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Implications of Aggregative Theories  
for Agricultural Economists\*

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Waves of fashion are not uncommon in economics. Each generation of economists seems to have its own "Holy Grail." The graduate student of today is exposed to and becomes saturated with concepts and relations unknown to his teachers in their days of graduate study. And some of the notions on which the graduate student, of say twenty-five years ago, was nourished are now only touched upon by the student of today; he may even find some of those ideas relegated to the history of economic doctrine.

Despite the tendency of new concepts and elements of theory to crowd out some older ones which do not retain their usefulness, there does exist a continuity in the development of economic thought; certain notions, concepts, and relations are carried forward from generation to generation with only minor modification. And as the student of fashion can usually uncover historical precedents of new modes, the historian of economic ideas can usually point to some earlier writer who at least had the "germ" of the so-called new approach. Today, a forefront of economics is immersed in that area which some call aggregative theories and others refer to as macroeconomics.

In the following discussion, we shall (1) indicate what is usually meant by macroeconomic or aggregative theories, in contrast with particular equilibrium or microeconomic theories; (2) consider the extent to which the current emphasis on economic analysis of national aggregates is an innovation; (3) review the use which has been and might be made of aggregative theories in some areas of agricultural economics; and (4) note the complementary characteristics of microeconomic and aggregative theories. As we go along, we shall consider implications of aggregative theories for agricultural economists.

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## I

An early point to clarify concerns the essential differences between aggregative and particular equilibrium theories. A main difference is that particular equilibrium theories are concerned with the economic characteristics of individual consuming units, individual producing units or a particular industry. In contrast, aggregative theories deal with the economic system as a whole. Hence, aggregative theories are pitched at the level of the national economy. Their object of analysis is the functioning of the economic system in totality, and the variables are values or functions of national totals or national averages.

Aggregative theories are a means of approaching, in a simplified but manageable way, some of the goals of the Walrasian general equilibrium. That system, as is well known, incorporates individual households and firms, as well as interrelations within the entire economy. Each separate economic unit is explicitly reflected, and each product has its own supply and demand functions which include also the prices of all other products. Conceptually, such a general equilibrium structure, if specified in adequate detail, can provide a means of determining equilibrium prices and quantities for the system as a whole as well as for the separate economic units within the system. To construct such a system, however, requires an extremely large number of equations to be solved in order to determine an equally large number of unknown values. Why Walrasian general equilibrium analysis has not proven useful for practical purposes can well be appreciated.<sup>1/</sup> In order to have a method of analysis which is practically manageable and provides a basis for making usable economic decisions concerning the economy as a whole, it is necessary to deal with aggregates and use aggregative theories. Such

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1/ A simplification of the Walrasian general equilibrium system in terms of industry aggregates has been developed theoretically and statistically by Leontief. See: Wassily Leontief, The Structure of American Economy, 1919-1929 (Cambridge 1941); the following papers in the Quarterly Journal of Economics, Vol. 48 (February 1944), Vol. 50 (February 1946), Vol. 51 (November 1946); and "Recent Developments in the Study of Interindustrial Relations," American Economic Review, Papers and Proceedings, Vol. 39, May 1949, pp. 211-225.

methods of economic analysis are often referred to as macroeconomics, in contrast with microeconomics which pertains to the behavior of individual economic units and for which particular equilibrium analysis is widely used.

## II

It is quite clear that the current emphasis on macroeconomics stems from the profound impact of Keynes' General Theory.<sup>2/</sup> Many earlier writers did think, analyze and write in terms of aggregates, but the analysis by Keynes of national employment and its determinants set the stage for the current emphasis (more than a fashion, I believe) in analyzing problems of employment, income and wages. But aggregative theories are not limited to Keynesian or neo-Keynesian economics. Anti-Keynesians or "neutrals" have and do operate in an aggregative framework.

The recent and current emphasis on macroeconomics is, in part, a return to the general analytical methods of the classical economists and even their predecessors. The Physiocrats, Mercantilists, Smith, Ricardo, Malthus and their contemporaries were primarily interested in and worked with national economic aggregates.<sup>3/</sup> In their frame of reference, the individual firm and the individual consumer did not receive the analytical attention afforded them by later writers. Only beginning with the neoclassicists did the analysis of the individual consumer receive priority, and it was even later that the individual firm

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<sup>2/</sup> John Maynard Keynes, The General Theory of Employment Interest and Money, (Harcourt, Brace and Co., New York, 1936).

<sup>3/</sup> R. F. Harrod, in "Keynes, the Economist (I)" (The New Economics, edited by Seymour Harris, Knopf, New York, 1947, Chap. VIII) writes: "Richard Cantillon was the first, I think, to indicate a full-fledged schema of aggregative, monetary, and income analysis, the one worked out by Francois Quesnay in his Tableau Economique. Quesnay, then, is the true predecessor of Keynes, ...."

The progress of aggregative analysis, before Keynes' General Theory but in recent years, is indicated in J. Tinbergen, "Annual Survey: Suggestions on Quantitative Business Cycle Theory," Econometrica, Vol. 3, No. 3, July 1935, pp. 241-308. On this point, also see; H. S. Ellis, "The State of the New Economics," American Economic Review, Vol. 39, No. 2, March 1949, pp. 465-477.

became the object of intensive analysis. But beginning with Marshall, partial equilibrium theory became so entrenched that the recent emphasis on macroeconomics seemed to some as an innovation rather than a resumption of an established method of analysis.

### III

With the preceding brief sketch of the nature of the variables used in macroeconomics and several comments on its background, we may now consider the extent to which aggregative theories have played a part in the work of agricultural economists. Those who have specialized in farm management or production economics of the individual farm have most clearly confined their interests to what is now termed microeconomics. But even there, interest developed in questions of aggregative behavior. In fact, some of the early notable work by agricultural economists grew out of the recognition by some farm management students that full appreciation of the adjustments faced by the individual farm required more knowledge about industry or group adjustments, and of the behavior of the economic system at large. Most of the farm management work, however, appropriately remained in the area of particular equilibrium.

The study of supply-response in agricultural production broke away from the confines of the individual farm and became concerned with group adjustments. Hence, interest had shifted from the individual producer to an aggregate of producers of similar products. The preoccupation of agricultural economists with statistical demand curves, beginning in the early 1920's and not yet abated, also may be cited as an example of our concern with national or aggregative economic relations, although limited usually to specific commodities.

The situation and outlook program which had already been highly developed before World War II, by the federal Department of Agriculture in cooperation with the land-grant colleges, was pitched at the level of particular agricultural industries. Although the Marshallian partial equilibrium apparently was the

theoretical structure underlying the studies for the various farm products, some aggregative features were recognized since the outlook was framed with reference to the particular industry at large. But here an element of macroeconomics also appeared. A major--perhaps the most important--factor affecting outlook was the level of national income, a factor which influenced the outlook for all industries. But national income or the general price level pertained to the economy as a whole. Thus, the situation and outlook analyses incorporated some macroeconomic variables within a particular equilibrium framework.

The preceding examples have been briefly cited only to recognize that agricultural economists have been aware of and have used aggregates. But they have been primarily aggregates for particular industries, and thus the economic analysis used retained largely the features of particular equilibrium. The situation and outlook program, for instance, treated macrovariables as exogenous. Questions of economic relations between agricultural industries or between agriculture and the nonagricultural segment of the economy, or between macroeconomic variables for the economy at large, were not dealt with explicitly. In fact, the particular equilibrium feature of the program was so pronounced that in the event a large majority of farmers followed the suggestions included in outlook statements the effect of the group action would probably be opposite to that expected by individual farmers.

In the middle and the late 1920's, agricultural economists began to pay considerable attention to national agricultural policy. However, the theoretical treatment of policy questions was based largely on a microeconomic analysis. For example, the economic analyses of "two-price" plans, such as McNary-Haugen and Export-Debenture, incorporated the theory of price discrimination. The theory of price discrimination, however, is not in the real sense an aggregative theory; it grew out of and is logically still limited to the pure-monopoly individual firm. Only by imposing extra-economic (e.g., legal or administrative) constraints upon individual firms to give the group a semblance

of an economic entity can price-discrimination theory be used as a rational explanation of multiple-price plans applied to agricultural industries composed of a large number of separate firms. A similar conclusion may be reached with respect to marketing agreements, the economic rationale of which is basically price-discrimination theory.

The use of microeconomics in analysis of multiple-price plans and marketing agreements assumes that the commodity or industry under consideration can be isolated, in terms of impact and interaction, from other commodities, industries or the rest of the economy. The validity of such an assumption is questionable, especially for major commodities. Even if the assumption is not too unrealistic for individual minor commodities, such programs for a substantial number of minor crops, operating at the same time, may have an aggregative effect different from that expected on the basis of a single crop program. One may wonder whether the instability of multiple-price programs or the meager success in evaluating their effects stems at least partly from the fact that they are based on a theoretical framework of microeconomic analysis rather than some type of aggregative theory which reflects relations of the particular industry to other industries and the economic system as a whole.

We are not concerned with the policy objective of "two-price" plans or marketing agreements tied to multiple-price plans. The point to be emphasized is that a microeconomic theory has been used to analyze, in economic terms, what essentially are problems that should be handled with an aggregative theory.

The development of the AAA parity-price and parity-income programs, brought with it an emphasis on national aggregates. The agricultural sector of the economy, aggregated by some means into a single economic entity, was contrasted with the nonagricultural sector, which was also aggregated by some heroic procedure. The interrelation and interaction between the two sectors or aggregates and the impact on the total economy was presumably explainable in terms of some

aggregative theory which, although implied, was not clearly formulated.<sup>4/</sup> One may wonder what the specific economic theories are which underlie parity-price or parity-income programs. But one cannot deny that some type of an aggregative theory is appropriate; a theory which would include aggregate variables for the agricultural and nonagricultural sectors, and whose purpose would be to bring out clearly the effects of parity programs on income and employment in the nation as a whole as well as in the agricultural and nonagricultural spheres. It should be noted, of course, that serious problems exist in connection with the process of aggregation.

It is widely accepted that for an industry which is purely competitive in the purchase of productive services and the sale of product, the industry's short-run supply function is equivalent to the simple horizontal summation of the short-run marginal cost functions of all of the firms comprising the industry. This is a simple example of the process of aggregation. But that is not an aggregative theory; rather, it is only an aggregative process which yields one type of function from other functions. In order to have theoretical relations between aggregate variables similar to the relations which exist between the microeconomic variables, the aggregates must be constructed in an appropriate manner. Simple totals, averages or usual types of index numbers need not yield aggregates whose interrelations can validly be used as in a microeconomic theory. For example, on a given farm using a specified production function, the equilibrium utilization of the productive services is based on the proposition that the marginal value product of each service equals the marginal cost of the service. To make an analogous statement for a group of farms, the aggregate variables reflecting the group must be constructed and measured appropriately.

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<sup>4/</sup> See Mordecai Ezekial, and Louis H. Bean, "Economic Bases for the Agricultural Adjustment Act," U.S. Dept. of Agriculture (Washington, D.C., December 1933) for a widely distributed official statement; but in that publication the particular aggregative theory on which the argument is based is not sharply drawn.



Let us now return to the question of what bearing the aggregation process has on our use of economic theory. The conventional static marginal productivity theory of distribution may be considered as another example. Although such a theory may be questioned as to its realism in depicting individual firm behavior, its logical validity in proceeding from given premises to end relations cannot be criticized. In terms of logical validity within the static framework, the theory--as an internally consistent set of relations--still stands. But what can we say about applying the marginal productivity theory to an industry or to the economy at large? Is the theory which is logically valid for the individual firm also valid for a sector of the economy without affecting some of the pertinent relations incorporated in the theory?

The outcome of several papers on this question indicates that the usual marginal productivity theory based on the individual firm cannot simply and at the same time validly be carried over in application to aggregates, and such procedure is even more invalid if the productive services are not homogeneous.<sup>5/</sup> Unless the analogies from microeconomics do occur among the aggregates, it would appear that basing our study of resource allocation in production or marketing, for agriculture as a whole, on marginal productivity analysis of aggregates (or simple averages) is of questionable validity.

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<sup>5/</sup> Some of the major references on this question are: F. W. Dresch, "Index Numbers and the General Economic Equilibrium," *Bulletin of the American Mathematical Society*, Vol. 44, February 1938, pp. 134-141. M. W. Reder, "An Alternative Interpretation of the Cobb-Douglas Function," *Econometrica*, July-October 1943; M. Bronfenbrenner, "Production Functions, Cobb-Douglas, Interfirm, Intra-firm," *Econometrica*, January 1944; J. Marschak and W. Andrews, "Random Simultaneous Equations and the Theory of Production," *Econometrica*, July-October 1944; L. R. Klein, "Macroeconomics and the Theory of Rational Behavior," *Econometrica*, April 1946; *idem*, "Remarks on the Theory of Aggregation," *Econometrica*, October 1946; Kenneth May, "The Aggregation Problem for a One Industry Model," *Econometrica*, October 1946; Shou Shan Pu, "A Note on Macroeconomics," *Econometrica*, October 1946; Kenneth May, "Technological Change and Aggregation," *Econometrica*, January 1947; W. W. Leontief, "Introduction to a Theory of the Internal Structure of Functional Relationships," *Econometrica*, October 1947; David Hawkins, "Some Conditions of Macroeconomic Stability," *Econometrica*, October 1948.

The current emphasis on marketing research, encouraged by funds available through the Research and Marketing Act of 1946, is spread over a wide range of marketing activities. One area receiving emphasis is the subject of marketing margins or price spreads. In some quarters, interest is centered on the apparent temporal rigidity in marketing margins, their magnitude, and their relations to prices. These are questions the study of which cannot be successfully carried forward only by hypotheses drawn from the economic theory or behavior of the individual firm, since marketing margins also reflect group behavior which affects the individual firms.<sup>6/</sup> Aggregative analyses are also called for, and dynamic rather than static theories are necessary.

#### IV

Let us now turn to some general implications of aggregative theories for agricultural economists. Current discussions of employment and cycle theory are saturated, as were earlier discussions, with macroeconomic concepts such as savings, investment, multipliers and propensities. Regardless of what attitude one may take towards Keynes' formulation in his General Theory or the revisions and modifications by neo-Keynesians, it appears that aggregative analysis, which preceded Keynes, will also remain with the economic profession for some time to come after Keynes. This is likely not only because macroeconomic concepts and theories have a strong affinity to national policy problems, but also because

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<sup>6/</sup> In this connection, the following statement is pertinent: "However, my main purpose is to identify a source of frustration in present marketing work. Most marketing research is concerned with efficiency. The frustration is the result of a problem in unit and interunit relationships in the field of distribution. Stated dogmatically, whatever inefficiency exists in marketing is rarely found in correctible form in the individual unit. The research worker thus comes, as he must, to the inefficiency of the complex of units that compose the market." This statement is from J. K. Galbraith, "Appraisal of Marketing Research," American Economic Review, Papers and Proceedings, Vol. 39, No. 3, May 1949, pp. 415-416. If "the inefficiency of the complex of units that compose the market" cannot be corrected at the individual unit level, an alternative is the evaluation of correctives applied to the aggregate; such evaluation would involve aggregative theories.

microeconomics (e.g., Marshallian particular equilibrium) or Walrasian general equilibrium have not succeeded in providing concepts, tools, and theories which adequately deal in a usable manner with the type of problems handled by a simplified macroeconomic theory.

It would seem to me that it is important for agricultural economists to be at least familiar with methods of analysis and types of theory which in practice have and are very likely to continue to have an impact on national economic policy. Lack of sympathy with results of certain macroeconomic analyses, or disapproval of policy interpretations of certain macroeconomic theories, does not justify one's neglect of such theories. Contemporary developments in general economic thought are of significance to us as economists. Subjects of study such as business cycles, employment, monetary and fiscal policy, and international trade are absorbing the energies of many working in a macroeconomic framework. It may well be that as economists interested in problems in agriculture and its interrelations with the rest of the economy, we can profit by seeking out from general macroeconomic studies those tools and elements that would be helpful in our own work.

It may be worth while to consider the development of aggregative theories applicable to agriculture and which fit into macroeconomic theories concerning the economy at large. With the use of aggregates, and in terms of macroeconomics, Keynes claimed to have developed a logical explanation of the existence of macro-equilibrium at less than full employment. This is a result at variance with neoclassical doctrine, but a result which had a marked stimulus on current thought. Hence, if there exists chronic unemployment in the agricultural sector of our economy, might it not be explained by some aggregative theory applicable to agriculture and which is consistent with a national macroeconomic theory? Usually, explanations of the existence of unemployment in agriculture are presented in terms of rigidities, frictions, and institutional influences, which undoubtedly are relevant, but they certainly do not comprise a theory.

The advantages of working with an aggregative or macroeconomic framework should not be slighted. One advantage we have already touched upon. Relations or attributes of individual firms or consumers, or even of small groups of firms or consumers, need not be valid for the economy or large groups. The possibility of interaction within the group may give it a character different from that of each of its many components. Also, at the same time, we can often say more about the characteristics and behavior of an aggregate and predict more reliably its behavior than we can for the individual firms or consumers composing the group. The behavior of the aggregate is more stable than the behavior of the separate individuals. Hence, we have a better basis for the study of empirical relations and derivation of statistical uniformities. With respect to agricultural production-adjustments, marketing, and consumption, there may be group-behavior characteristics waiting to be discovered, the knowledge of which would contribute to our understanding of the agricultural economy and its interrelations with the nonagricultural sectors.

Some introductory work along this line has been done in sketches of behavior characteristics of the aggregate agricultural sector contrasted with the nonagricultural sector of the economy.<sup>7/</sup> Such sketches, and inferences drawn from them, may be viewed as elements in a macroeconomic model which explicitly includes as variables functional relations within as well as between the agricultural and nonagricultural sectors. In this type of analysis, we approach macroeconomic theories which may adequately account, in a useful way, for the working of the national economic and agriculture's position in it.

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<sup>7/</sup> Theodore W. Schultz, "How Efficient is American Agriculture?" Journal of Farm Economics, Vol. 29, No. 3, August 1947, pp. 644-658; and "The Economic Stability of American Agriculture," Journal of Farm Economics, Vol. 29, No. 4, pt. 1, November 1947, pp. 809-826; Walter W. Wilcox, "The Efficiency and Stability of American Agriculture," Journal of Farm Economics, Vol. 30, No. 3, August 1948, pp. 411-421. Also, see: Trygve Haavelmo, "Quantitative Research in Agricultural Economics: The Interdependence between Agriculture and the National Economy," Journal of Farm Economics, Vol. 29, No. 4, Pt. 1, November 1947, pp. 910-924.

The use of aggregative concepts has been criticized on the grounds that such procedure neglects the more important economic entities such as the individual consumer or individual firms. Some economists, for example, have attacked the Keynesian system for not explicitly recognizing the influence of the distribution of income. The criticism, I believe, is valid. But although the Keynesian structure does not directly incorporate income distribution as a variable, it does not follow that all macroeconomic theories need to exhibit a similar neglect. As macrotheories develop and as more variables are included, significant elements such as income distribution can be introduced. It may be noted, however, that burdening macroeconomic theories with too many variables will dissipate a major advantage of macroeconomics, mainly simplicity and manageability.

The simplicity of macroeconomic theories has been the subject of frequent criticism; it has been asserted that the models are so simple that they lose all semblance to reality. But such simplicity, if it is fully recognized, may well aid rather than handicap the analysis of economic relationships. Here, as in microeconomics, the danger lies not in the simplicity itself, but in the mistaken identification of the simple model with the complicated structure in which we are basically interested. The over-simple characteristics of a macroeconomic model are relatively easy to recognize and to bear in mind; whereas in the usual microeconomic analysis of the individual firm, for example, there has been a strong tendency to substitute the elementary model and its assumptions for the complexities of economic reality. A case in point is the marginal cost-marginal revenue explanation of short-run price and output determination by the individual firm.<sup>8/</sup>

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<sup>8/</sup> Of the substantial number of papers participating in the marginal-pricing controversy, the following may be cited. R. L. Hall and C. J. Hitch, "Price Theory and Business Behavior," Oxford Economic Papers, No. 2 (1939). R.A. Lester, "Shortcomings of Marginal Analyses for Wage-Employment Problems," American

An essential question is whether we can deduce useful generalizations from aggregative theories which cannot be learned from microeconomics. The answer appears definitely to be in the affirmative. This has long been recognized in business cycle theory. Regardless of the detail to which the theory of the individual firm or household is carried, whether it be a dynamic or static theory, it cannot explain, in a manner useful for making practical decisions, the levels and movement of employment, income, savings, investment for the economy as a whole nor variables such as "the" rate of interest. To study such important problems, and in our society they are of prime significance, our practical recourse is to the use of aggregates and analyses in terms of macroeconomics.

Since national policy is concerned with the interests of society as a whole or large groups of people, rather than the interests of particular individuals to the disadvantage of other particular individuals, analysis directly relevant to such large groups operates in terms of aggregates. In a political atmosphere of democracy, the economic relationships sought are supposedly those which pertain to the majority of people, and the benefits accruing to particular individuals result from their adjustment to economic relations which reflect the characteristics of the group. Thus, as macroeconomics is suitable for the analysis of problems of national policy, microeconomics has its place in analyzing the adjustments of separate individuals or firms.

In connection with agricultural policy, the importance of national income

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(Footnote 8 continued from previous page.)

Economic Review, Vol. 36 (March 1946); "Marginalism, Minimum Wages, and Labor Markets," American Economic Review, Vol. 37 (March 1947); "Equilibrium of the Firm," American Economic Review, Vol. 39 (March 1949). Fritz Machlup, "Marginal Analysis and Empirical Research," American Economic Review, Vol. 36 (September 1946); "Rejoinder to an Antimarginalist," American Economic Review, Vol. 37 (March 1947). G. J. Stigler, "Professor Lester and the Marginalists," American Economic Review, Vol. 37 (March 1947). H. M. Oliver, Jr., "Marginal Theory and Business Behavior," American Economic Review, Vol. 37 (June 1947). R. A. Gordon, "Short-Period Price Determination in Theory and Practice," American Economic Review, Vol. 38 (June 1948). Wilford J. Eiteman, "Price Determination, Business Practice Versus Economic Theory," Bureau of Business Research, Report No. 16 (January 1949), School of Business Administration, University of Michigan.

and employment levels to agricultural prosperity is now widely recognized. The notion that national income can be advanced, in a permanent way, by special farm programs, no longer has the acceptance it received a few years ago. Now, most students lean towards the idea that, "High-level employment in non-agricultural industry means very much more to farmers than any 'farm-program' the government may attempt."<sup>9/</sup> This view leads us to the thought that macroeconomics is the appropriate framework in which to deal with some important aspects of the so-called "farm problem."

The "farm problem" might well in large part, though not entirely, disappear in the face of an over-all national economic policy which provides a relatively stable and high level of aggregate employment and income. Some farm programs involve the flow of government funds directly to particular agricultural producers or industries. But such programs are difficult to justify, from the national viewpoint, unless it can be demonstrated that injections of purchasing power into agriculture have a more desirable multiplier effect on aggregate income, than money injections into other groups in our economy, such as retailers or consumers.<sup>10/</sup> To my knowledge, such a demonstration has not been provided.

Since the macroeconomic theories proposed in recent years were developed to deal with the level of aggregates such as employment, income, or investment, such theories throw little light upon the question of resource allocation. But that is a question which has attracted the attention of agricultural economists, especially in connection with the formulation and appraisal of agricultural

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<sup>9/</sup> "Postwar Agricultural Policy," Report of the Committee on Postwar Agricultural Policy of the Association of Land-Grant Colleges and Universities (October 1944). p. 8.

<sup>10/</sup> A somewhat similar point is made in Report of a Committee, "On the Redefinition of Parity Price and Parity Income," Journal of Farm Economics, Vol. 29 (No. 4, Part II) November 1947, pp. 1355-1356.

programs. The distribution of employment between agricultural and nonagricultural pursuits, for instance, or relative wage rates in the two spheres, or relative prices of farm and other products, or relative costs and returns in the agricultural and nonagricultural sectors are relations pertinent to agricultural policy. Such questions and others related to the problem of resource allocation receive little aid from presently available macroeconomic theories. It would therefore appear that there is need for macroeconomic theories for analyzing questions of resource allocation. Such macroeconomic theories might prove more enlightening than a marginal productivity framework now used in the analysis of resource allocation.

## V

The preceding comments are not meant to imply that microeconomic analysis is obsolete and that it can serve no useful purpose in agricultural economics research or program-policy formation. On the contrary, it seems to me that as macroeconomics matures, and as we advance from a skeleton of macroanalysis to full-bodied macrotheories, it becomes equally pertinent that our tools of microanalysis and particular equilibrium be improved.

Economic problems in agriculture are so vast, complicated and varied in character that no one single approach will induce a complete understanding. For certain problems and questions, the knowledge of microbehavior is necessary, and in the study of such problems microeconomics remains the appropriate approach.

Since macroeconomics is a necessary and fruitful approach from the view of providing tendencies and relations useful for national policy, and since microeconomics is a necessary and fruitful approach for the study of tendencies and relations within particular firms and industries, macroeconomics and microeconomics are not competitive approaches to the analysis of economic phenomena; rather, they are complementary and consistent with each other. Micro and macroeconomics supplement each other in a manner as firm analyses and industry analysis or as the short run and long run are complementary.



But many significant economic problems are not wholly within a macroframework nor wholly within a microframework. Many problems lie largely within a penumbra which is bordered by both the micro and macrotechniques. Hence, a bridge is required so that we can easily transfer from one approach to the other. To accomplish such an objective, a really general theory, of which both macroeconomics and microeconomics are special cases, is required. But it should be sufficiently simple and so constructed that usable decision-making hypotheses can be stated and accepted or rejected by empirical tests. Such a general theory would not only bridge the present gap between micro and macroeconomics, but might also suggest paths of action from national policy to programs in particular industries and adjustments by particular firms.

In closing, it may be worth while to summarize the implications of aggregative theories for agricultural economists. Some of the implications for us are broadly the same as those for economists working in other areas. Such general implications include the limitations of aggregative analysis such as the submergence of individual behavior within the group, and the nonhomogeneity of the individual units. In addition, there is the question of constructing aggregates correctly. Also, problems beyond the level of the individual firm or beyond the level of a single commodity require analyses in terms of aggregates and the inference of group policies and programs from aggregative theories.

As agricultural economists, there are particular implications for us. We should be familiar with current developments in theory which have an impact on national policy and which provide tools and relations possibly useful in our work. In our analysis of economic problems in agriculture, we should limit the use of particular equilibrium theories to problems manageable by such theories, and we should search for aggregative theories to deal with problems whose correct solution requires macroeconomics. If such macrotheories are not presently available, might it not be advisable to allocate a significant proportion of our professional resources to the development of aggregative theories adequate for the tasks which face us?