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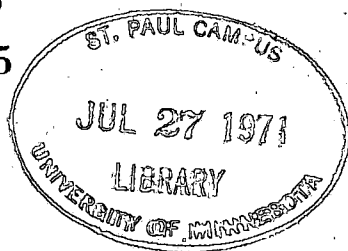
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## GROUP 10 (a). ECONOMETRIC APPLICATIONS TO AGRICULTURE

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The general focus of the discussion was the application of econometric procedures to the analysis of resource-allocation problems at the national, regional and micro levels of the economy. Emphasis was given not only to the methodology appropriate for problem analysis, but also to the problems relating to the availability and quality of the data which arise when trying to apply econometric methods.

Special interest was expressed by some members of the group in the econometric procedures most appropriate to analysing economic problems involved in national planning. In discussing econometric analysis of national resource allocation, it was recognized that essentially similar analytical problems were faced by economists working in countries with differing degrees of national planning. Basically, analysis must be made of resource availabilities, input-output relationships, supply responses and demand relationships. The econometric techniques discussed in this context could be classified into two categories: (1) those falling in a non-optimizing framework, viz. single equations, multiequations and inter-industry analysis, and (2) those pertaining to optimizing solutions through application of various forms of mathematical programming. Linear programming models are appropriate for the determination of optimum national resource allocation, although this analysis is to be supplemented by single and



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simultaneous equation procedures for estimation of demand and supply relationships.

Countries with national planning activities are generally engaged in fixing various production and consumption targets, and a decision must be made as to the objective function to be optimized (maximized or minimized). If planning employs more than one objective, the economist may usefully analyse the extent of conflicts between them and show procedures which will combine more than one objective within their competitive ranges.

The development of specific national models sufficient for a detailed determination of resource allocation is still at the beginning stages. Input-output data are available only after extensive investigations, and serious methodological problems are faced, such as aggregation biases. The research interest of most of the discussion-group members has been concentrated on analysis of regional and micro problems. The group therefore felt it might be appropriate to construct partial rather than all-inclusive models in early stages. These models should be oriented to answer specific questions, or a small number of questions, with reasonable reliability.

A number of research questions were suggested as important in this general area. Foremost was the determination of an optimum resource allocation which is possible under a postulated set of resources, input-output and demand conditions, and producers' behavioural patterns. These solutions may be employed in appraising the actual performance of the economic system in resource allocation. Or the optimum solutions may be viewed as a result to be obtained through the functioning of normal market forces or the intervention of planning authorities.

In a number of the regional and micro models discussed, the concept of 'representative' or 'typical' farm units was introduced. Critical appraisal of this concept was made by the group. It was felt that more emphasis should be given by researchers to the theoretical definition of 'representative', in order to avoid undue subjectivity on the part of the individual researcher and to obtain more realistic 'tying up' of the representative farm to the group of farms it is endeavoured to represent. It was agreed that development of models for representative farms might be appropriate for research in construction of behavioural models for firms, and to indicate normative pattern of policy formulation. But a number of problems are faced if the researcher attempts to aggregate such representative farms to predict

or analyse regional resource allocation, or to give production advice to farmers for their specific situations. It was, however, emphasized in the discussions that predictions from these models could be made more accurate with a careful formulation of constraints.

Each member of the group contributed substantially from his own experiences; these discussions helped in large measure to reduce the gap in understanding of appropriate uses of modern econometric techniques among the members.

The group was conscious of the limitations of analytical tools available at present and stressed the need of developing more refined techniques to meet the challenge of the very important economic problems arising at different levels of the economy.