CONTEMPORARY AGRICULTURAL ECONOMICS IN AUSTRALIA

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This review of the present state of agricultural economics concentrates on some aspects which appear to be of particular importance or interest. In no sense is it an attempt to discuss the whole field of agricultural economics, nor to review the scope of work in the Bureau of Agricultural Economics. I have concentrated on aspects which seem to me to have given agricultural economics in Australia a separate identity within the broader fields covered by general economics.

In the final section of this paper, rather than on the selected aspects discussed in more detail in the main part of it, the scope of agricultural economics, as I see it, is set out.[1]

HISTORICAL DEVELOPMENT OF AGRICULTURAL ECONOMICS

Agricultural economics in Australia is still very young, but already its roots are planted firmly in the past. The foundations were laid by the work of Professor Perkins in South Australia whose efforts in farm cost accounting were far ahead of his time; and by Professor Wadham during the 1930's, particularly in such ventures as the Royal Commission on the Wheat, Flour and Bread Industry, and later in the Rural Reconstruction Commission; and by the inspiration and leadership in government service during the war and early post-war years of Mr. J. G. Crawford, who had by that time gathered around him the nucleus of the staff of the Bureau of Agricultural Economics. There were, of course, a few miscreants who did not join this fold, as opportunities arose in New South Wales and South Australia and in the Commonwealth and Rural Banks.[2] But the pattern of growth was dominated in those early days by the Bureau. More recently there

[1] While preparing this paper for publication I had occasion to look over the manuscript of a book to be published in 1957 by the University of Illinois Press in which the evolution of relationships between economics, agricultural economics and farm management in the United States is traced. One viewpoint, expressed by E. G. Nourse, 40 years ago, sums up the attitude I have accepted in preparing this review:

> "The best hope we can venture for agricultural economics is that it should take and maintain its proper place of dependence and assistance, and that general economics may be the point of departure and the goal of its return". E. G. Nourse, "What is Agricultural Economics", *Journal of Political Economy*, Vol. 24, No. 4 (April, 1916), p. 371. See H. C. M. Case and D. B. Williams, *Fifty Years of Farm Management*, University of Illinois (in press).

[2] During discussion of the papers, Professor Campbell delighted his listeners by reading from Websters dictionary the meaning of miscreant:

> "One who holds a religious faith regarded as false. A misbeliever, a heretic, an unbeliever, an infidel, an unscrupulous villain, a vile wretch, a rascal."

The author himself was an unreformed miscreant until joining the Bureau in 1951.

has been a gradual emergence of leadership in some aspects of agricultural economics in the universities and valuable pioneering contributions have been made by research workers in the N.S.W. Department of Agriculture, and more recently in other states as well.

The great need in the early post-war years was to provide an economic service to guide War Service Land Settlement; the plan was to appraise the outlook for different rural products on the one hand, and the suitability of different land settlement proposals on the other. At the time the economic position was dominated by the widespread fear of the "post hump slump" in the rural industries, by the need for reconstruction measures of many kinds, by shortages, and by the new full employment policies. It was within this environment that agricultural economics found its first widespread application in public policy formation.

As post-war policies developed the early emphasis on land settlement schemes was replaced by a more active participation in the broader aspects of economic policies. The outlook statements evolved into the Situation Reports which have become a feature of Bureau work, and knowledge of factors affecting demand for our rural products is gradually being accumulated. At the same time, the Bureau has been able to assist and co-operate in the development of agricultural economics, in various shapes and forms, in the different State Departments of Agriculture.

Thus the approach to agricultural economics in Australia has been dominated by the need to provide a service, functioning as a unit in a government department. This has led to a pragmatic approach dominated largely by the inductive method, and in our haste to establish reputations for agricultural economics and for ourselves we have built a structure which is somewhat top heavy, with shaky foundations. This becomes painfully obvious when we are called upon to provide answers which depend on a knowledge of production economics at the local farm level.

Thus, agricultural economics has developed characteristics which reflect its growth within the aegis of government departments. In this respect I refer particularly to the top heavy emphasis on land settlement schemes, which has been achieved at the very heavy cost of lack of attention to the problems of established farmers. As agricultural economists in Australia, we are still reeling from the effects of our omission to tackle problems of production economics at the individual farm level. All this has led us to mistake the image of hypothetical farm budgets for the substance of what is actually happening on farms. When the chips are down we still have to rely on the experience and the intuition of agriculturists rather than on the results of our economic research.

It is, of course, easy to shelter behind the constitution in this respect. Production problems are the responsibility of the States, we are told, and the Commonwealth should have no part of them. But the WSLS scheme itself on which the BAE was originally founded was launched in the face of most unhappy Commonwealth-State relations. Agricultural economists can achieve a break through once again if we have the right

answers to problems which agriculturists must face. Furthermore, a clear understanding of what is going on in Australian rural industries is an essential basis for national rural policy. This understanding depends on more precise economic data than has so far been available relating to changes in income and in techniques of production on Australian farms. Information of this kind would also lead to more effective extension work by State Departments of Agriculture.

In more recent years, too, the universities have gradually expanded work in agricultural economics. It is of interest to watch the different traditions already being established in this respect, by the emphasis on public price policies at Sydney, farm surveys at Perth, and econometrics at Adelaide—the latter being a rather drastic but happy mutation from the original parent stock there.

Mention should also be made of the work of the Division of Marketing and Agricultural Economics in the N.S.W. Department of Agriculture, which is establishing a fine reputation and a tradition of unfettered research especially in the economics of production at the local farm level. In the course of time I believe that the merit of work along these lines will overcome the insulation which tends to develop between economic enquiries and agricultural research. Work of this kind will contribute much towards more effective policy decisions.

In Queensland, too, the group of workers led by Colin Clark has helped to place the economic structure of our rural industries in perspective, especially by studies of comparative incomes and productivity in different industries, and by concentrating attention on the occupational distribution of the population as a factor related to economic welfare and progress.

CHARACTERISTICS OF THE PRESENT POSITION

In the following review of the present position an attempt will be made to point out the significant characteristics of the body of knowledge which has been built up, and the concepts which have guided its interpretation. This brief analysis, which cannot hope to be complete, is designed to provide some suggestions as to where the emphasis should be in our future work.

Dependence on Governments

By this I mean that for the most part agricultural economics has developed within government departments, and even in the universities it has been influenced by the methods which have had to be relied upon to finance research projects.

First and foremost in this somewhat dismal line-up must come the cost of production studies, which were originally introduced as a basis for price stabilisation policies. Without them, I suspect, we would be in very sad shape indeed for they have provided the justification for much of the resources which we have been able to obtain for work in agricultural economics. After a time, too, one becomes adept at conducting cost of production surveys which provide other more useful

information as well, and we have learned to live with them, and turn them to our other more important purposes. But I fear that we have two legacies from them which it will take many years to erase.

First, they have encouraged a commodity by commodity approach in our survey work which has in many instances prevented accurate analysis of the important relationships between different enterprises on farms. This has severely limited our understanding of the economic factors affecting production trends. It also reflects the fact that practising agricultural economists have largely lost track of the WSLS scheme which is now being administered independently of the Bureau of Agricultural Economics.

Second, the surveys have thrown emphasis on the many weaknesses in cost accountancy as it has been applied to rural industries. The difficulties involved in separating out items of capital expenditure, in the separation of different enterprise costs, and in allowing for depreciation, all undermine the usefulness of our techniques of measuring costs. Used carefully, in conjunction with analysis of cash and non-cash costs, and of incomes earned, cost analyses have their place, but they are deceptively simple if taken at face value, as they so often have been.

Cost studies have been developed at the Federal level as a basis for price policies and their use at the local farm level for management studies depends on a clear recognition of the nature of the different kinds of costs which are all expressed in identical money units; and this application also depends on the development and use of efficiency measures and operating ratios of different kinds developed by cost accountants here, and by farm management research workers in the United States.

A second important effect of our extreme dependence on government employment has been the virtual absence of studies of institutions in Australian agriculture. I shall refer to this later as one of the influences of the United States. But it also depends on the fact that there is little or no future in the public service, at least as I find it, for one who devotes himself to institutional studies, which in Australia amount largely to studies of government activity. For example, how else have the activities of marketing boards and the economic implications of our land tenure system escaped attention for so long? Is the study of economic institutions as unfashionable as all that? Where, too, is the appraisal of the War Service Land Settlement Scheme, one of the most significant large scale public development schemes in our rural history? On similar grounds I would point to the lack of marketing research and reviews of some of our price policies as a reflection of our dependence on governments. In contrast with the United States there has been little pressure at the political level from producers for marketing studies. This is because producers have tended, for better or for worse, to accept the election of producers' representatives to marketing boards as sufficient protection for their interests.

A third factor arising from our dependence on government is the predilection for the inductive approach. Part of this can also be attributed to the basic training in agricultural science which so many workers

in agricultural economics have received. It is, of course, much safer and certainly easier, to collect empirical data and publish them, than to try to establish a theoretical model and then collect data to test it. It is certainly more fashionable to do so, and I fear that sometimes we have taken the easy way out and collected data without always asking ourselves why, or whether secondary data would not serve the purpose as well, or whether an alternative method of collecting data would not be more fruitful. We have so far got away with this because there has often been a vacuum of knowledge about some aspects of our rural industries, and any new knowledge at all has been of interest and of some value. But we need now to be more discerning, watch our priorities more carefully, and ensure that our field surveys collect data needed to answer specific and important problems.

Fourthly, one can see all around, in the course of day to day work, that the growth of agricultural economics must occur within the confines of our Federal system with so much of the financial strength concentrated in Commonwealth agencies. This is having significant effects on the nature of projects undertaken and on the priority accorded different aspects of agricultural economics, and growth has been uneven in the different States. But there are encouraging signs of interest, and a growing realisation of the importance of contributions which agricultural economics can make to extension work, at the local farm level. In the Commonwealth sphere, co-operative working arrangements with the States are in some cases relatively undeveloped and some projects have to be shelved because they are primarily the responsibility of the States. At the State level resources are often inadequate to enable a programme of research to be developed.

The United States Influence

Important as the influence of our growth within government agencies has been, it is matched in importance by the influence of concepts which have developed in U.S. agricultural economics, and which have been taken over for use and application in Australia.

On every side there is evidence of this. Concepts which prevailed in the immediate post-war years have been used here with almost careless abandon. I refer particularly to the older concept of field surveys, with the two-way classifications and presentations referred to over forty years ago as the "deadly parallels"; to the emphasis on budgeting which had gained momentum during the 1930's; to the situation reports and the concepts of production goals which were developed from U.S. experience; and finally, once again the influence is evident in the tendency in some quarters to discuss the gross aggregates which make up our rural industries without taking sufficient account of the way in which the composition of those aggregates influences the response of the rural industries to economic change.

A good example of misguided enthusiasm under the situation as it exists in Australia, is provided by the affection which has developed in some circles in Australia for budgeting. This technique arose in the United States during the 1920's and gained momentum during the administration of many of the government adjustment and wartime

programmes of the following two decades, and it is still enjoying a boom there. The widespread application of the budgeting in the U.S. is founded on the records which had been established over the years, describing production experience over a wide range of environments, and on the opportunities which existed to use budgeting in government assistance programmes of various kinds. In Australia the method has served to draw attention to economic aspects of proposals for farm development and has provided a basis for interpreting the significance of changes in costs and prices on typical farm units representative of our major rural industries. It has found special application in the War Service Land Settlement Scheme, where it has provided the economic basis for the principles used to guide the choice of land use and farm size.

But its expansion beyond this particular purpose, into extension work, depends on more information based on experience of economic conditions over the years (and not on the judgment of agricultural technologists) which enables the particular environmental conditions in the locality to be taken into account. It is also vital to have some measure of the effects of variations in managerial ability on the different alternatives being compared with the budget. To ignore these is to run the risk of departing so far from reality as to lose the farmer's confidence, on which successful extension work depends. My purpose in saying this is not to suggest that budgeting has no application here, but merely to stress that it depends on accurate information of input-output relationships in the particular environment concerned, and to suggest that occasionally a neat and precise budget is an oversimplification of a complex choice of uncertain alternatives.

More recently, the current fashions in the United States have been adopted here. Production functions, linear programming and some emphasis on decision making processes have crept into our work. The first two of these are new tools the uses and limitations of which should be familiar to us all, while the third is a field of research which should prove very fruitful here.

I mentioned earlier than we have tended to ignore institutional studies in Australia. Some of the cause of this can be attributed to the fact that such studies have been relatively unfashionable over the last decade when most of the United States influence has been exerted. Supervised farm record keeping, with personnel travelling from farm to farm keeping records up to date, falls somewhat in the same category. Despite its widespread adoption in certain states of the United States, it is rather scorned among the fashion leaders, at least on the research side. But here in Australia our primary data are so weak relative to the United States, and our science is so young, that we should be prepared to adopt more widespread supervised record keeping as a source of basic data for continuing case studies over the years. This is one of my sincerest regrets—that in Australia we did not start to do this earlier. We are making amends by continuous recording in the sheep, beef and dairy industries, but on an extensive rather than an intensive scale. We need also some more detailed records from a selected group of farms, by research workers who are prepared to concentrate their interests on a few farms instead of succumbing to the temptation of purporting to keep the whole of the industry concerned under review.

The Link with Economics

In Australia economics and agricultural economics have been developed by different groups, in different organisations with different purposes in mind. Fortunately for the agricultural economists, we have had sufficient exposure to overseas work, in both general and agricultural economics, to enable us to benefit from their latest thoughts, but the inbred character of the economics fraternity in Australia, and their close links (at least until more recent years) with the United Kingdom, have ensured that general economists have remained insulated from those who attempt to study agricultural economics.

The significance of all this is that there has been gross neglect on the part of the academic economists of the special problems of rural industries. Worse still, there have been widespread misunderstandings which have remained unanswered because of the lack of liasion between the two groups of workers. The nature of the supply function is a good example, as we see so many economists confusing the concept of a delayed response to price rises with an inelastic supply curve; and where is the study showing the real costs of a full employment policy, and of the alternative measures which may be taken to achieve it, on the rural industries? Where is there a measure of the implications for our international trade of the marginal productivities of different industries in Australia and overseas? What about elasticity of demand studies? All these problems are vital areas of interest for agricultural economists but have been virtually ignored, as a whole, by the general economists.

The Link with Agricultural Science

The rapid changes in economic conditions, the development of new techniques of production and the gradual increase in tempo of farm advisory work have all drawn the attention of agriculturists to economic aspects of their production problems. In general there has not been any great pressure by agriculturists for economic studies to assist them in their analysis, even though there have been isolated instances of this. The agricultural economists, for their part, have been too busy with issues underlying public policies to set about developing production economics on which closer working relationships with the agricultural scientists depend.

We need to provide information in an appealing way, which will assist the agriculturist to make more accurate interpretations of the agricultural problems in his area. This can be done by establishing continuous records, and by studying the forces motivating the farmer, including institutional factors; and by analysis of input-output relationships in each major locality. As service work of this kind expands, the agriculturist will come to rely more and more on economic interpretations of his everyday problems. This is one of the developments which has occurred as the result of co-operation between the BAE and the CSIRO Land and Regional Survey Section in calculating the potential carrying capacity of land in Northern Australia. Similar progress is being made in co-operative work between the Bureau and the State Departments of Agriculture.

Part of this lag in the development of co-operative working relationships between agricultural scientists and agricultural economists can be attributed to our Federal system, which finds so much of the economic work being done in Federal departments, while the agricultural aspects are handled by the states.

POSSIBLE LINES OF FUTURE DEVELOPMENT

In the light of all this, we may now summarise some of the major fields of work which need to be developed if agricultural economics in Australia is to continue to grow vigorously and to make its full contribution to knowledge of economic forces in our society, and to national development. In some cases, work along these lines is already under way but I would stress the need to do more work on the subjects listed.

Any proposals of this kind involve a decision as to the boundaries of agricultural economics. For the purpose in hand I have regarded agricultural economics as part of general economics, with a particular responsibility to set out in more detail a theory of the farm firm which can be used as a basis for interpreting the economic forces motivating individual producers, which agricultural economists must analyse for their own sake, and not merely as a means of interpreting aggregate response to economic change. This involves closer exposure to the purely technological aspects of production in the rural industries than might be necessary in the case of those whose interest is restricted to general economics.*

Routine Service Work

There are several categories of work and I classify them as follows:

(*a*) Maintenance of continuous records of farms in characteristic farm areas, including the range of farm types characteristic of each major region. This would include records of changes in costs and income, investment, debts, and techniques of production.

(*b*) Studies of aggregate farm income year by year, for our major rural industries, and continuation of the indexes of prices received and prices paid as measures of changes over time.

This is important painstaking work, but we need constantly to be on guard to ensure that the information being obtained is important, and is presented in a form which enables the significant issues and problems to be kept under review.

Special Projects as a Basis for Rural Policies

Many of these are within the province of the general economist who can apply the special skills of economics to areas of work of importance in rural policy.

(*a*) Analysis of the effects of public policies of various kinds on costs and the rate of development in rural industries, e.g., tariffs, import restrictions, price stabilisation schemes.

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* See also footnote 1.

(*b*) Marketing studies to provide more accurate information on the factors effecting demand for our major rural commodities on home and overseas markets, and the reasons for changes in demand which are observed. There is some information available, but not nearly enough to provide a sound basis for planning land use or price policies which depend on future market prospects. Too much of our analysis of market forces to date has been concentrated on qualitative factors, without sufficient effort to measure their quantitative significance.

(*c*) Analysis of the marginal productivity of Australian agriculture, by industries and by regions, in order to provide more accurate estimates of the effects of investment and of continued development on our competitive position in world markets. This could be developed into studies of international comparative advantage, and of all the factors which influence the rate and pattern of our economic growth.

(*d*) Institutional studies, to sort out the significance in our economic system of major institutions such as marketing boards, rural awards, land tenure, the banking system and advisory services for farmers. The price policies of government agencies providing services such as transport and power for rural industries, also warrant special attention, though a study of these agencies would need to cover many other aspects as well as price.

(*e*) There is also a related field of work for political scientists, covering the political and social system within which our rural policies must arise and find expression. Particular attention should be centred on the goals which guide the political and economic activities of farmers, and the way in which our administrative and political methods express and modify these goals in government programmes of various kinds. The aim should be to ascertain to what extent all of these relationships modify the optimum economic allocation of resources in the social system.

(*f*) Studies of the influence of new technologies on the cost and income structure of rural industries, and the factors which have influenced the rate of introduction of new techniques. Work along these lines has already been started in New South Wales. Enquiries of this kind can merge into analyses of the whole capital structure and sources of capital for our rural industries.

Frontiers of Knowledge

There are some special problems of measurement and of methodology in agricultural economics which need to be cleared up if we are to make progress beyond the limits defined by our present concepts and methods of analysis.

The main avenues for work in this field, which have special promise in Australia are:

(*a*) Expansion of studies of decision-making by farmers, forging a closer link with other social sciences such as psychology and sociology. This has special significance as a basis for extension work and for a more accurate understanding of the supply function. We need more interviews in depth to probe the real forces motivating farmers, taking account of the effects of uncertainty.

(*b*) Methods of measuring the productivity of resources used in agriculture, and of measuring the costs of resources as a basis for analysis of efficiency of production. These include the new techniques of linear programming and other mathematical methods which provide an interpretation of relationships where many variables interact with one another to produce the end result which is the subject of study.

Any attempt to define priorities in this list would be a rather fruitless task, as these depend on the particular interest and responsibility of the organisation conducting the work, not to mention the training and background of the research workers who are available. But as part

of my subject is "possible lines of future development", may I express the hope that we can give more priority to institutional studies, to define the ways in which economic forces in Australia find their expression; and to decision-making studies because they will do much to break the impasse which has developed in extension work, and will thereby forge a closer link with the agriculturists. They are also an essential basis for policy making, e.g., in relation to credit policy. But even to go this far in defining priorities reveals my prejudices and I shall desist, knowing full well that others have different interests and different responsibilities, which lead them to stress the importance of other aspects of agricultural economics. The expression of these differences is a sign of healthy vigour. Agricultural economics will stagnate if there is not a continual infusion and interchange of new ideas from agricultural economics overseas and from workers in Australia who can conduct research without regard to the pressing problems of the moment which must always be the primary concern of agricultural policy makers.

DISCUSSION

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The two papers which have been presented this afternoon cover such a wide field that it is impossible to deal with more than a few of the issues raised. I shall therefore confine my remarks to comments on some of the points at which I find myself at variance with Professor Campbell or Dr. Williams; I shall also comment very briefly on the part which I believe State Departments of Agriculture should play in the field of agricultural economics.

I may say that I found Dr. Williams' paper somewhat confusing in that it is apparent that at times he is speaking as an agricultural economist, *per se*, while at other times he is speaking as a Commonwealth public servant—an officer of the BAE. Unfortunately he changes his role from time to time and it is not always clear which particular role he is adopting.

I could quote several instances but I shall have to be content with one. When he says "Without them [cost of production studies], I suspect, we would be in very sad shape indeed, for they have provided the justification for much of the resources which we have been able to obtain for work in agricultural economics", he is certainly speaking as an officer of the BAE, not as an agricultural economist; by no stretch of imagination could he be thinking of the N.S.W. Department of Agriculture or the University of Sydney in making this comment.

It is a pity that Williams has assumed this "split personality", the result is likely to be distinctly misleading to those who are not closely associated with the development of agricultural economics in Australia. However, having sorted out Dr. Williams' varying role I find myself in fairly general agreement with most of his remarks.

I do not agree so fully with Professor Campbell. Some of his criticisms of Australian farm survey work are far too sweeping. I cannot agree that the descriptive survey is entirely without value, particularly in view of our basic lack of information relating to the rural