

RELEVANT RESEARCH AREAS AND ORGANIZATIONAL
QUESTIONS RELATIVE TO FEDERAL-STATE RESEARCH
PROGRAMS IN THE ECONOMICS OF AGRICULTURAL PRODUCTION

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In dealing with the subject of federal-state research programs, I shall summarize areas and topics for research as visualized by some of those engaged in production economics research in the southern region, and raise some questions relative to organization for Federal-State cooperation on research programs.

Complicating the problem of coordination of effort is the traditional compartmentalization of research and the entanglement one often encounters in administrative procedures when encroaching into areas and topics of research claimed by others. To be in a position to evaluate agricultural policy alternatives, and to analyze the impact of research on people, on the rural economy, and the total economy of a region, we are often compelled to use every conceivable tool in our analytical process. However, since we are trained as economists, our first approximations are usually reached, mainly through the application of microeconomic principles to the allocation and use of resources in the production of goods by both private and public sector firms [2]. Thus, it appears that the scope of production economics can be limited by the discipline itself or by an administrative unit with a specific mission to research certain areas of the production process of American agriculture.

The Economic Research Service's major responsibilities in production economics research in commercial agriculture is to farmers, policymakers, the agribusiness sector, and to society, generally. There is no basis for disagreement with these, but I would like to add that we also have a responsibility to extension and other education programs, to fellow researchers, to those responsible for planning and advising in the efficient use of agricultural resources, and others. For the most part, the clientele for the products of production economics research is probably the same regardless of whether or not it is executed by a State

or Federal agency.

There are many alternative approaches to organizing cooperative Federal-State research in production economics. No single approach is universally appropriate. Often the major problem is not organizing the research per se but organizing and coordinating the personnel who are responsible for executing the research. I am of the opinion that the problems of coordination and cooperation diminish with increased involvement in the planning of a research project by those who are to be responsible for the research. A cooperative team spirit among personnel involved in research is not likely to be attained by administrative decree.

**POSSIBLE AREAS OF RESEARCH
IN PRODUCTION ECONOMICS**

A brief description of possible areas of research in production economics was developed recently by members of the Southern Regional Research Project, S-42, technical committee of which I was chairman. We made no attempt to establish priorities nor develop a comprehensive program of work that touched all facets of production economics. We did not concern ourselves solely with commercial agriculture, but attempted to enumerate problems of southern agriculture amenable to production economics research. Consideration was not given to possible cooperation of Federal and State research personnel except through regional research projects.

Titles and objectives were developed for possible research projects in four areas, viz., (1) farming adjustment studies, (2) specialized crop and enterprise studies, (3) capital accumulation and agricultural credit, and (4) land economics, farm labor and leasing practice. I will outline and comment briefly on the project titles, objectives, and questions relating to each of these areas of research.

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Farming Adjustment Studies

Titles and objectives were developed for seven possible research projects on adjustment problems in agriculture.

Organization of Agricultural Production - Farm, Area, Regional, National. The primary objectives would be to determine the conditions necessary for an efficiently organized agriculture. Research in this area would require emphasis on problems dealing with the optimum use of input services, short- and long-term credit from alternative sources, the analysis of risk aversion alternatives (insurance, hedging, contracting, liquidity and flexibility schemes), firm theory relating to survival and growth, and alternative policies affecting agricultural production and prices. Consideration would also need to be given to impacts of associated changes in population levels and location, general economic conditions not implicit in the pricing mechanism, changes in technology, time horizons and adjustment paths, tenure arrangements, and other appropriate micro and macro variables affecting efficiency in agricultural production.

A Study of Adjustments from Present to Efficient Farming Systems in Selected Areas. There is every indication that commercial farms are becoming larger but little is known about alternative adjustment paths. What are the alternatives for increasing farm size in the various type of farming areas of the south and what are their implications for the agriculture and the economy of an area or a region?

Effects on Adjustment Opportunities Associated with Alternative Institutional Arrangements and Value Patterns. The objectives would consist of: (1) determining the effects of specified institutional arrangements on individual adjustment opportunities for farm families, and (2) determining the probable aggregate effect of various combinations of institutional changes on the economy of the southern region.

Possible areas and problems for consideration in this area of research would be those relating to: (1) the structure of community tax supported and other institutions, (2) geographic political units necessary for efficient administration could be developed and compared to the present county governments, (3) training programs to upgrade the quality of the labor input in agriculture, (4) changes in the institutional structure to effectively coordinate farm and market development, (5) modification in credit institutions to make capital available on the basis of its long-run production potential, and others.

Interactions Between Adjustments in the Farm and Nonfarm Sectors of the Economy of a Region. Within various areas of the south, there have been

widely differing patterns and degrees of urban-industrial development. These developments have generated a need to study adjustment possibilities of farms in an area as they contribute to the economic development.

Economies of Size for Selected Enterprises and Combinations of Enterprises for Alternative Type of Farming Areas. The purpose of this project would be to investigate the economies and diseconomies of size, internal and external, arising from size of farm or enterprise, management, physical resource and product and factor market areas. Particular emphasis would be directed toward meaningful relations between size of farm and problems of management in combining and coordinating appropriate levels of technology, capital, labor and other productive inputs. Consideration would also need to be given to alternative enterprise organizations and to the cost and flexibility of equipment and building combinations appropriate to the various farm sizes. An investigation would need to be made of factor and product price differentials as they relate to volume, type of business, and managerial characteristics.

Technological - Economic Relationships. The objective of research in this area would provide for continuing development, description and evaluation of alternative production practices and enterprises. Included here would be the questions related to the probable effects of changes in farming, input supply conditions and technological development on investment in and use of machinery, buildings, equipment, materials, handling devices, forms of feed, fertilizer and other inputs and innovations affecting the input structure of agriculture.

Economic-sociological-psychological Relationships. One of the objectives of this project would be an attempt to develop a basis for going beyond the profit motivated norms we assume in production economics research. Research would be concerned with isolating direct and interrelated psychological, sociological and economic forces affecting actions, choices, and reactions of managers of producing units in the agricultural sector.

Specialized Crop Farm and Enterprise Studies

Evaluation of the Production of Specialty Enterprises (fruits, vegetables, greenhouse, and other crops appropriate to the area in question). Information is needed on input requirements, costs, and returns for the various specialty enterprises. A comparison is needed of independent and contractual production with respect to capital investment, cost, returns, risk and problems of production and marketing. In most instances, only mechanized harvest of fruits and vegetables would need consideration because of the existing

scarcity of labor. The investment requirement for mechanized harvesters alone might well prohibit the production of these enterprises. Hence, what size enterprise is necessary to justify an investment in a mechanical vegetable harvester and length of time the harvester must be used to amortize the investment?

Capital Accumulation and Agricultural Credit

Appraisal of Investment Alternatives in Agriculture Under Conditions of Uncertainty. Adjustment possibilities that appear desirable when evaluated on the basis of certain prices and yields may not be profitable or feasible under conditions of uncertain prices and yields. Attempts should be made to inject elements of price, weather, and technological uncertainty into the analytical model, isolating the more important components of uncertainty and their effects on the outcome of production. Every effort should be made to duplicate or "simulate" the process of farm production and isolate the effects of the "wrong choice" at various stages in the process.

Evaluation of Alternative Enterprise Organizations with Respect to Risk and Productivity for Different Resource Situations. Evaluations would be made of the opportunity cost of risk reducing strategies such as forced diversification, combining enterprises with dissimilar weather requirements and price movements, risk premiums on capital, etc. The conditions under which the extension of agricultural credit would be most advantageous to farmers for the purchase of land, machinery and equipment, and other productive inputs could be evaluated.

Land Economics - Farm Labor - Leasing Practices

The Place of Forestry in the Land Use Pattern in Selected Areas of the South. To determine the economic importance and the production potential of forestry enterprises per se, or in combination with crop and livestock farming systems, requires evaluation. Additional determinations are needed for the costs and returns from tree farms to farm operators, commercial timber companies, and nonfarm investors under alternative patterns of management including harvesting and marketing. The ultimate impact of land use by forestry enterprises on the economy of an area also needs attention.

Long-run Effects of Changes in Agricultural Land Values. Research in this area would be concerned with an appraisal of the long-run effects of changes in agricultural land values on farm organization and operation under several alternative prices of labor and other inputs and under alternative tenure arrangements.

The above areas of research do not exhaust all possibilities nor raise all the questions that have

possibilities for research in the area of production economics. Ideas contained therein are not totally different from those enumerated by others, but emphasize different aspects of the problem.

FEDERAL-STATE COOPERATION

The history of Federal-State cooperation and of the problems and suspicions encountered are well documented [1]. In the period from 1885-1891, . . . "the sole connection between the Department of Agriculture and the stations was through the OES . . . (Office of Experiment Stations) . . . The department had one main function . . . to enable and encourage intercommunication among the stations, and then to publish pertinent information of public interest . . . From the earliest years, state station leaders feared that Federally-conducted experimentation could, if started, seriously menace the stations position . . . because (it is) well-financed and free from local pressures." Research by both agencies was expanded between 1894 and 1902 and cooperative research on a large scale was administered via special agents. Then came the "collision and compromise - a continuing process since 1899."

Competition in research activities within states between the Department and the state experiment stations precipitated an attempt at a settlement of differences. Specific guidelines became necessary as to which agencies should do what and on what terms.

A statement of the research responsibilities of the Agricultural Research Service and the state agricultural experiment stations is contained in a joint committee release on cooperative relationships [1, pp. 131-132]. It is stated . . . "ARS is primarily responsible for research on problems of national and regional concern to agriculture and on those problems involving relationships between the United States Government and the governments of other nations. State Experiment stations are primarily responsible for research on problems within the borders of their respective states, and for regional research of importance to the area. It is further stated that . . . "these two statements are not intended to be mutually exclusive." Both ARS and State Experiment Stations . . . "individually and jointly, have responsibility for the evaluation of public programs relating to agriculture with respect to their effectiveness and their consequences." Although these statements are of fairly recent origin (1960), from the language of this document, it is difficult to draw a distinction between the areas of research responsibility of Federal and State agencies. An obvious overlap of research responsibility is in the area of regional problems on which formal cooperation is possible through regional research projects.

Clearly, it is advisable to seek the sources of

authority having jurisdiction over the institutional forms and arrangements necessary for effectively conducting Federal-State research on a cooperative basis. It is entirely possible that institutional forms have evolved through compromise rather than thoughtful development by qualified persons to obtain maximum efficiency through cooperative endeavors. Thus, the answers to several questions are desirable if we are to pursue Federal-State cooperation with hopes for improving our research program. For example, if there is no central authority to prescribe the specific areas and conditions for cooperation, then it must be by mutual agreement and common consent that we develop our own coordinated comprehensive research program in production economics involving federal and state personnel. Such being the case, who is going to take the initiative? Are we going to be satisfied with "cooperation" at the administrator level, or will it be at the working level? Who decides what is to be researched? Who establishes priorities on cooperative research projects? What channels of communication are to be established and how are they to be kept open? Answers to these and other important questions are necessary before we can expect the fullest measure of cooperation between federal and state research personnel.

Once an agreement is reached on topics to be studied, questions then arise on the methodology, time table for reporting, and others. What are the duties and responsibilities of federal and state personnel in the area of research undertaken? Are these and other procedures to be left for the individual researcher to decide? If so, we could seriously question the role of our administrators as leaders in the research program. It may be that they recognize the pitfalls and problems that might arise from cooperative research and they prefer not to become involved.

Some, who are fearful of Federal encroachment, say that . . . "USDA research in too many cases originates out of a crisis which gives it an air of considerable urgency." Others have said that cooperative projects or lines of work are seldom revised and

are so general that one could research anything pertaining to agriculture. Project statements of state stations are said to be more specific in objectives and methodology. In spite of these charges and counter charges, it appears that we have two research agencies (Federal and State) with similar (identical in some aspects) responsibilities (acquired or assigned) existing side by side, conducting research in both basic and applied areas on problems ranging from single aspects of the production process on a given farm to aggregate implications of national agricultural policy. This is an ideal situation for considerable duplication of effort in data gathering and analysis of which we should be cautious.

What are our opportunities for better "working" cooperation between representatives of Federal and State agencies? They are as good, or as bad, as we wish to make them. We can spend some time in the presence of each other, reviewing and understanding the missions of each agency, and developing a comprehensive research program in production economics that will serve the needs of both agencies. We can revise and update existing project statements, cooperative agreements and/or memorandums of understanding, rendering them more relevant to the problems on which we elect to do research. Lines of communication can be established. If necessary, the alliance can be formally bound by regional project statements. Basic input-output data can be developed and updated, as required, by representatives from both agencies working jointly and simultaneously. In short, we can work together in planning, executing, and reporting on research. On the other hand, we can continue to go our separate ways at the "working level" but, in my opinion, only to the detriment of the research programs of both agencies. By taking this course we stand to lose stature and reputation that could ultimately lead to the loss of financial support. If we elect to cooperate, it must be to the fullest extent and on a full-time basis, and not only when it is convenient or advantageous to one party or the other.

REFERENCES

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