Irish Dunlop Co. Ltd., The Marina, Cork.
Reynolds, Thomas, B.C.L., LL.B., Director, The Federation of Builders, Contractors, & Allied Employers, of Ireland, 28 Earlsfort Terrace, Dublin 2.
Richards Orpen, John, Monksgrange, Enniscorthy, Co. Wexford.
Roberts, Ruadhri, 8 Clarinda Park East, Dun Laoghaire, Co. Dublin.
Robinson, H. W., Polden Robinson & Co., Chartered Accountants, 2 Lower Merrion Street, Dublin 2.
Roche, John D., B.Comm., 46 Lowrey Park, Dalkey, Co. Dublin.
Rowe, David N., 4 Herbert Street, Dublin 2.
Ryan, John, “St. Anne’s”, Dublin Road, Arklow, Co. Wicklow.
Ryan, W. J. L., Ph.D., 43 Nutgrove Park, Dublin 14.
Senior, Brendan J., D.Sc., St. Catherine’s, Leixlip, Co. Kildare.
Simington, R. C., D.Litt., St. Joseph’s, Finglas Road, Dublin 11.
Simpson, J. V., B.Sc.(Econ.), 7 Jordanstown Road, Newtownabbey, Co. Antrim.
Smith, Cornelius F., 4 Grafton Street, Dublin 2.
Somerville Large, P. T., Vallombrosa, Bray, Co. Wicklow.
Spain, Alexander J., 4 Herbert Street, Dublin 2.
Stewart, E. F., B.Sc.(Econ.), 6 Gransha Gardens, Glen Road, Belfast 11.
Stewart, J. T. H., B.Sc.(Econ.), 377 Cregagh Road, Belfast 6.
Swift, Hugh L., 21 Shanid Road, Harold's Cross, Dublin 6.
Thompson, G. C. M., Chairman, Hely Group Ltd., Swords Road, Santry, Dublin 9.
Thompson, Samuel F., 53 MacCurtain Street, Cork.
Toole, Owen J., Malo, Merrion Avenue, Blackrock, Co. Dublin.
Tonge, J. C., Maynooth, Co. Kildare.
Walls, J., 187 Philipsburgh Avenue, Fairview, Dublin 3.
Walsh, Patrick, "Pratulo", Mount Merrion Avenue, Blackrock, Co. Dublin.
Walsh, T., D.Sc., Director, An Foras Taluntais, 33 Merrion Road, Dublin 4.
Wilson, Gerald, Director, Bank of Ireland, G.P.O. Box No. 9, Dublin 1.

CORPORATE

Aer Lingus, O’Connell Street, Dublin 1.
The Agricultural Credit Corporation Ltd., Harcourt Street, Dublin 2.
Bailey Gibson Ltd., South Circular Road, Dolphins Barn, Dublin 8.
Bank of Ireland, G.P.O. Box No. 9, Dublin 2.
An Bord Bainne, 13 Merrion Square, Dublin 2.
Bord Fáilte Éireann, Baggot Street Bridge, Dublin 2.
Bord na Mona, 28 Upper Pembroke Street, Dublin 2.
Bord Soláthair an Léictreachais, 27 Lower Fitzwilliam Street, Dublin 2.
Cahill & Co. Ltd., 43 Parkgate Street, Dublin 8.
P. J. Carroll & Co. Ltd., Dundalk, Co. Louth.
Cavendish Furniture Co. Ltd., 28/29 Grafton Street, Dublin 2.
Ceimicí Teoranta, 81 Merrion Square, Dublin 2.
Cement Limited, 19 Lower Pembroke Street, Dublin 2.
The Central Bank of Ireland, Foster Place, Dublin 2.
Chivers & Sons (Ireland) Ltd., Beech Hill Factory, Clonskeagh, Dublin 14.
Clondalkin Paper Mills Ltd., Clondalkin, Co. Dublin.
Comhlucht na h-Eireann um Arachas Teo., 12 Dawson Street, Dublin 2.
Coras Iompair Éireann, Kingsbridge, Dublin 8.
Dock Milling Co. Ltd., Barrow Street, Dublin 4.
Thomas Dockrell Sons & Co. Ltd., 38/39 St. Great Georges Street, Dublin 2.
Donnelly Dublin Ltd., Bacon Curers & Sausage Manufacturers, Cork Street, Dublin 8.
Dunnes Stores (Georges Street) Ltd., St. Great Georges Street, Dublin 2.
Eason & Son Ltd., 79–82 Middle Abbey Street, Dublin 1.
Edenderry Shoe Co. Ltd., Edenderry, Co. Offaly.
Henry Ford & Son Ltd., Cork.
Fry-Cadbury (Ireland) Ltd., East Wall Road, Dublin 3.
Gateaux Ltd., Finglas, Dublin 11.
The General Electric Co. of Ireland Ltd., A.E.T. Works, Dunleer, Co. Louth.
General Finance Trust Ltd., Ballsbridge House, 176 Pembroke Road, Dublin 4.
General Textiles Ltd., Athlone, Co. Westmeath.
W. & H. M. Goulding Ltd., 22 Molesworth Street, Dublin 2.
Guinness & Mahon, 17 College Green, Dublin 2.
Gypsum Industries Ltd., Clonskeagh Road, Dublin 14.
The Hammond Lane Foundry Co. Ltd., 111 Pearse Street, Dublin 2.
The Hibernian Bank Ltd., Box 63, College Green, Dublin 2.
The Hibernian Fire & General Insurance Co. Ltd., 46–49 Dame Street, Dublin 2.
Imperial Chemical Industries (Export) Ltd., 3 South Frederick Street, Dublin 2.
The Industrial Credit Co. Ltd., 26 Merrion Square, Dublin 2.
The Irish Agricultural Wholesale Society, 151–156 Thomas Street, Dublin 8.
The Irish Cider & Perry Co. Ltd., River House, Clonmel, Co. Tipperary.
Irish Congress of Trade Unions, Lower Merrion Street, Dublin 2.
Irish Driver-Harris Co. Ltd., Corn Exchange Buildings, Burgh Quay, Dublin 2.
The Irish Dunlop Co. Ltd., Dunlop House, Lower Abbey Street, Dublin 1.
The Irish Farmer's Journal, 24 Earlsfort Terrace, Dublin 2.
The Irish Glass Bottle Co. Ltd., Charlotte Quay, Dublin 4.
Irish Life Assurance Co. Ltd., Mespil Road, Dublin 4.
Irish Metal Industries Ltd., 3 South Frederick Street, Dublin 2.
Irish National Insurance Co. Ltd., 5/9 South Frederick Street, Dublin 2.
The Irish Oil & Cake Mills Ltd., Marsh Road, Drogheda, Co. Louth.
Irish Pensions Trust Ltd., 38 Fitzwilliam Square, Dublin 2.
Irish Refining Co. Ltd., Whitegate, Co. Cork.
Irish Ropes Ltd., Newbridge, Co. Kildare.
Irish Steel Holdings Ltd., Haubowline, Co. Cork.
Irish Worsted Mills Ltd., Commercial Buildings, Dame Street, Dublin 2.
John Jameson & Son Ltd., Bow Street Distillery, Dublin 7.
Peter Kennedy Ltd., 125 Parnell Street, Dublin 1.
Kingstons Ltd., 9/13 Upper O'Connell Street, Dublin 1.
Lever Brothers (Ireland) Ltd., P.O. Box 229, 68 Upper Sheriff Street, Dublin 1.
The Munster & Leinster Bank Ltd., Cork.
W. & C. McDonnell Ltd., P.O. Box 231, 68 Upper Sheriff Street, Dublin 1.
McIntyres’ Stores Ltd., Belmullet, Co. Mayo.
The National Bank Ltd., 34 & 35 College Green, Dublin 2.
National City Bank Ltd., 10 College Green, Dublin 2.
Northern Bank Ltd., Belfast.
Player & Wills (Ireland) Ltd., South Circular Road, Dublin 8.
John Power & Son Ltd., John’s Lane Distillery, Dublin 8.
Provincial Bank of Ireland Ltd., 5 College Street, Dublin 2.
Roadstone Ltd., Naas Road, Dublin 12.
P. J. Roche & Sons Ltd., The Maltings, Enniscorthy, Co. Wexford.
The Royal Bank of Ireland Ltd., Box 123, Foster Place, Dublin 2.
Sunbeam Wolsey Ltd., Millfield, Co. Cork.
Switzer & Co. Ltd., Grafton Street, Dublin 2.
F. H. Thompson & Son Ltd., 53 MacCurtain Street, Cork.
Ulster Bank Ltd., Belfast.
Weir & Sons (Dublin) Ltd., 96 Grafton Street, Dublin 2.
Messrs. Williams & Woods Ltd., 204 Parnell Street, Dublin 1.
The Workers’ Union of Ireland, Head Office, 29 Parnell Square, Dublin 1.
### APPENDIX C
THE ECONOMIC RESEARCH INSTITUTE
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30th JUNE, 1965

<table>
<thead>
<tr>
<th>Year</th>
<th>EXPENDITURE</th>
<th>INCOME</th>
<th>Balance Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£ s. d.</td>
<td>£ s. d.</td>
<td>£ s. d.</td>
</tr>
<tr>
<td>1964</td>
<td>Salaries, Superannuation, Wages and State Insurance</td>
<td>21,002 6 6 19,981</td>
<td>Grant from Ford Foundation in respect of Expenses</td>
</tr>
<tr>
<td>1,917</td>
<td>Scholarships</td>
<td>2,783 13 4 1,129</td>
<td>Government Grant in respect of Rent</td>
</tr>
<tr>
<td>1,129</td>
<td>Rent</td>
<td>943 6 0 3,005</td>
<td>Membership Subscriptions</td>
</tr>
<tr>
<td>2,011</td>
<td>Printing</td>
<td>758 4 10 672</td>
<td>Interest Receivable</td>
</tr>
<tr>
<td>3,221</td>
<td>Other Expenditure</td>
<td>5,060 1 6 240</td>
<td>Sale of Publications</td>
</tr>
<tr>
<td></td>
<td>Total expenditure</td>
<td>31,268 12 2</td>
<td>Excess of Expenditure over Income carried to Balance Sheet</td>
</tr>
<tr>
<td></td>
<td>£30,477</td>
<td>£31,955 19 3</td>
<td>£30,477</td>
</tr>
</tbody>
</table>
THE ECONOMIC RESEARCH INSTITUTE  
(COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL)  
BALANCE SHEET AS AT 30th JUNE, 1965

<table>
<thead>
<tr>
<th>1964</th>
<th>£</th>
<th>£  s. d.</th>
<th>£  s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,283</td>
<td>2,563</td>
<td>15 11</td>
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<tr>
<td>2,300</td>
<td>690</td>
<td>2 5</td>
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<tr>
<td>3,043</td>
<td>833</td>
<td>7 5</td>
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<td>4,110</td>
<td>5 9</td>
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<td>1,078</td>
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<td>1,707</td>
<td>14 2</td>
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<td>0,230</td>
<td>0 0</td>
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<tr>
<td>10,878</td>
<td>3,741</td>
<td>15 4</td>
<td></td>
</tr>
<tr>
<td>10,878</td>
<td>3,741</td>
<td>15 4</td>
<td></td>
</tr>
</tbody>
</table>

**CURRENT LIABILITIES:**
- Bank Overdraft: £2,563 15 11
- Members Subscriptions in advance: £690 2 5
- Sundry Creditors and Expenses Accrued: £833 7 5
- *(Secured by Letter of Undertaking from Department of Finance on behalf of the Minister of Finance)*

**Fixed Assets:**
- **Furniture & Equipment:**
  - **At Cost:** £7,066 10 7
  - **Less:** Aggregate Depreciation to date £2,766 10 7
  - **Library Books:**
    - **At Cost:** £1,358 7 1
    - **Additions during year:** £409 7 1
    - **At Cost:** £1,767 14 2
  - **Less:** Aggregate Depreciation to date £437 14 2

**Accumulated Fund:**
- **Balance as at 1st July, 1964:** £10,878 8 2
- **Less: Excess of Expenditure over Income for year:** £7,136 12 10
- **Accumulated Fund:** £3,741 15 4

**Net Current Liabilities:** £4,358

**Net Total Assets:** £2488 4 8

Signed: J. J. McELLIOTT}  
W. A. HONOHAN  
Members of the Executive Board.
AUDITORS' REPORT

We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit. In our opinion proper books of account have been kept by the Company so far as appears from our examination of those books. The Company’s Balance Sheet and Income and Expenditure Account are in agreement with the books of account and in our opinion and to the best of our information and the explanations given to us the accounts give the information required by the Companies Act 1963 and give a true and correct view of the state of the Company’s affairs at June 30th 1965, and of the excess Expenditure for the year to that date.

Signed: BASTOW, CHARLETON & CO.
Chartered Accountants.
