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PROCEEDINGS OF THE
TENTH
INTERNATIONAL CONFERENCE
OF
AGRICULTURAL ECONOMISTS

HELD AT THE
LALITHA MAHAL, MYSORE
INDIA

24 AUGUST — 3 SEPTEMBER 1958

AGRICULTURE
AND ITS TERMS OF TRADE

LONDON
OXFORD UNIVERSITY PRESS
NEW YORK TORONTO

1960

EDUCATION, RESEARCH, AND EXTENSION IN AGRICULTURAL ECONOMICS IN ASIA AND LATIN AMERICA TODAY

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THE objective of this paper is to advance propositions about education, research, and extension in agricultural economics for discussion in the work groups of this Conference. For two reasons my comments are confined to present-day needs in Asia and Latin America. The first reason is that these are the non-North American parts of the world where I have some acquaintance with colleges of agriculture and with agricultural economists. The second is the importance of realizing that the concerns and techniques of agricultural economics of Europe and North America are to a considerable extent specific to the institutional setting of agriculture in those continents. Much of the agricultural economics of Europe and North America is productive at home but corruptive when it strays abroad. Obviously, there is an enormous variety of institutional settings of agriculture and of agricultural economics in Asia and Latin America. My generalizations are therefore proposed as foci for discussion. I do not assume widespread geographical uniformity.

Education

I limit my discussion to undergraduate education, since I believe that is where a beginning needs to be made with some thorough-going revision.

While our concern in this paper is with education in *agricultural economics*, we must recognize that courses in agricultural economics are part of a total curriculum. Consequently, we must consider briefly the total educational task of colleges of agriculture; then turn our attention to the kind of courses in agricultural economics that can play their proper role in this. In a previous paper,¹ I discussed the task of a college of agriculture, pointing out that it is not primarily to train farmers, but to help young men whose careers are to be related to agriculture to learn to think. In parts of Latin America it is reasonable to assume that many graduates of colleges of

¹ 'Learning to Think About Farming', a talk to the Rotary Club, Allahabad, India, January 1952. Copies available from the Council on Economic and Cultural Affairs, Inc., 630 Fifth Avenue, New York 20, N.Y.

agriculture may become farm operators, although even there, judging from experience in the United States, they will be a minority. Most of them as in all of Asia today, will become administrators in governmental departments of agriculture, research workers, and teachers. As agriculture becomes more dynamic in each country, increasing numbers will be drawn into positions in which ability to think about agriculture is important—in manufacturing, merchandizing, journalism, and credit organizations. And, as is true of all vocationally slanted educational institutions, many graduates will scatter into occupations having little if any direct connexion with agriculture. For all students of agricultural colleges, regardless of the nature of their later careers, their only undergraduate university experience will be in these colleges of agriculture. Consequently, they need to be helped to learn to think not about agriculture alone, but in as wide an area of adult responsibility as possible. This is particularly important today in all those countries that are trying to establish new patterns of society. The need of the hour is not for occupationally trained technicians, but for citizens who combine a broad understanding of human affairs with technical competence in some one field. This argues for the inclusion of courses in the humanities and in the social sciences in the curricula of all colleges of agriculture in addition to courses in the physical and biological fields. It also calls for emphasis in all technical courses on developing the power to think effectively, and on developing technical skills, rather than on the memorization of current facts and time-worn definitions.

These considerations have two implications for curricula in agricultural economics. The first is that such courses have an important function in the curricula for *all* students in agricultural colleges. The second is that these courses should be so designed and taught that they contribute to a *liberal* education; they should not be designed solely as elementary preparation for more advanced courses at the post-graduate level. Consequently, I submit that four characteristics need to be embodied in undergraduate curricula in agricultural economics in Asia and Latin America today.

First, *undergraduate education in agricultural economics should be so designed that it helps students to recognize the need for choice-making and for economizing, and for resource allocation, combination, and management, throughout a wide range of the problems of a free society, both within agriculture and outside it.*

Economists are mainly concerned with such activities of ordinary people as are involved (1) in achieving optimum levels of production

and optimum patterns of distribution at a given level of technology, and (2) in contributing to economic growth involving substantial changes in the level of technology. But the allocative problems of the people of a free society go far beyond these into the realms of allocation of each individual's time between family, community, and vocational needs, the allocation of scarce governmental revenues among a variety of pressing needs, and the habit of living by continuous and informed choice-making, so that no innovation leads to stagnation on a new plateau of unchanging technology or political achievement. Moreover, the very concepts of choice-making and of economizing are new, or take on special significance, in economies which have been governed for many centuries largely by tradition. Part of the need for a substantial dose of agricultural economics for *all* students in agricultural colleges in Asia and Latin America arises because much of the agriculture of their countries is just moving from tradition into choice-making, and from a dominantly subsistence economy into an increasingly commercial stage. Agricultural economics plays an increasing role as agriculture becomes more commercial, but it needs to take a special form, and probably needs to be particularly stressed just at the moment when deeply rooted habits of tradition must be replaced by new habits of choice-making. Once the value of economizing is firmly established in a dynamic society, agricultural economics has a largely technical and implemental role to play. Just now, however, in much of Asia and Latin America, agricultural economics has a heavy and somewhat different responsibility to help establish economizing, and management through continuous choice-making, as accepted principles in each culture, and to help implement these with a combination of mental habits. It is far too easy in courses on economics to use valuable time in the exposition of definitions and concepts, frequently from another age and culture, postponing perhaps until the post-graduate years any real comprehension by students of the central core of what economics is all about. This is a serious mistake in Asia and Latin America today. Undergraduate courses in agricultural economics need to be so designed and taught that they begin *immediately* to foster ability to think economically, and should be taught in such a way that students realize the crucial contributions that agricultural economists in every country are called upon to make.

Second, *undergraduate education in agricultural economics should help each student to learn to think with respect to the immediate problems of the agriculture of his own country.* This proposition is so obvious that it may seem redundant to mention it. Yet it is honoured more in the

breach than in the observance for two reasons neither of which is an adequate excuse. The first reason why so much of the agricultural economics taught is about countries other than the student's own is that there is more descriptive material on other countries available. The second reason is that many professors of agricultural economics have had their training abroad. They bring back what they learned abroad about what a course ought to be. They bring back their foreign textbooks. Not having a thorough knowledge of the economics of the agriculture of their own countries, it is far easier to teach their subject in terms of the agriculture of the country where they studied. In order that the courses may help a student to learn to think economically with respect to the problems of his own country it is necessary that the economic concepts, tools, and techniques be appropriate to his needs. Here we must question whether the subject-matter, and even the techniques of analysis, of agricultural economics as it is taught in the West at the present time are of the appropriate forms for them to be given in teaching agricultural economics in Asia today. To a degree seldom realized by any of us, agricultural economics as it has developed in the West is specific to the general culture and to the stage of agricultural development in which it grew up. Witness, for example, the way in which institutional provision for research in agricultural economics developed in the United States of America first in the U.S. Department of Agriculture with farm management as its sole concern, the way in which the centre of gravity shifted to public policy during the twenties and especially the thirties, during the period of agricultural depression, and the more recent shift toward econometric analysis as a result both of a professional climate favouring the application of production theory to agriculture and of the availability of mechanical and electronic calculators.

When selected young men from Asia and Latin America go to the United States, for example, to study agricultural economics, what they get depends not on the immediate form of the economic problems in their homelands, but on the particular stage reached by U.S. agriculture—with its consequent institutionally determined subject-matter, concepts, and emphases—at the time they happen to go abroad to study. The need to develop the right courses is, therefore, twofold. On the one hand, they need to be couched in the framework of specific local agricultural problems. On the other, they require the development of economic concepts, analytical tools, and habits of thought that are appropriate for the student in his own setting.

Third, *undergraduate courses in agricultural economics in Asia and Latin America need to be such that they provide considerable actual practice in the processes of collecting, analysing, summarizing, drawing conclusions from, and effectively presenting economic data.*

Economics begins with the assumption of choice-making; it goes on from this to developing procedures for learning and interpreting facts in a way that can aid rational choice-making. These procedures are specific; they are based on a definite logic; they require skills; and they are useless if not dangerous without understanding. The only way to develop these skills is to practise them. Many of the blind spots in our knowledge about the economics of the agriculture of each country could be filled in by very simple, yet dependable, survey techniques. How frequently those of us who have been concerned with trying to teach agricultural economics in Latin America or Asia have protested: 'we don't have the data we need; how can we teach students what we don't know?' Having said which we have often retreated to retailing theories and techniques from another country, leaving our students to squeeze what benefit they can out of this. It is as though, with a mandate to teach men to swim across a river, we described bridges to them instead of taking them with us into the water. With all due respect to macro-economic studies in Asia and Latin America today, they are false guides unless the data on which they are based are reliable; and too frequently the data are not reliable. The only sure way to develop sound judgement about the validity of secondary data is to practise the collection and analysis of primary data.

Fourth, *undergraduate courses in agricultural economics in Asia and Latin America should challenge students with the unknown, giving them a glimpse of what they may be able to contribute to their countries' progress.*

If the purpose of undergraduate education is to help men to learn to think, its first task is to challenge students by unsolved problems and to introduce them to concepts useful in analysis, rather than to fill them with descriptive information. The history of every scientific discipline bears witness to the fact that it is the intellectual curiosity and clear-headed thinking of great teachers in the presence of the unknown that challenges students to become scholars; it is not the beauty of ready-made answers, least of all ready-made answers to the problems of a different people in a foreign country.

Agricultural economics is a new but badly needed field of study in many countries. Undergraduate education needs to be such that many highly talented young men will be drawn into the field. To this end, they need immediately to be drawn into partnership with

their teachers in pushing back the boundaries of our present knowledge and in dispelling our common ignorance.

These considerations lead me to the proposal that undergraduate courses in agricultural economics for all students of colleges of agriculture in Asia and Latin America should include four elements: (1) a study of the agriculture of a student's own country, including its geography, history, and present structure, from the standpoint of *the loci of decision-making* with respect to it, sketching what is known,

*Suggested Undergraduate Courses in Agricultural Economics for All
Students in Colleges of Agriculture*

	<i>Lecture, reading, and classroom discussion (Two one-hour periods weekly)</i>	<i>Practice in observation, survey, and analysis (One two-hour period weekly)</i>
FIRST COURSE	<p><i>Study of agriculture in (Peru)</i> (with emphasis on the <i>loci of decision-making</i> and on the occasions for economic analysis)</p> <ol style="list-style-type: none"> 1. What is known and not known about the geography, history, and structure of agriculture in (Peru). 2. Loci of decision-making. <ol style="list-style-type: none"> (a) The farm operator. (b) Custom. (c) The political process. 3. Distribution and consumption pattern for agricultural products. 4. Comparison of the above with features of agriculture in other countries and in former times. 	<ol style="list-style-type: none"> 1. Practice in economic analysis, including (a) field observation; (b) evaluation of published data; (c) analysis of relationships through statistical analysis, graphic analysis, cartography, and deductive reasoning; and (d) exposition and communication of economic data and conclusions, e.g. sizes of farms, types of farming, marketing channels, cash expenditures, labour distributions, weights and measures, distances of farms from highways and railways, proportion of agricultural production moving to markets, &c. 2. Monthly field trips to farms and markets.
SECOND COURSE	<p><i>Introduction to the specialized fields of agricultural economics</i></p> <ol style="list-style-type: none"> 1. Farm management (with special study of the concepts of the household and the firm). 2. Land economics. 3. Marketing. 4. Prices. 	<ol style="list-style-type: none"> 1. Practice in economic analysis. A series of four studies, one in each of the specialized fields of agricultural economics, so chosen as to introduce students to marginal analysis; supply and demand curves; increasing, constant, and diminishing returns; and index numbers. 2. Monthly field trips to farms, markets, and processing plants.
THIRD COURSE	<p><i>Study of agricultural development</i></p> <ol style="list-style-type: none"> 1. Elements of agricultural development. 2. Resources of agricultural development. <ol style="list-style-type: none"> (a) Physical. (b) Cultural. (c) Organizational. (d) Personal. 3. Agriculture in general economic development. 4. National planning for agricultural development. 	<ol style="list-style-type: none"> 1. Practice in economic analysis: <ol style="list-style-type: none"> (a) More advanced exercises, long or short, as may seem most appropriate in local circumstances, or (b) preparation of thesis based on primary data collected by the student.

and indicating specific points needing further study and the similarities to, and differences from, the present and past structure of agriculture in other countries; (2) a preliminary exploration of problems dealt with by the specialized fields of farm management, marketing, land economics, prices, and agricultural policy; (3) a study of agricultural development; and (4) elementary practice in the basic operations of economic analysis. This includes (*a*) the observation and recording of primary data, (*b*) the use and evaluation of secondary data, (*c*) the analysis of relationships through statistical analysis, graphic analysis, cartography, and deductive reasoning, and (*d*) the exposition and communication of economic data and conclusions.

Each of the first three of these might well be made the subject of a one-year course, with practice in the basic operations of economic analysis being continued throughout each of the three years. To make this proposal definite for purposes of discussion, let us assume that four hours a week can be devoted to agricultural economics in each of three undergraduate years, by all students. Two hours weekly would be devoted to studies (1), (2), or (3) above, and the same to practice in economic analysis throughout the three years. I suggest that the first year be devoted to a general study of the agriculture of the country, with special emphasis on the loci of decision-making and, consequently, on the occasions for economic studies.

To me, such an introductory course has three virtues. First, it paints on a broad canvas the field within which agricultural economics finds its problems. Second, it reveals how sketchy is our knowledge, how great are the responsibilities of agricultural economics and, in consequence, how large are the opportunities for creative contributions by agricultural economists. Third, it introduces all students to the nature of agricultural economic problems and to the elements of economic thinking. Simultaneously, students would immediately begin simple but significant studies, observing and describing such matters as sizes of farms, types of farming, marketing channels, patterns of land utilization, and seasonal fluctuations in prices.

In every country there are situations about which useful knowledge can be gained by investigations so simple that the average first-year student can carry them through.¹ The only way to learn to swim is

¹ I am reminded of a remark by an agricultural economist, 'we know a great deal about the agriculture of our country in general but very little about any part of it in particular'. For years we have remarked on how many villages in India are not connected with the outside world by roads, yet it was only three months ago that I saw the first published table showing the distances of the villages from highways and railways in a particular district in North India.

to swim; the only way to develop a capacity for economic thinking is to practise it. In the process of conducting such studies, students can be introduced to averages, means, modes, frequency distributions, sampling, the use of maps, and the expository drawing of conclusions. Previously published data should be ignored in such studies. Students should be required to go to nearby farms and markets to collect primary data. Each of these exercises should be sufficiently limited in scope to be completed in from two to four weekly sessions, thus allowing at least six or eight separate studies to be completed by each student within the year.

In the second course it is suggested that students be introduced to the specialized fields of agricultural economics, connecting each of them to the problems already encountered in the descriptive study. This should serve to identify those students who might well become agricultural economists, and help them to find the field of their greatest interest. For other students it would give greater understanding of these difficult problems. The exercises in the practical section of the course can introduce students in this second year to the concepts of marginal cost and marginal return; complementary, supplementary, and competitive enterprises; supply and demand curves; increasing, constant, and diminishing returns; index numbers; and other similar tools of economic analysis. Each of these exercises might well be more substantial than those in the first year. Perhaps one study in each of the four specialized fields, each covering a period of about two months, would be reasonable.

It is proposed that the third-year course be centred on the problem of agricultural development. This is by no means an easy subject, and one on which not very much is known. Nevertheless, it is the theme of central interest in much of Asia and Latin America, and our limitations do not change the fact that decisions are constantly being made with respect to it. Agricultural economists, whenever they can command a hearing, are making recommendations in this field which is assumed to be within their competence. At the same time, technicians in other agricultural sciences are stressing the relevance of various technological changes to agricultural development. It is important, therefore, both that non-economists develop at least a rudimentary understanding of the economic aspects of development, and that economists develop a healthy respect for its non-economic aspects. Consequently, the study of agricultural development merits major attention in undergraduate education.

In the practical section of the third year of the course there are two possibilities. One is to continue with the same kind of studies

as in the previous years, each being in the nature of a class exercise. The other is to follow the examples of a few colleges in Asia and in Latin America in which a thesis is part of the requirements for a bachelor's degree. This appears to be particularly appropriate in countries where there are many needs for the kind of information about the economics of agriculture that can be secured by undergraduate students. The preparation of such theses is excellent training for students, and may contribute substantially to knowledge of a country. The recent publication of the University of the Philippines, *Farm Management, Land Use, and Tenancy in the Philippines*,¹ is a good example of the contribution that can be made by planning undergraduate theses around a common theme. Obviously, my contention that undergraduate education in agricultural economics should be adapted to the immediate needs of the students in each college would seem to preclude curricular uniformity between countries or even within countries. This need for local adaptation might, or might not, involve substantial departure from the programme proposed.

The objection may be made to these suggestions that they do not add up to modern agricultural economics. More accurately this objection means that this is not the current professional vogue in a particular foreign country. Certainly, modern agricultural economics is not the same in France as in Germany, or in Great Britain as in Canada, or at Chicago as at Michigan State. The measure of the validity of a programme is its relevance to the current scene in the homeland of the student, and to the task of helping him to learn to think economically about the agriculture within which he is to work. Again, it may be argued that this plan reduces the scope for the specialized training of agricultural economists at the undergraduate level. To this, I would reply that these courses appear to me to be the minimum general courses in agricultural economics for all students in colleges of agriculture. If specialization must be introduced at the undergraduate level (a doubtful proposition) then it should take the form of additional courses in the final year.

Finally, it may be pointed out that this programme requires new materials and uniquely qualified professors, and for that reason it could hardly become the immediate pattern in every college. But certainly there is one man somewhere in each major country who could create such a programme, and it might be an excellent use of resources to set him free for a time to tackle the job.

¹ Horst and Judith von Oppenfeld, J. C. Sta Iglesia, and P. R. Sandoval, *Central Experiment Station Bulletin* 1, August 1957.

Research

Throughout Asia and Latin America research in agricultural economics is pulled at by two forces. One is the demand of national governments and planning bureaux for help in framing programmes for economic development. The other is the serious shortage of men with technical training to fill administrative posts in ministries and departments of agriculture.

The first of these is a legitimate claim on agricultural economists, and constitutes an opportunity one would not like to see wasted. But it comes before the time when the descriptive studies of agricultural production, which are essential for realistic planning, have been undertaken. It is like being asked to design a bridge using unfamiliar materials before the structural characteristics of the materials have been determined and without making borings before designing the foundations. Yet we cannot but welcome the interest of many national governments in speeding agricultural development, and we are made very unhappy when they draw up plans without calling on agricultural economists for help. The demand is welcome; the matter is urgent; and we are not ready. In addition, this preoccupation with national planning results in our having ignored, almost completely, the economic problems of individual farm operators. The fact is that the producing units in these countries are individually operated farms. In the words of my colleague, Dr. A. B. Lewis, 'Too many planners think of agriculture as a sheet of growing crops covering their country; they do not realize that it is made up of hundreds of thousands of individual farm-operators, each with the responsibility of making choices with respect to what crops to grow, and how, and under the necessity of making his choices within a far broader cultural context than that of which the planners take account.' Going back to the 'loci of decision-making', most of the research attention of agricultural economists in Asia and Latin America is being given to the decisions of national planners, very little to the problems of decision-making faced by individual farmers.

The second force also—the pulling of trained men into administrative posts—is one which, in itself, is welcome. Here, however, the problem is not so much a lack of previous work accomplished by the profession as a whole, but rather that there are so few men trained to do research in agricultural economics that the demand for administrators frequently leaves no one to do research. I remember a conference of directors of agricultural research of central American countries at Turrialba in 1955. All of them were under forty and, in

most instances, they were the only men in their countries qualified to conduct research. One more problem must be added. There is so little realization of what research in agricultural economics can contribute in most of these countries that very inadequate provision is made for it in the form of salaries for full-time work, freedom from other responsibilities, and budgets for travel, equipment, and clerical help.

As a result, one rarely finds, in these countries, competent and well-trained men with freedom to conduct research on problems which they deem to be important, except when they bear directly and quickly on national planning.¹ Recognition of the potential value of research has reached the point where a few young men are sent abroad for post-graduate study, but all too often they return to their homelands to be placed (if they are not drawn prematurely into national planning or administration) in departments where the value of what they have been trained to do is not appreciated, or where the organizational pattern or conditions of employment are not conducive to creative work.

What is to be done in these circumstances?

Some steps are obvious: (1) To try, in each country, to see that provision is made for at least a few basic studies in the fields of farm management, land economics, marketing, and prices. (2) To choose within these fields projects of which the value to farmers and governments will be obvious, so that the results of the first projects will begin to build official and public support for further studies of a similar nature. (3) To work toward conditions of employment and toward such research organizational freedom that productive research work is stimulated. (4) To try to place every man returning from specialized training abroad in such a position that he can demonstrate what he can do, and to give him time to develop.

Beyond these, I suggest that serious study be given to the type of research programme exemplified by that of the Office of Special Studies of the Ministry of Agriculture of the Government of Mexico, with the co-operation of the Rockefeller Foundation. The Office was set up in 1943 with two purposes: first, 'to raise the level of national food production'; second, 'the training of Mexican agricultural

¹ There are three encouraging exceptions to this. One is in the private producers' associations of Colombia and Brazil. The second is in India where grants for research in agricultural economics are available through the Indian Council of Agricultural Research. The third is in the Philippines where government agencies have begun to support research in the College of Agriculture of the University of the Philippines and where one or two private firms have begun to show an interest in supporting such research.

scientists'.¹ It is staffed by a small number of highly qualified specialists—geneticists, plant pathologists, soil scientists, entomologists. To assist them, it accepts as trainees for a period of two years each, a number of young graduates of the Mexican National School of Agriculture.² These are not candidates for degrees; their position is that of laboratory and field assistants. For five days a week, they participate in the field and laboratory operations of the research programme as *workers*, not as supervisors. On the sixth day of each week they study in the library and participate in staff seminars on some theoretical aspect of their current work. It is understood that they cannot stay with the Office beyond the two-year period, and within that time they may stay only so long as their work is satisfactory.

The programme of the Office lies chiefly in the biological sciences, but I suggest that similar programmes in agricultural economics might be of great value. At a time of simultaneous shortage of research projects under way *and* of well-trained agricultural economists, this appears to be a promising method of tackling both problems. So far as the training aspect is concerned, let us arbitrarily call this *after-graduate* training to distinguish it from *post-graduate* training conducted by a university and leading to an academic degree, even though one would hope that some such project, at least, would be administered by colleges of agriculture.³ To inject this training aspect into research projects would make them doubly worthy of support at a time when public support of research as such is not strong. To place after-graduate training in the context of substantial and significant research projects, directed by experienced and competent men, would make it far more practical than is usually the case with research for a thesis for a Master's degree. To require students to do this kind of after-graduate work before beginning academic post-graduate study would lengthen the period of total training for turning out agricultural economists with Masters' degrees, and this at a time when these countries are desperate for more agricultural economists with specialized training. I firmly believe, however, that men who had completed the kind of undergraduate training I propose would be at least as well equipped to

¹ Quoted from *The Mexican Agricultural Programme*, Rockefeller Foundation, 1953.

² This was in the beginning; later it accepted trainees from nearby countries and, still later, from other Mexican colleges of agriculture.

³ While autonomy in academic matters is a prerogative of universities to be protected where it exists and urged where it does not, one might hope that with opportunities for such after-graduate training available, universities might begin to require completion of it as a pre-requisite for admission to post-graduate status in the University.

enter the profession as men now receiving Masters' degrees in Asia and Latin America, and I am certain that those with both undergraduate and after-graduate training of the type suggested would be much better equipped. And in the process they would have made possible considerable research which is not being conducted within the present programme. These, it seems to me, are general problems of research throughout Asia and Latin America. A better job should be done where there is a current demand, chiefly in national planning. But this cannot be done without a deep and wide development of research in the fields where there is at present little appreciation of its value: farm management, land economics, marketing, and prices. There is a close connexion between research and specialized training of agricultural economists which might be strengthened to the advantage of both in projects of after-graduate training, as well as through a re-organization of post-graduate studies.

To discuss research beyond this point, we would have to consider the problems of individual countries, one by one. That is far beyond the scope of this paper. In passing, however, I would mention the great need for one type of research in agricultural economics in all these countries. I refer to studies of the economic implications of the changes in farm practices which are recommended on the basis of research in agronomy, horticulture, animal husbandry, &c., when these are incorporated into the total production pattern of agricultural households or firms. The need for such studies is urgent. But, in the same breath, one must plead for simpler and less expensive techniques than the complicated and sophisticated methods currently in use in some western countries, even if it means some loss of precision. Otherwise we shall be asking for research for which competent personnel are not available in adequate numbers. We may, in addition, find ourselves in the vulnerable position of incurring expenditures on research that are greater than the increased agricultural efficiency which they make possible.

Extension

Here the situations in Latin America and Asia differ. A number of Latin American countries have recently organized extension programmes, sometimes completely national in organization and control, but more often a product of bilateral technical co-operation with the United States. These are programmes of *agricultural* extension education, and they have chiefly affected medium- to large-sized farms and haciendas, where a commercial outlook is already well established. Where they have sought to aid the Indian farmers of the High

Andes, living in a more 'groupistic' culture and practising a subsistence type of agriculture, they have had relatively little impact. This may be due partly to the conditions in which the Indians of the Andes farm. It is certainly due, at least in part, to the fact that the extension workers are frequently non-Indians, with a tendency to look down on the Indians they are supposed to serve. In contrast, most of the extension education programmes now operating in Asia are multi-subject, giving attention to public health, literacy, community organization, and local public works as well as to agriculture. A variety of related reasons underlie the emergence of this type of extension.¹ One is the fact that the small subsistence farm household is predominant in Asia. There are very few medium- to large-sized farms except plantations, and so far public extension programmes have been assumed to have no responsibility for these. Only in Japan and the Philippine Republic is there a programme of agricultural extension similar to that in the United States. Most Japanese farms are small, but many of them are more commercially oriented than elsewhere in Asia.

Agricultural economists have not yet played a significant role in any of these extension programmes of Asia or Latin America. This is partly due to the fact that these services have grown up largely without provision for subject-matter specialists of any kind. This, in turn, has been the outcome of a general misunderstanding of the partial truth that 'we know so many ways to increase agricultural production that are not now being generally practised by farmers that our only needs are effective techniques of extension propaganda and widespread organization'. Only recently has the need for additional agricultural research begun to be taken seriously, chiefly as the result of having discovered that when an extension service begins to be effective it quickly runs out of improved practices. One also sees the beginnings of serious attempts to introduce subject-matter specialists into extension programmes. To fill one or both of their historic functions: keeping extension field agents abreast of research developments; and supplementing them with more specialized expert ability, the general competence of field agents. But these developments are still confined to the biological sciences; they have not begun to touch agricultural economics.

Were it not for two special considerations, one would be tempted to conclude that, for the time being, it would be well for agricultural economists to forget about extension and get on with more research

¹ See the author's *Varieties of Extension and Community Development*, Comparative Extension Education Publication No. 2, Cornell University, Ithaca, N.Y., 1958.

and with a re-orientation of education. These two considerations are, first, that unless careful attention is paid to the economic impact of recommended practices these are likely either to be ineffective or to discredit the extension process; and, second, that unless agricultural economists become involved in extension programmes their research problems are likely to be drawn more from the example of research publications from other countries than from the immediate needs of farmers in their own countries. For its own good, as well as for its contributions, the profession of agricultural economics needs to be involved in extension programmes. To achieve this it probably must begin in three ways. In its research capacity it must undertake many more *micro* studies in farm management, marketing, and prices in order to demonstrate quickly what contributions it can make to extension. Simultaneously, and without waiting to be assigned an official function in extension, it must make close contact, on an observer basis, with the extension and community development programmes that are already operating, to pick out the points at which economic studies are needed. Third, there is great need for agricultural economists to share in the pre-service and in-service training of extension agents and particularly of extension administrators. Very few of the extension agents are college graduates, and very few of the college graduates among administrators have come through colleges of agriculture. Consequently, few of them recognize the need for economic thinking. Most of the extension services in Asia must start at a point where encouraging farmers to substitute choice-making for tradition is the primary task. Unless agricultural economists demonstrate the necessity for, and utility of, systematic economic study of alternatives, these services are ill-equipped for the second stage of the process where choice-making has begun to be accepted and where attention must therefore shift to the question of which alternatives to choose.

It is clear that education, research, and extension are heavily inter-dependent. A close functional relationship needs to be established and maintained among them. Yet the prevailing pattern throughout Asia and Latin America is to have them separately administered by different governmental agencies. Colleges of agriculture, in most instances, are exclusively teaching institutions. A few are parts of autonomous universities; usually they are subordinate sections of ministries or departments of agriculture; in several countries they are administered by the ministry of education. A few colleges of agriculture offer post-graduate training in agricultural economics;

more frequently, agricultural economics is offered as a field of specialization at the post-graduate level, by departments of economics in general universities, to students who may or may not have studied agriculture as undergraduates. Research in agricultural economics is conducted primarily by ministries of agriculture and, for the most part, is not so much research as statistical compilation related to administration. Seldom does one encounter an agricultural economist on the staff of an institute for agronomic or animal husbandry research. Extension is carried on either by a separate division or bureau of the ministry of agriculture, or by a separate ministry of community development.

The Land Grant college system in the United States is frequently held up as an ideal pattern for the integration of education, research, and extension. While it has much to recommend it, the actual pattern is quite different from what is frequently understood, since so much research related to agriculture and rural life is administered by governmental agencies other than colleges, and by business firms. Furthermore, the suitability of a college of agriculture and home economics as a base for extension depends on the breadth of the extension service. Where the prevailing pattern of community development, as in much of Asia, covers public health, local government, and public works as well as agriculture and home science, its subject-matter is much broader than the educational responsibility of colleges of agriculture.

The important need is for a sufficiently intimate *functional* relationship between education, research, and extension so that each is influenced by, and served by, the other two. This can be achieved by the following measures short of total administrative integration, where the latter is either unwise or unachievable. (1) By adding a training component to research projects. One step in this direction has already been indicated. This is the practice of setting up certain research programmes in such a way that they have strong training components along the lines of the programme of the Office of Special Studies in Mexico. (2) By making project grants for research to agricultural colleges. A central research grant-making body could be established in each country to finance research in various colleges and institutes throughout the country. In order to achieve the advantages of combining research with teaching agricultural colleges do not need total responsibility for agricultural research, but enough research activity for teachers to have a part in it. Two good examples already exist in Asia. One is the Indian Council of Agricultural Research. The other is the Community Development Research Council

of the University of the Philippines. Through each of them professors in colleges which are dominantly teaching institutions can secure funds for specific projects of research. (3) By giving regional extension responsibility to colleges of agriculture. A similar step towards bringing education and extension together is to give each college the responsibility for a limited extension programme in its immediate vicinity. Here again, the college does not need the total extension responsibility for a country in order to pull teaching, research, and extension together, but it does need enough extension orientation to keep its feet on the ground both in its teaching and in whatever research it may undertake. This plan has the additional advantage, in countries with widespread and rapidly growing extension programmes, necessarily standardized as to method, of allowing colleges freedom to experiment with different patterns of extension education.¹ (4) By strengthening professional societies of agricultural economists. One of the most encouraging signs pointing to stronger functional relationships is the growth in recent years of professional societies of agricultural economists. It is not the size so much as the frequency of contact within them which is important. The society in the Philippines, though small, meets every month. National societies in large countries cannot meet so often, but regional and local meetings, and professional journals, can play a productive role whether the different activities of agricultural economists are administratively integrated or not. (5) By meeting each other's needs. Perhaps the most important step of all in integrating the three activities is to be contributed by men in each field constantly keeping in mind the inter-relationships between them and making opportunities for co-operation and mutual service.

Some years ago, on a holiday in Kashmir, I was looking over the wares of a dealer in carved wood. He had rectangular boxes of assorted sizes. Picking up the largest, I asked, 'What is this?' 'A neck-tie box,' he replied. Pointing to the next largest, I asked, 'What is that?' 'A jewel box,' he replied. Indicating the middle-sized box, I asked, 'and this?' 'A handkerchief box.' Then the next to the smallest—'A stamp box.' 'And the smallest of all?' 'That is a gift box.' 'What would I do with a gift box?' 'You give it to someone.' 'What does he do with it?' 'He gives it to someone else.' I submit that, in the face of the enormous problems of Asia and Latin America, we stand in two dangers. One is of teaching knowledge

¹ This proposal is based on the example of the Government of India, where several agricultural colleges have been given administrative control over extension activities in a 'block' of villages near each college.

about agricultural economics of which the chief value is that it can be taught by someone else, who can teach it to someone else 'because agricultural economics ought to be in the curriculum'. The other is of displaying virtuosity in techniques of economic analysis (for the man who carved the gift box displaced as much skill in wood-carving as any other) without concern about the usefulness of the product.

Meanwhile, agricultural development is held back by lack of men with profound curiosity about, and deep intellectual commitment to, the economic problems of farmers and of governments. It is delayed by the fewness of those who have common sense about priorities in research problems and who are more interested in dependable, immediately useful results than in reputations for technical virtuosity. It waits on the day when agricultural economists of each country start from fundamentals and develop concepts and techniques suited specifically to the particular problems of their own countries.

D. G. KARVE, *Reserve Bank of India, Bombay, India*

Dr. Mosher has made several valuable observations and suggestions on education which, I am sure, will be considered in detail by the appropriate workshop. On this occasion, however, I would like for the most part to confine my remarks to what he has to say about the relationship between agricultural economics and extension. May I begin by pointing out that the alleged provincialism of agricultural economics in North America and in Europe to which he refers must not be taken too literally. A certain amount of correlation must naturally exist between economic circumstance and economic thought in these areas. And this is true of all areas. But the progress made in agricultural economics in Western countries generally in the spheres of agricultural development and of marketing has a bearing on all agriculture. Where technological and scientific processes are changing, and commercial agriculture is replacing subsistence farming, the relevance of Western experience is all the greater.

What Dr. Mosher says of undergraduate education in agricultural economics is really true of all education in the subject, namely, that it should stimulate thought on the problems of agriculture in each country. Here, it is not the ready-made solutions offered by any country, east or west, which are significant for others, but rather it is the method of applying the knowledge of economics and of economic analysis to the situation of the agricultural problems in

hand. From the standpoint of education as well as from that of its practical use it is necessary, as Dr. Mosher says, to present written as well as oral instruction as far as possible in terms of the actual experience of the trainees. I agree that there is considerable scope for progress in this direction in most of our places of learning.

Speaking among ourselves, fellow academicians, I am free to confess that a reorientation and emphasis are needed primarily on the part of scholars and teachers themselves. Frankly, the gulf between technicians and economists, or even more broadly between physical scientists and social scientists interested in agriculture, has not yet been bridged, at least on our side. Even where the physical scientist persuades himself to take temporary leave of a fundamental approach to his inquiries and to take a practical or problem-oriented view of his interests, he rarely, if at all, sees the end problem as basically economic, that is to say, as a problem of using scarce resources so as to produce the most gainful results. On their side, agricultural economists are so engrossed with the 'accounting' or 'managerial' aspects of farming as a business, that they tend to ignore the vital features of farming itself which condition its business prospects. When conditions are static with regard to the organization and techniques of farming, this concentration on the economic, to the almost complete exclusion of the physical aspect may, perhaps, not matter much. But where organizational and technological reconstruction and development of farming are undertaken as current policy, as is in fact being done in most of the industrially under-developed countries seeking rapid development by planned action, economists would be ignoring the physical aspects of change only at their peril. At least with the same insistence with which we are apt to urge that every student of agriculture should have a course in economics, I am convinced that every professed agricultural economist should have a suitable course in agriculture.

This insistence on bridging the gulf between agriculture and economics is no longer a mere academic speculation. For a large number of countries, at least in this area, it is a practical necessity. Agricultural extension has now been adopted as an administrative policy in many states. The purpose is frankly economic, viz. to maximize the productivity of agriculture as a part of a national plan aimed at raising *per caput* income. Unless all the so-called subject-matter, or technical, programmes of agricultural improvement are scrutinized from the economic standpoints of necessary inputs and likely returns, an extension programme may not only not succeed, but in at least some cases it may not deserve to succeed. The education

in economics imparted to the agricultural graduate while at college should make him ever conscious of the economic aspects of his work. This, however, would not be enough. The economist, as economist, must contribute his own subject-matter speciality, namely, ascertaining the business or commercial merits of all extension plans, both general and particular. The economist must be sufficiently familiar with agriculture and agricultural programmes to be able to contribute to the economics of extension on a practical level.

The extension procedures offer several opportunities, both at planning and implementation stages, for such co-operation. That extension is being introduced as a subject of study in agricultural colleges is welcome news. But more important than studying extension methods, is to be in fact extension conscious. Unless agricultural extension becomes more 'economics minded', and unless economics become more 'extension minded', the full benefits either of agriculture or of economics will not be secured. More deliberate progress along these lines is necessary.

May I conclude by referring to another of Dr. Mosher's points. He seems to say that in schemes of community development having much wider scope than agricultural extension, the suitability of agricultural training centres as bases of extension activity would be limited. This is true as far as it goes. But it needs to be emphasized that on the material side agricultural extension is the most important part of the programmes of community development, and unless those whose normal function it is to teach and to do research are also made primarily responsible for chalking out overall as well as particular programmes of agricultural extension, the quality of extension will suffer, as it has in fact suffered in India. The personnel which is responsible for currently carrying on extension in the rural areas will no doubt be different from that which would be attending to teaching and research. But the overall responsibility for the programme must be vested in the appropriate institutions of training and research. What is being taught must be capable of being carried into practice; and programmes of practical extension must be such as are indicated by the latest position of research on the subject. Where the Director of Agriculture is the overall head of all three activities, administrative unification can be easily secured.

Needless to say, those of us who are connected with the Indian Society of Agricultural Economics would like specially to endorse Dr. Mosher's reference to the role played by professional societies of agricultural economics in strengthening the functional relation-

ship between education, research, and extension. Many of our members pursue their work in colleges of agriculture. Our annual sessions are usually held in institutions of agriculture, such as the one at Allahabad, of which Dr. Mosher has been a distinguished director. We also hold occasional seminars for more intimate discussions on specific problems, for example the one on the economics of co-operative farming held recently at Poona, when we had the benefit of active participation not only of a competent director of agriculture, but also of the manager of a successful farming society. I am sure that the integration of theoretical and practical aspects of agricultural economics which is thus brought about is appreciated by us all.

C. U. DERTEANO, *Sociedad Nacional Agraria, Lima, Peru*

I quite agree with Dr. Mosher when he stresses the need for revising undergraduate education in agricultural economics so as to integrate this subject with others in the curriculum. Only in this manner can graduates acquire ability to think in terms of economic judgement and social welfare and to choose wisely between alternative lines of action.

Economists have frequently to operate under extremely difficult conditions in isolated and poor social communities. Therefore, they have to be properly trained and qualified to investigate a great variety of problems of a non-economic as well as an economic nature and to be capable of facing unpredictable situations, relying on their own judgement, experience, and imagination.

Dr. Mosher has correctly stated that there does not seem to be enough demand for highly specialized trained men in the area covered by his paper, perhaps because of the budget limitations of government and private organizations. The rather low level of living that seems to prevail in important sectors of many Latin American and Asian countries, together with lack of facilities and even of primary resources, limits attractive employment opportunities for highly specialized agricultural economists who are thus compelled to seek security and higher returns in other spheres. Nevertheless a certain number of properly trained men are required to carry out economic and social programmes which demand careful planning, organization, and supervision. The efficient use of factors of production in order to reduce costs and raise the profits of the individual farm also demands specialized and deep knowledge on the part of the entrepreneur.

Students of agricultural economics in Latin America and Asian

countries should be trained, at least for the time being, in ways that differ in many respects from those adopted by North American universities and Land Grant Colleges. For instance, there is no point in endeavouring to apply linear programming techniques when sufficiently accurate and faster results can be obtained by the use of simple methods of investigation to determine the optimum combination of resources—especially when a number of them are scarce and expensive.

There are two ways of improving the organizational structure of agricultural economics teaching; first, to include within each college or faculty, a special department for agricultural economics and, second, to adopt a combined curriculum, in which special courses would be given in the college or faculty of agriculture, leaving the faculty of economic sciences of the nearest university to provide all specialized courses on economics—economic theory, statistical methods, research methods and analysis, social sciences, agricultural policy, planning and organization, &c.

In the first case the curriculum could be rigid or semi-rigid, the courses for each semester or academic year being followed by all the students in each class. In the second case, the courses could be divided into basic or compulsory subjects and optional subjects, with different credit values for each in relation to their importance. A counsellor appointed by the board would have the responsibility of guiding each student in the selection of the most convenient courses within the department and making recommendations on reading matter. Later, the counsellor would assist him in the preparation of a research plan for a thesis, which should refer to an important subject or economic problem bearing on his future professional activity, be it tenancy structure, credit organization and financial possibilities, irrigation and colonization projects, community development schemes or any other subject of the kind.

The training of the future agricultural economist could begin from the very first year of undergraduate study and gradually extend, integrating the economic courses with the scientific and social sciences. This system has the advantage of bringing the student along progressively, thus enabling him to follow courses of higher academic status. Or the first three academic years within the department of agricultural economics could be dedicated to general courses in agriculture and the last two to specialized courses in economics.

As Dr. Mosher points out each country should have its own textbooks on agricultural economics and farm management, based on its peculiar conditions and level of culture, but certainly not on

its present stage of agricultural development. He also stresses the importance of not extending economic analysis beyond the point where the final results can be used to advantage, and calls attention to the inconvenient tendency of giving a theoretical orientation to the various courses of agricultural economics included within the curriculum. Courses should be based on investigation data, and closely complemented with seminar discussions on specific topics and selected bibliographies for consultation. Furthermore, it is convenient to dedicate as much time as possible to economic research in the field on problems related to agriculture, to visit farms, co-operatives, processing plants, and banks that grant loans to agricultural enterprises. The knowledge acquired during this direct contact with economic reality helps students to carry out field studies, economic analysis, planning procedures, decision making and the preparation of reports as well as special investigation projects.

The second alternative—the flexible curriculum—appears to be more desirable than the rigid annual programme. It avoids duplication of effort and expenditure. Besides, in most countries of the area covered by the paper there is only a limited number of qualified professors for certain basic courses: moreover, not all colleges or faculties of agriculture are equipped with specialized laboratories and other facilities. It serves no purpose, therefore, to try to include courses that can best be provided by faculties of economic science with highly specialized professors. In this connexion close co-operation and integration is required between the two faculties which would have to revise their curricula, suppressing some courses, and adapting their academic calendars to the new requirements.

The objectives of undergraduate education in agricultural economics should be threefold:

- (1) to train future government officials capable of planning and carrying out suitable agricultural policies, land reform programmes, rural community development schemes, &c.;
- (2) to train specialists for teaching, research, and extension work;
- (3) to train future managers to conduct large farm enterprises so as to obtain the optimum economic output. Professional consultants for commercial companies engaged directly or indirectly in agricultural activities would also be included in this category.

The undergraduate curriculum should be in line with these three special fields, for it is impossible for each student to cover all the

broad subjects and problems related to modern agriculture and economics.

Extension programmes allow agricultural economists to become intimately acquainted with prevailing conditions in an area. Extension officials should receive lectures and proper training from agricultural economists in annual meetings, so as to be able to carry out surveys and conduct inquiries of an economic nature. The training should include collation and tabulation of statistics, special market reports and other types of information of interest to farmers. Recommendations on use of improved cultural practices should be supported by comparative results obtained from field research studies. Extension officials should reciprocate by providing economists with factual information on prevailing economic conditions and by bringing to their attention the main problems encountered in the rural community. Both in advanced and under-developed areas of the world, extensionists in agricultural economics should contribute to the improvement of every type of farm regardless of size and tenure, giving particular emphasis to choosing between possible alternatives. Extension services can be effective only when there exists within the central headquarters of the organization a well-equipped department with a staff qualified in agricultural economics.

Unfortunately, very small allocations are made in the national budgets of under-developed countries or by private institutions, for research or planning prior to development. In these circumstances research work and analysis must be based on simple techniques, aimed at obtaining rapid rather than highly accurate results inexpensively. All colleges of agriculture should include research work in agricultural economics in their undergraduate curricula, but unfortunately financial limitations prevent them from having enough full-time professors to combine adequately teaching with research, at least for the basic agricultural economic problems. Perhaps the best solution of this difficulty would be co-operative agreements between local faculties or colleges of agriculture and particular international agencies or foreign universities interested in research. In addition, fellowship grants should be included for post-graduate students.

A co-ordinating consultation board should be entrusted with the difficult task of achieving a strong functional relationship between the three basic activities I have mentioned, whether they be administered by autonomous institutions or by government agencies. In any event I fully agree that what is desirable is a close voluntary relationship rather than an administrative integration.

A. T. MOSHER (*in reply*)

May I make two very brief comments? Dr. Karve stated that in his opinion the agricultural college has more validity as a base for extension work than I implied because agriculture is the most important economic activity in the Extension and Community Development Programme. With this I certainly agree. I was only trying to point out that in the countries where it is necessary to have a broad community development programme, the subject-matter of that programme must be much broader than the normal subject-matter of a college of agriculture. This does not vitiate Dr. Karve's point that the resources of agricultural colleges need to be intimately related to the extension programmes in matters pertaining to agriculture. One possible solution would be for the *subject-matter specialist in agriculture* of the community development programmes to be related to the agricultural colleges, without the administration of the total community development programme being in the agricultural colleges.

With respect to Señor Derteano's point that there is need of *specialists* in government service, in research, in teaching, and as managers of large farms, I did not cover this point in my paper; I left it open. Personally, I am inclined to the view that specialization should occur at the post-graduate level. Whether that is done or not, in considering undergraduate education we should keep one criterion paramount: We must help young men of the background and degree of maturity of those who are actually undergraduates in these countries to learn to think about agricultural problems. If it is possible to do this, to give the general courses that all of them need, and still within a four-year period to have some specialization, then certainly it should not be ruled out just because it is specialization. On the other hand, if we tend to suffer in these countries because we have specialization too early, so that, as Dr. Karve remarked, the agriculturist does not really understand the economic implications of what he proposes and the economist does not understand the mechanics of agronomy, then perhaps what is called for at the present time is an undergraduate course in which there is no specialization, leaving this to the post-graduate level. Personally I think there is no single answer to this because of the enormous variation in the nature of agricultural regions and in the pre-university experience of students. My plea is that we adopt the basic proposition that the purpose of undergraduate education is to help young men to learn to think about agricultural problems, not to complete their professional education.

USING ECONOMIC RESEARCH IN POLICY MAKING

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IT is one thing to do economic research. It is another to have it used in policy making. How are the two to be brought together in the common interest? There are two equal and opposite dangers, the one that economic research should be neglected in policy making, the other that it should have an influence on policy unwarranted by the soundness of the analysis.¹ However, far better that the potentially influential profession of economics (or agricultural economics) be reduced to the role of 'neglected scolds'² than that, through unsound or misapplied partial analysis, it should lend its weight to shortsighted courses of action, such as find expression in certain of the programmes which have helped to turn the terms of trade against those countries whose progress depends upon trade in agricultural foodstuffs and industrial raw materials.

As has been stated so often, the terms of trade for internationally traded agricultural commodities have deteriorated substantially in the past year or two. Many will contend that this change has been artificially induced. There have been national programmes with high price supports allied with policies of agricultural protectionism, and large so-called surpluses have resulted. The volume of non-commercial international transactions has increased sharply. The situation immediately confronting countries dependent on expanding trade in agricultural commodities is one of great uncertainty on two counts, the one relating to the future terms of trade and the other to the actual scope for maintaining, let alone expanding, the volume of sales. There are two questions which may well be posed at this

¹ See J. G. Crawford, *Do Administrators Take Any Notice of Economics?* An unpublished address to the Economic Society of Australia and New Zealand, Canberra Branch, July 1957. In answer to the question posed by the title, Crawford suggests that the answer is perhaps, 'Yes, despite economics', and states 'whether or not economics as a recognized discipline enters into the decision-making arena, the type of thinking which, in political and administrative circles, must pass for economic thinking occurs because of the nature of the decisions to be made'.

² I borrow the expression from Galbraith whose indictment on this occasion relates to the farm policy of the United States. See J. K. Galbraith, review of *Can we Solve the Farm Problem?* by Murray R. Benedict, *Journal of Farm Economics*, vol. xxxviii, No. 3 (Aug. 1956), pp. 878-82. Incidentally it is within this broad field that one can cite examples of policy 'boners' which have contributed largely to the present situation in respect of world trade in agricultural commodities.

point. Is there a specific group of people to blame for this situation? If so, who constitutes the group—the economists, the policy makers, or some other category?

Before we can answer these questions we must know whether we have any universally accepted objectives of international policy.¹ Tinbergen has suggested the following components as part of a general consensus on economic aims in modern times: (a) international peace; (b) maximum real expenditure *per caput* with full employment and monetary equilibrium; (c) distributions of income over social groups and countries; (d) emancipation of under-privileged groups; and (e) 'as much personal freedom as is compatible with the other aims'.² There may, of course, be some disagreement with these well-stated aims, but there is nevertheless one objective of international economic policy implicit in some of them which is generally agreed upon and has found expression in such international institutions as F.A.O. and the International Bank for Reconstruction and Development. This is the aim of furthering the development of under-developed countries. This implies increased trade, with an increased value in the export earnings necessary to finance the process of growth.³ As pointed out by Myrdal: 'Inevitably, the exports of an under-developed country will consist almost entirely of foodstuffs and industrial raw materials, these usually being the only commodities which it can bring forth in any great quantity'.⁴

¹ A clear statement of policy objectives is, of course, the datum point for the formulation of policy alternatives or courses of action which may be taken intra- or internationally. Subsequent judgement on the merits or demerits of a particular policy must be judged on the extent to which a policy aim or objective is being fulfilled.

² Kenneth J. Arrow, 'Tinbergen on Economic Policy', *Journal of American Statistical Association*, vol. liii, No. 281 (March 1958), p. 89.

³ This is not to be taken as playing down the importance of various other means of assistance such as grants-in-aid, loans, technical aid, and foreign equity investment. However, one cannot but be impressed on the one hand by the calculation that a 10 per cent. change in the under-developed countries' terms of trade would modify their capacity to import as much as 1,500 million dollars a year. See United Nations Economic Affairs Department, *Relative Prices of Exports and Imports of Underdeveloped Countries*, New York, 1949, p. 17. On the other hand there are some very real problems and limitations from the point of view of the recipient countries associated with international investment in under-developed countries. See also R. Nurkse, 'The Problem of International Investment To-day in the light of Nineteenth Century Experience', *The Economic Journal*, vol. lxiv, No. 256 (Dec. 1954), pp. 744-58, and H. W. Singer, 'The Distribution of Gains Between Investing and Borrowing Countries', *American Economic Review*, vol. xl, No. 3 (May 1950), pp. 473-85.

⁴ Gunnar Myrdal, *An International Economy*, Routledge & Kegan Paul Ltd., London, 1956, p. 229. Few would challenge Myrdal's contention that 'an under-developed country has powerful reasons for maximizing the total value of its exports; for its ability to export will always be the main determinant of its capacity to import the capital goods which it needs in order to build up, *inter alia*, its manufacturing industries'.

There is an intermediate group of countries, such as Australia, New Zealand, and others, which are not under-developed according to usually accepted definition, but which nevertheless still rely primarily on expansion of agricultural export income as the means of financing development. There is no conflict in the economic aim of development of such countries and the universally acceptable aim to which I have just referred. Perhaps I am politically naïve, but I can see no good reason why the national objectives of the mature industrialized countries need be in conflict either, since an expansion of the trade of the under-developed and intermediate group of countries can lead to an expansion of their own overall trade, particularly in industrial products. However, stated policy aims are one thing, the ways and means of achieving or fulfilling them or of reconciling conflicts between divergent aims are obviously another. As I see it from the point of view of one who is called upon with others to draw up alternatives for achieving our own objectives of development, the international economic situation is confused and uncertain, where unpredictable ingenuities in the tactics of beggar-my-neighbour prevail over elementary concepts of fair competition. The prospects of expanded trade seem dim for the agriculturally dependent countries.

To what extent is the blame for this state of affairs attributable to shortcomings in economic analysis? Or is it in spite of economic analysis? Looking back over events since World War II, three phases of world agricultural commodity outlook assessment are reflected in the broad advice emanating from the Conferences of such international organizations as F.A.O.

1. The era of increased production at all costs. A general assessment was: 'The Malthusian devil is back—the terms of trade of agriculture stand to profit.'¹ Even as late as 1951 no less an international trade authority than J. H. Williams had this to say:

A great change appears to be under way in the relation of industrial production and trade to food and raw materials. For perhaps three-quarters of a century, the problem had been whether the industrial countries could absorb the food and raw materials which they had been instrumental in developing in other countries, on terms of trade tolerable

¹ Theodore W. Schultz, *Production and Welfare of Agriculture*, Macmillan, New York, 1950, p. 217. I do not use this quotation to imply that Schultz himself supported the idea. In fact Schultz appeared to me clearly to foresee that even with support prices at 85 to 90 per cent. of parity, there would be increased farm production, which would lead to a dumping. There were in fact prospects of such price policies and production decisions as would 'clog the channels of trade' (p. 220).

to the latter. Now the imbalance appears to be swinging the other way . . . there is a general world problem of availability of supplies.¹

2. The era of retreat. The Seventh F.A.O. Conference in November 1953 marks the dramatic turning-point. As stated in the Secretariat document: 'A *selective* approach to problems of agricultural expansion is necessary if the opposing dangers of inadequate progress and imbalanced markets are to be avoided.'²

3. The era of defeat. This has been heralded in only recently in the following terms:

The 30th Session of the Committee on Commodity Problems ended yesterday after almost two weeks of discussions on what it termed a grave situation for international commerce in agricultural products.

The discussions of the 24-member Committee have stressed the concern of delegates at the deterioration of the world agricultural economy. Accumulation of surpluses, contraction of international markets, the fall of world prices for most products and the slowing down of general economic activity were the chief factors involved. It was also noted that the chronic presence of surpluses had spread to new products and additional countries. The outlook was rather dark, and the attention of governments was drawn to the urgent need for measures to alleviate the situation. . . . At the same time it was recognized that from now on the

¹ J. H. Williams, 'An Economist's Confessions', *The American Economic Review*, vol. xlii, No. 1 (Mar. 1952), p. 22.

² F.A.O. *The State of Food and Agriculture 1953, Part II, Longer Term Prospects*, p. 8. My italics. The attitude of the Conference is well summarized in the following terms: 'Prior to 1953 the continuing food shortage meant that in nearly all countries the main objective must be a general expansion of agricultural production. But in 1953 significant surpluses of some foods and other agricultural products began to develop, although world *per caput* production had barely regained its pre-war level, while the uneven development of agriculture meant that in many parts of the world production had not yet caught up with population. The reappearance of surpluses does not, however, imply that the world's requirements of agricultural products have now been satisfied. On the contrary, food consumption has not yet regained its nutritionally inadequate pre-war levels over large parts of the world, and large sections of the world's population still remain ill-clad.

'In these circumstances, the Conference considered that a change in the approach to the development of food and agricultural resources would be needed in many instances. While the end remains the same, i.e. the achievement of satisfactory levels of consumption of food and other agricultural products in all countries of the world, expansion of production will have to be of a more selective character taking into account in each case a number of certain fundamental criteria, among which future requirements of food and agricultural commodities, agricultural potentialities of production, economic as well as social and other considerations. Moreover, policies of selective expansion must be coupled with steps to raise consumption levels, where these remain inadequate. A. C. Jansen, 'Key Problems of Food and Agricultural Development in the Near East', F.A.O. Monograph, Arab Training Centre on Economic and Financial Appraisal of Agricultural Plans and Projects, Cairo, Egypt, Sept.-Nov. 1954, *Digest of Lectures*, p. 153.

problems of surpluses should be considered as a permanent characteristic of the world agricultural economy.¹

In the light of these relatively short-term changes in what is a fairly universal assessment, the problem of long-term planning becomes extremely difficult. No skill in the art of rationalization, surely, can excuse economists from the charge of inadequacy from the point of view of the policy maker or his advisers. The situation is all the more difficult in the light of the universal aims to which I have previously referred. What are the shortcomings and how are they to be overcome?

I feel that research concerning basic factors affecting demand has provided us with something solid and reliable on which to base outlook assessments. One cannot but be impressed by the research that has been done in this field. There is a broad understanding of price and income effects. I need only refer to such imposing publications as those of Henry Schultz,² Wold and Jureen³ and Richard Stone.⁴ This research, together with the knowledge of population changes has enabled some very useful projections to be made for planning purposes. However, we are still confronted with the necessity of making assumptions in respect of rates of change in real incomes and in the redistribution of income. This is where the let-down takes place even if we, as economists, are prepared, as we should be, to re-examine repeatedly what so often turns out to be our 'Achilles' heel', the assumptions on which any estimate or forecast is made.

There are these very real difficulties in projecting demand for foodstuffs. Nevertheless, they are relatively small when we review

¹ F.A.O. Press Release, Rome, 27 June 1958.

² Henry Schultz, *The Theory and Measurement of Demand*, United Press, Chicago, Illinois, 1938.

³ H. Wold and L. Jureen, *Demand Analysis*, John Wiley & Sons, New York, 1957.

⁴ Richard Stone, *The Measurement of Consumers' Expenditure and Behaviour in the United Kingdom, 1920-38*, Cambridge University Press, 1954. I have deliberately avoided discussion of dynamic factors which may influence basic relationships over time. Authorities can differ on this aspect. For example, Stone, after a tussle with time variables, states: 'First it suggests that the many long-term factors determining market demand are not income and prices at all, but are influences which it is hard to specify and still harder to measure. In such a situation prediction, except over a very short period, must be extremely unreliable . . .', p. 272. On the other hand, Wold and Jureen state: 'The stability thus displayed by the consumption pattern is of great importance for demand analysis, from the viewpoint of theory and method as well as application. Generally speaking we are led to consider consumer demand as a relatively stable feature in the pulsating dynamics of economic development. Gradual shifts in the demand functions are there, of course, but they can be allowed for without entering upon anticipations, short-term reactions, and other intricacies of a dynamic approach', p. xi.

our understanding of the factors affecting the supply of farm products. I am very much in sympathy with Schultz's plea: 'Tell me what the supply of farm products will be five or ten years from now, and I shall give you meaningful answers to the more important problems of agriculture.'¹

All too often economists have attempted projections, their capacity to err being matched only by their capacity for rationalizing why forecasts have gone astray. The favourite scapegoat in recent times has been the 'dynamics of the technological revolution' or some such broad generalization. The policy maker can, of course, be even looser in his terminology and refer to the 'technological explosion'.² Behind the screen of such facile rationalization it is quite easy (and perhaps convenient) to forget that the supply response has been to an assured high price, regardless of market, in fact under circumstances which take all but the climatic risks out of farming.

In the latter part of the forties there was fairly general emphasis on increasing food production, industrialized Western countries and under-developed countries alike joining in. Big food surplus countries such as Canada and the United States, geared to meet the deficiencies of war-stricken countries, maintained programmes loaded with incentives to produce more. In the first era, problems of maldistribution of purchasing power between countries were recognized, but the general assumption appears to have been made that they could be solved, even if it meant the formation of such 'bridging' devices as the International Commodity Clearing House. It was claimed that such a device would enable foodstuffs to be transferred from the 'haves' to the 'have nots' during the period of currency shortages which were apparently assumed to be non-permanent in character. As surpluses in one or two countries became chronic, emphasis appears to have been on 'bridging' devices, leading up finally to the highly contentious P.L. 480 with its regressive effects on commercial trade, rather than on measures designed to increase

¹ T. W. Schultz, 'Reflections on Agricultural Production Output, and Supply', *Journal of Farm Economics*, vol. xxxviii, No. 3 (Aug. 1956), p. 748. Schultz also goes on to say: 'This is not an idle promise. Most of the relevant knowledge of consumption and demand is at hand and the important economic problems of agriculture call primarily for adjustments in production. One is not asking for the impossible. It is not like asking for a fulcrum with which to move the world. There are, of course, many who talk and act in the research they undertake as if the U.S. farm problem could be resolved by adjustments in the demand. They are climbing a molehill, not the mountain awaiting to be scaled.'

² Ezra Taft Benson, letter to Senator Ellender, 2 May 1957: 'A technological explosion is occurring on American farms. Production per farm worker has doubled in the last 15 years. This creates a new dimension in farm policy and makes it virtually impossible to curtail agricultural output with the type of controls acceptable in our society.'

trade on equitable terms especially for those countries whose purchasing power was in need of improvement.

It appears to me, looking back over the post-World War II era, that partial analysis has been largely responsible for faults in the policies leading up to the present sorry condition of the terms of trade and the world's commodity markets. There have been and still are conflicts in the policies adopted if the universal aims previously stated are to be achieved. Certainly a large proportion of the people are still undernourished and inadequately clothed. The fundamental problem is one of maldistribution of income and should be approached consistently as such in policy making, with full recognition of the essential role of intra- and international trade. As a result of policy inconsistencies we are confronted with the prospects of a progressive decommercialization of trade in agricultural products, if we are to take notice of the authoritative C.C.P. group whose pronouncements I have previously referred to. One might well ask whether our universal aims, as previously stated, still stand. What advice can the agricultural economist in my position, whose role is to help formulate policy alternatives, give in present circumstances in relation to his country's future development which largely depends upon increased trade in primary products?

Government policy in Australia since the end of World War II has been consistent in two major objectives—full employment and economic development with the absorption of immigrants at as rapid a rate as practicable. Naturally, policy advising economists have not always agreed on the means of achieving the generally accepted policy aims. For example, agriculture was given specific mention both from the welfare point of view and the role it was expected to play in the development programme,¹ but its needs were sadly neglected, and industrialization became a national obsession. It has never been clear to me how our economic advisers during the early post-war years intended that a process of rapid industrialization would be financed without special provision for the expansion of agriculture, upon which additional export income largely depends.

The major balance of payments crisis of 1952 underlined the need

¹ See *A Rural Policy for Post-War Australia: A Statement of Current Commonwealth Policy in Relation to Australia's Primary Industries (1946)*. Relevant extracts are: 'The Government feels that certain general objectives may already be clearly stated:

- (i) To raise and make more secure the levels of living enjoyed by those engaged in and dependent upon primary industries;
- (ii) To secure a volume of production adequate to meet domestic food requirements, to provide the raw materials for our developing secondary industries, and to enable an expanding volume of exports to pay for necessary imports.

for the positive policy of agricultural expansion which was adopted early that year. A feature of the planning at this stage was the setting of defined production aims¹ based on an analysis of the scope for response within particular industries and markets and a naïve faith that comparative advantage would not be removed by artificial devices. Simple arithmetical models² were used to demonstrate the nature of the responses required to maintain export income based on assumed rates of immigration. The substantial increases in the volume of rural exports in subsequent years permitted a high *tempo* of development, including immigration, to be sustained despite declining terms of trade.

Agricultural economics is a comparatively recent development in Australia, little attention having been paid to it until the Bureau of Agricultural Economics was formed in 1946. This organization has been called upon increasingly since then to conduct a wide variety of investigation considered essential to the process of agricultural policy formulation at the national level. Whilst I agree with Campbell that the Bureau's resources have been heavily committed to short term inquiries having immediate policy implications, and that this has necessarily led to neglect of more fundamental research in agricultural economics, I cannot agree with him that the Bureau has transcended its role as an 'independent fact-finding institution' and become a policy-making body.³

John D. Black has emphasized the large and important role a bureau of agricultural economics can play in the assembly of all the pertinent data and information bearing on policy and in analysing it as closely as possible.⁴ I agree with him that 'it should not undertake to choose policy' but when it comes to 'not even saying what will be the best policy' I hesitate to agree. It may not be able to delineate the 'best' policy but it should not be reluctant to try, and in fact it has some responsibility, in my view, for making policy recommendations based on its analysis. Nor should it hesitate, when called upon, to recommend what it considers to be the best policy,

¹ For further details see *Agricultural Production Aims and Policy*, A Statement Explaining the Agricultural Production Aims Approved by the Australian Agricultural Council in 1952, issued by the Minister for Commerce and Agriculture, Canberra, Dec. 1952.

² For further details see T. H. Strong, *Australian Population in Relation to Agricultural Development and Resources* (paper delivered to the World Population Conference, Rome, 1954), and J. N. Lewis and E. A. Saxon, 'Agricultural Output Requirements for Future Population Growth in Australia', *Quarterly Review of Agricultural Economics*, vol. vii, No. 4 (Oct. 1954), pp. 151-5.

³ Keith O. Campbell, 'Contemporary Agricultural Economics in Australia', *Proceedings of the Conference of Agricultural Economists*, Sydney (Feb. 1957), pp. 27-28.

⁴ John D. Black, 'The Bureau of Agricultural Economics—The Years in Between,' *Journal of Farm Economics*, vol. xxix, No. 4, part ii (Nov. 1947), pp. 1035-6.

or course of action, in the light of its analysis of the facts in relation to stated policy objectives. It should not hesitate to point out to the policy makers any likely adverse consequences of contemplated courses where these appear to clash with stated objectives of policy. To have agricultural economic research used to full effect in the formulation of agricultural policy the economist cannot stand aloof, adopting an attitude of unconcern.

I am speaking, of course, of the role of the head of a government advisory service who acts as spokesman for the economists under his control, or of the public administrator who provides the link between the operational department and the policy makers proper—the political head and his colleagues. For the adviser or administrator to stand aloof is to shirk a major responsibility. Many of our difficulties stem from this. I refer to conflicting aspects of domestic economic policy and particularly to the consequences of a lack of co-ordination among diverse national agricultural policies, and the effect at the international level of the rigidity of certain national policies of price and income support.¹ These are the root cause of the present adverse terms of trade for agricultural products and the general uncertainty of trade outlook for exporters of primary products. In saying this I do not, of course, intend to exculpate economists for the inadequacies of the analyses or partial analyses on which certain of the policies have been based.

One of our big problems in Australia is the prediction of the policies of overseas countries which can exert a dominant influence over the course of international trade. Naturally the United States scene is kept under as close a scrutiny as possible. However, I have been solaced by the statement of experienced U.S. colleagues that anyone who is not confused by the American situation doesn't understand it. The agricultural economic literature within the United States since World War II is rich with objective critical appraisals of U.S. farm policies including the handling of the surplus commodities. Galbraith, for example, is only one of many who have not only set up the framework within which an economic solution could be achieved, but are unsparing of the policy maker. His assessment is: 'At any time during the past year a detached and scientific view of the new farm program would have shown that its remedial value was negligible. . . . In fact the problem may not be especially intractable. It hasn't been solved because it hasn't yet been attacked'. This is certainly not lacking in directness.²

¹ F.A.O. Press Release, Rome, 27 June 1958.

² J. K. Galbraith, 'Farm Policy: The Current Position', *The Journal of Farm Economics*,

In contrast with this is the revealing 'justification' of the agricultural economists of the United States Department of Agriculture and the policy makers by Earl Butz. We are told:

Objective economic analysis of a problem may give answers completely inconsistent with a realistic political appraisal of the problem. In such cases should the economic analyst slant his answers to make them more politically acceptable? Indeed not! He may develop two or three alternative answers, with complete analysis of the consequences, so that the individual charged with policy decision making may assess each alternative against the backdrop of political analysis, sociological soundness, philosophical attractiveness and consistency with international goals. But this decision must remain the function of the policy maker—not the analytical economist. . . . If we can assume a desire to make economically sound decisions among our policy making personnel, the ideal procedure appears to be to push economic soundness as far as political expediency will permit. To know this exact point still requires a finesse that few people possess. Yet find it we must.¹

He then goes on to herald in the abdication:

How sound, economically, was the Agriculture Act of 1944, you may ask. The way it finally turned out, was it primarily economic or political? Such questions can never be answered definitely. Judging from the narrow margin of victory in the Congress, the Act probably was about as sound as the political climate would allow.²

An outsider might well ask whether 'consistency with international goals' has been achieved.

I agree wholeheartedly with one vital point in Butz's paper. This is that the professional agricultural economist must pursue a vigorous educational and informational programme among the people and the politicians so as to move political expediency and economic soundness ever closer together.³ It is one thing to recognize the need

vol. xxxvii, No. 2 (May 1953), pp. 296–304. Incidentally, there are some regrets over the demise of the U.S. Bureau of Agricultural Economics. 'The tradition of economic analysis in the U.S.D.A. has long stressed a maximum of guidance by empirical data and a minimum of concessions to ideological nonsense. Attack on this work in the inconvenient truth it throws up has for a decade or more been a Washington political pastime. The new administration made generous concessions to this evil viewpoint. In writing a new farm program it obviously regarded the judgments of social scientists as dispensable. It turned to its more tractable laymen and men of practical judgment. By an ironic coincidence, at the very moment it was making a historic miscalculation of supply and demand elasticities it was reorganizing the Bureau of Agricultural Economics out of existence.'

¹ Earl L. Butz, 'The Agricultural Economist in the Political Environment of Policy Making', *Journal of Farm Economics*, vol. xxxvii, No. 2 (May 1955), pp. 190–1.

² *Ibid.*, p. 193.

³ *Ibid.*, pp. 191–2. Butz links the 'policy making economist' with the 'professional economist' in his plea. To me the policy decision maker is the politician, the very person whom we should educate and inform.

for educating and informing the policy maker; it is yet another to get across what we have to offer. We must not provide politicians with excuses for ignoring important findings of economic research. Are we unwittingly providing such excuses? Over-specialization may well constitute one of our major problems, for there is undoubtedly much difficulty in achieving effective communication and co-operation between members of the discipline of economics. Well has it been said, 'the verbal economist is too verbal; the mathematical economist too mathematical, and the statistician too disdainful of non-experimental data. In ignorance or desperation the commodity economist turns to empiricism and it is too empirical'.¹ Great as are our intra-disciplinary problems of communication, they are no more pressing than the extra-disciplinary ones. Research findings, if they are to be used to full advantage in policy making, must be presented to administrators and politicians in a lucid intelligible form.

I have endeavoured to keep in mind the theme of this Conference. I do not apologize for any appearance of gloom. To be gloomy under present circumstances does not imply that one is being defeatist. The profession must lend its weight to the solution of expanding and improving world trade. I cannot accept the line of Sir Dennis Robertson that the primary business of the economist is to understand the world, not to set it right.² A problem which is as much economic as it is political confronts us. We have had economists in the past who have made their names through the contributions they have made towards the solution of difficult problems, both intra- and international.³ Surely we still have much to offer before laying the blame finally at the doorstep of policy makers or politicians.

H. DE BARROS, *Faculty of Agronomy, Technical University, Lisbon, Portugal*

Dr. Strong and I come from countries very far apart, not only geographically as everyone knows, but also economically and

¹ Karl A. Fox, 'Frameworks for Appraising Market Research', *Agricultural Marketing Research, Its Use, Appraisal, and Prospect*, A Report of the National Workshop on Agricultural Marketing (July 1956), Iowa State College, p. 40.

² Sir Dennis Robertson, 'Utility and All What?' *The Economic Journal*, vol. lxiv, No. 256 (Dec. 1954), p. 670.

³ See, for example, J. H. Williams, op. cit., p. 10. 'Economic theorizing seems to me pointless unless it is aimed at what to do. All the great theorists, I think, have had policy as their central interest, even if their policy were merely laissez faire. Keynes's greatest virtue, I have always felt, was his interest in economic policy; and it has been said, despite the paucity of discussion of specific policies in the General Theory, that he started with what he regarded as the policy requirements of the time and built his theory around them.'

socially. Between a nation in the full strength of youth such as Australia, rejoicing in an immense and rapid expansion, open to a constant flow of highly qualified immigrants, possessing enormous unexploited resources, and a little European country such as Portugal, almost a thousand years old, loaded with historical glory but poor in natural resources, obliged to allow a considerable part of her active population to emigrate year after year; between these two the differences are enormous, nor are they removed by the fact that both countries are essentially exporters of agricultural and forest products. This comparison helps to explain why he and I do not always see quite eye to eye on the relation between economic research and political action. However, there is a problem with which we are both preoccupied, as are surely all participants of this Conference—the problem of appraising the contribution that pure economic research may make to political action and thereby to human welfare.

To perceive, to classify, to establish interrelations—these are the demands of the human mind. Once the specific field of economic science is defined it develops an urge to accumulate knowledge, to classify, and to establish precise relationships between the innumerable facts which constitute economic activity. This effort, as all of us here know, has led to results which are imposing, and it manifests itself in discoveries which are both valid and new. Nevertheless, the results of economic reflection have a limited application in the field of political economy or, if you prefer, in politics. The discoveries of physical science are rapidly translated into useful action, but not so the products of the social sciences.

Perhaps our Conference will wish to find an explanation of this phenomenon. The reason which I shall offer may not be capable of universal application, but I am convinced that it is applicable to old countries where social stratification and agrarian structure are well defined and derive essentially from historical events. Under these or similar conditions social structure is fundamental data for the economist if he hopes to see the results of his research translated into action. There are innumerable social phenomena which hinder economic rationalization and their removal is a prerequisite for a programme of economic reconstruction. This is a task not for the economist but for the politician.

How often, especially in old nations characterized by social immobility should not an economic programme begin with Tinbergen's political aims of equitable distribution of incomes and emancipation of the under-privileged as quoted by Dr. Strong and to which I give my entire support? Should not these often be the

first for the economists to consider and to suggest to the politicians? One must recognize that these aims cannot be achieved by economists acting as such, who can always find a way of evading this kind of responsibility. They need only declare that they hold to the concept of economics as a pure, abstract science. In that case the effort of understanding and clarifying economic phenomena becomes an end in itself and the idea of an ivory tower comes to mind. Has the agricultural economist the right to adopt this attitude? We all have to face this question to which, if I have understood rightly, Dr. Strong has replied in the negative. The agricultural economist should not become absorbed in trying to discover universal laws governing the behaviour of the 'economic man'. As economist, technician, sociologist, and agronomist, he can only develop applied economics—that economics which renounces the claim to be purely *explicative* and becomes, up to a point, also *normative*, and which for that very reason belongs not only to science but also to art and even to politics. As a science it observes, interprets, and explains, as an art it counsels, plans, and directs. Like all sciences, it has only one end, *the truth*; as an art it adds *usefulness* to the truth; and being concerned with human society, it is necessary also that it pursue *justice*.

Therefore the agricultural economist, developing an applied science, should be concerned with the socio-political implications of his discoveries, recognizing none the less that there is a clear distinction between economist and politician. His research must be scientific, that is to say it must be impartial, objective, disinterested, self-critical, rigorous and unmoved by factious controversies. Without meaning any offence I doubt whether these standards are quite those of politicians. The clearest distinction between the professional economist and the politician is based upon difference in mentality—essentially cool and dispassionate in the first; active and militant in the second.

In making this distinction I do not suggest that the worker in a field so pragmatic as ours should forget the realities of the world, of his country, and of his time. An agricultural economist in western Europe charged with work analysis or determining sale prices, or forecasting the returns of various forms of agricultural exploitation, or examining the position of agriculture and forestry in the general economy, would run a risk of arriving at wrong conclusions if he did not take into consideration the Common Market and the proposed Free Trade area. He must be realistic and objective, and his subjects must be problems of today.

I agree with Dr. Strong about solutions. Like him I believe that

whenever an economist has arrived at a sound conception of a problem, it is his right and also his duty to put forward alternative solutions to which his observation may have led him. It is for the politician to choose between the alternatives and to bear the responsibility for selecting the means to employ. But the agricultural economist's solutions must be capable of surviving in practice. For example, in a country where the distribution of landed property is defective, plans for expansion of production and reduction of costs will never have much success if they do not begin by first recognizing the need for eliminating such a powerful socio-political obstacle. I believe the Conference would do a useful job if it enumerated and examined the different tasks in which the agricultural economist should be able to make an impact on the politico-economic scene. In addition he must be prepared to collaborate with lawyers, sociologists, statisticians, and accountants besides having a good understanding of all the essential elements of economics and agronomy.

L. E. SAMUEL, *Ministry of Agriculture, Tel-Aviv, Israel*

I fully agree with Mr. Strong's views. Indeed, I feel somewhat comforted that I am not alone in being faced sometimes with situations in which policy makers disregard the recommendations of their own economic advisers.

I believe that we have to differentiate generally between short-term and long-term policy. My experience is that, even if targets of long-term policy have been laid down by the government, they tend to be disregarded because of the apparent advantages of some day-to-day matters which may bring additional income to agriculture even though they lead to wrong investments. In my opinion the economists should try to safeguard long-term policy, although of course it should always be understood that targets may have to be changed if circumstances change.

A. B. LEWIS, *Council on Economic and Cultural Affairs, New York, U.S.A.*

I agree with the ideas which Dr. Strong has presented. It seems to me unquestionable that an agricultural economist has the responsibility not only of diagnosing agricultural economic problems but also of making prescriptions for their solution. Not many of us would have our illnesses diagnosed by the medical profession and then turn over the job of prescription to the town committee; yet this is the attitude which some agricultural economists adopt towards their occupation.

There is another point which Dr. Strong made which seems to me to deserve further emphasis, and that is the question of the clarity with which economists present their analyses and recommendations. Very often it seems as if economists are primarily talking to each other, and merely generating echoes within their own halls instead of expressing themselves sufficiently clearly for the general public, and particularly the legislators, to understand what they mean. For as long as economists are not able or willing to express themselves in ordinary English or ordinary Chinese or ordinary Hindi—and I think there is no economic idea which cannot be expressed in the ordinary language of the people—just so long will they have a complaint, but not a legitimate one, that their recommendations are not taken into account.

We have been hearing about the misapplications of economic analysis in the developed countries, but in the under-developed countries there are certain economic policies and programmes which, it seems to me, the agricultural economists of those countries might well analyse and present in plain terms to their legislators. Consider the question of monetary policy. It is very common in under-developed countries for the currency to be over-valued, so that an exporter of primary products finds that, when the returns which he has received on the world market are converted into his own currency, he cannot meet the costs of production which are based on the true value of the currency within his own country. In several under-developed countries the agricultural industries which depend on export are being strangled by domestic monetary policies; and yet the agricultural economists of these countries are not speaking out. Often they are not even studying these questions.

Again, practically all the under-developed countries have their own price policies, which are designed presumably for the benefit of the consumer. They represent an attempt to hold down the prices of agricultural products so that the great populations of the cities of the under-developed countries may eat more cheaply. But of course these policies have the inevitable effect of depressing agricultural crop production. These economic inevitabilities are just as much ignored in the price policies of under-developed countries as other economic inevitabilities are ignored in the more fully developed countries.

Sometimes one finds that a locally produced commodity has its price reduced under national price policy, but when the same commodity is imported it is sold on the local market at a higher price. Other economic policies of under-developed countries often favour

the importation of foreign agricultural products which could equally well be produced at home. Agricultural economists have the responsibility, first, to study such matters and, secondly, to make a lucid prescription with regard to them—and to make the prescription not only clear but loud.

M. YUDELMAN, *The Rockefeller Foundation, New York, U.S.A.*

Professor Strong referred to safeguards for international competition, international peacemaking, maximum rural income, distribution of income and resources, emancipation of under-privileged groups and so on as desirable goals for international action. I would like to make one point. When economists and policy makers, for instance in India, study their balance of payments problem and the need for feeding their population, I think they would hesitate to say that some of the results of the surplus disposal programmes are inconsistent with these goals. What the economists and policy makers need to do, perhaps, is to evolve a truly international scale of values whereby the costs of distributing 'normal' channels of trade can be weighed against the benefits to recipients of disposal programmes. Indeed I wonder if the concept of normal trade has the validity it possessed in normal periods, that is in historic periods when there was free convertibility of currencies. Furthermore, I believe attention must be paid to the role which external food supplies play in short term relief.

W. E. CAVE, *Lower House Farm, East Everleigh, Wiltshire, England*

Although I am a farmer I feel compelled to put a point of view which I think Dr. Strong did not take into account. He very ably stated a case for the Australian primary producers but failed to appreciate the policies of countries like Great Britain which have protected their agriculture and expanded their agricultural production. He omitted any mention of the tariffs and quotas which restrict the entry of manufactured goods into Australia.

When agricultural economists advocate free trade in agricultural products they should appreciate that it cannot work fairly unless the food exporting countries freely accept manufactured goods in payment.

P. NAYLOR, *Hunting Technical Services Ltd., London, England*

Having been educated at Cambridge under Sir Dennis Robertson I feel I ought to try and explain some of his views when I see them under fire—not that it is necessary to believe everything he said.

Dr. Strong quotes the verbal economist who is too verbal and he would probably classify Sir Dennis as of this kind, while considering himself as a 'commodity economist'. This perhaps explains the difference in approach between understanding the world and trying to set it right. I feel myself that the economist's job is to analyse the situation and present the facts bearing on policy but it is for the politician to try and set it right. Once the economist tries to set up the standards of right and wrong he is no longer acting in his proper role.

M. SHAFI NIAZ, *Planning Commission, Karachi, Pakistan*

Policy makers are often blamed for not paying sufficient attention to the recommendations of their economic advisers. However, the policy makers are sometimes faced with the difficulty that the economists cannot give specific answers to their questions, nor are they always unanimous in their views. There are too many ifs and buts in their recommendations. But I am sure that if their advice were always based on sound research, the policy makers would have no alternative but to accept it. It is the disagreements among economists that allow the policy makers to use their own discretion in arriving at decisions. The faults are with the economists rather than with the policy makers.

U. AYE HLAING, *Rangoon University, Rangoon, Burma*

It has been suggested that some foundations might finance the creation of critical public opinion in under-developed countries in order to help the work of economists. This may be a good idea provided the countries concerned do not regard it as foreign interference in their internal affairs.

On the subject of short-term changes, such as Professor Strong referred to, one probable consequence is that they render problems of international trade more and more political. For many under-developed countries, their earnings from a few dominant exports constitute the major source of foreign exchange. It follows that any serious decline in export earnings forces these countries to resort to all kinds of means to maintain their foreign exchange earnings. Bilateral trade agreements, as in Burma, are a case in point. India, on the other hand, with a serious decline in food production, will be forced into agreements to procure food supplies. In such cases political considerations very often dominate the scene, the problems of international trade become political rather than economic, and economists have less and less say.

J. V. WHITE, *Department of Agriculture, Wellington, New Zealand*

In New Zealand economists are related to the Government in the following manner. We have, as part of the Cabinet, a sub-committee on economic policy consisting of four or five ministers, below whom are the permanent heads of the government departments concerned. The co-ordinating and initiating department is the Treasury, which provides the chairman of this committee. Below the committee of departmental heads we have the Working Party of Economic Policy, consisting of people on about my level. We do the actual work of preparing drafts covering particular problems and submit them to the permanent heads for approval. Finally they go to the Cabinet Committee on Economic Policy. Such a system works very well, particularly with problems of international trade, or where a number of departments are concerned with different aspects of the economic structure. The Department of Agriculture is permanently represented on that committee, because in New Zealand, as in Australia, agriculture is very important; and we are consulted on almost every problem. In this way some of our basic work on agricultural economic problems is considered by other departments and ultimately by the Government.

T. H. STRONG (*in reply*)

I do not disagree with Mr. de Barros. It is quite apparent that our countries are different. His country does not face a problem that we have in mine where there is a set objective of developing our resources and helping to relieve population pressure in other parts of the world through a programme of immigration. Incidentally, the original target in Australia implied a 3 per cent. increase in population a year, the difference between this rate and the natural increase being made up by immigration. It was found that stresses and strains on the economy were too great and the target is now around $2\frac{1}{2}$ per cent. An average rate around this level has been sustained for over ten years. But you cannot do that without earning more export income. In this respect we have been fortunate with wool. The absorption of an increased population into productive employment means an expansion of plant, and in order to achieve it we have to obtain resources, including capital equipment, from overseas. The balance of payments problem prevented a higher rate of intake of population. A policy of import restriction had to be introduced at one time to the extent that only about 10 per cent. of imports was allowed over and above what was necessary just to keep the wheels

of established industry going, and to provide for the expansion necessary to absorb immigrants at the target rate.

I appreciate Dr. Samuel's point which suggests conflict in short- and long-term policies. I think that this is at the core of the present problem. There have been alleged short-term policies, but the tragedy is that they are tending to become 'built in'. This is the most objectionable feature of P.L. 480. With increasing surpluses and willingness to engage in non-commercial transactions, the terms of trade start to deteriorate and the commercial markets start to close. Thus, balance of payment problems occur in those countries which depend on exports of primary products. The more P.L. 480, the more there appears to be need for it to help solve balance of payments problems. Where and when do you get out of it? These things become chronically in-built; that is the greatest danger. I think that part of our present problem is this conflict between short-term policies and what should be long-term objectives, in both developed and under-developed countries.

I notice that there is concern in some quarters at the over-valuation of currencies. But the suggested solution through devaluation has to be approached with care having due regard to the institutional framework within which international trade operates today. I remember having to take one side in a debate on this subject at the time of devaluation of sterling against the dollar in 1949. I thought it necessary to look at the possible extra flow of imports into the U.S.A., but for Australia the institutional framework was set so that there would be little increase in the volume of imports into the U.S.A. of key commodities such as woollen textiles. There is another point to consider which I will illustrate by reference to Scotch whisky with all the skill and knowledge that go into it. Before devaluation four quart bottles of Scotch whisky were exchanging in the U.S.A. for one bushel of wheat. After devaluation it would take five quarts to meet the exchange requirements of one bushel of wheat (wheat at that time was priced at around 230-40 cents a bushel) without significant offsetting gains through increased marketings. On the question of restricting import demand in the devaluing country one has to remember that the cost of *essential* imports is increased. There should be a good deal of this type of thinking before a solution is sought through devaluation, particularly when fair market competition is restricted, so that outside sales are not determined by production costs.

In answer to Mr. Yudelma I do not condemn food gifts designed to relieve famine and starvation. There is a great need for surpluses

for this purpose. They might also be used very well under certain other restricted conditions without disturbing commercial trade. I go along with the F.A.O. document prepared by Ezekiel and others in this regard. The trouble is that P.L. 480 is being pushed (for political purposes) too fast regardless of the demoralization of commercial markets. It is creating uncertainties everywhere. Only in the case of wool and cocoa is there now any hope of expanding and finding satisfactory markets. If you really want to help a country like India, I would say that a few million tons of phosphatic fertilizer provided as an aid, and spread over a few years would do more good than ten P.L. 480's, and without the regressive effects provided, of course, that the peasants or farmers can be persuaded to use the phosphates in balance with nitrogenous fertilizers and other elements such as the Japanese technique.

Mr. Cave presented the industrial country's problem of climbing over a tariff wall. I agree that a problem is created by our tariff system. For example, at one time we were very short of the fencing wire necessary to develop our beef industry because we were over-committed in steel and other products. The refrigeration industry, for example, was protected at that time by a tariff of approximately 60 per cent. The United Kingdom has the knowledge and everything else to produce such things more efficiently than we can. At the same time the dear old motherland was putting on price subsidies to such an extent that she was paying beef producers around 300s. per 100 lb. of beef, when we could have produced it for 100s. and exchanged for refrigerators. I am all for collaboration in these things. People talked very nicely at Havana when a trade charter was discussed. Ideals and neat economic theory were given full expression, but where are they now? I personally believe that the General Agreement on Tariffs and Trade is farcical, at least so far as trade in agriculture is concerned. It is a Jekyll and Hyde—a Jekyll in respect to industrial or manufactured products and a Hyde in respect to primary products. There is too much politics in this type of organization unfortunately and not enough objective international economics.

The fact was mentioned that we must understand what is wrong before we can attempt to get it right. I agree; but let us go a little further. It is not fair to the politicians for us to stay in an ivory tower. Let us put up some alternative courses of action based on our objective economic analysis. I am all for independent research. I said something about the U.S. Bureau of Agricultural Economics. I have heard expressions of regret over its demise, and opinions have been offered that U.S. farm policy would have been far more

enlightened and perhaps less contentious if an independent fact-finding agency had been retained to deal with the task of collecting the facts, analysing and presenting them, sometimes with alternative courses of action, and stopping there. This has been the policy of the Bureau of Agricultural Economics in Australia. I think you want that type of organization in all countries, including the under-developed even if on a modest scale. There is an unfortunate tendency for economists to become more and more political, especially in the international arena. Agricultural economists are too often more or less forced to become legal advocates arguing the viewpoint that suits only their particular countries. Too seldom do we get together internationally and talk it right out regardless of politics.