Research Review

The Allocation of International Food Aid

By Carol Goodloe*

The food aid program under Public Law (P L) 480 has several legislative objectives (1) to meet humanitarian food needs, (2) to contribute to economic and agricultural development in recipient countries, (3) to develop commercial export markets, and (4) to support U S foreign policy goals However the law does not indicate priorities among these objectives Nor does the law require that actual allocations be evaluated with respect to these objectives The multiple objectives and lack of priorities have led to confusion and criticism over the intent and effect of the program

Developing countries' requirements for food aid have grown in recent years, while supplies of U S grain available for food aid have become increasingly limited Competition between U S commercial and concessional exports may increase Policymakers need to know the implications of allocating food aid in accordance with the various objectives specified by the law

This article describes a method for making alternative allocations of food aid that satisfy the various combinations of the four primary objectives of P L 480 The method uses different operational definitions of these objectives based on social and economic characteristics of the recipient countries I examine alternative scenarios and analyze the implications of using different definitions and priorities I apply this method to the food aid allocations for 1979 to determine which priorities and objectives were most consistent with the actual allocations

The Food Aid Allocation Method

The method used here allocates food aid according to single or multiple objectives, with each objective defined by one or more socioeconomic indicators (variables) which measure the status of recipient countries with respect to each objective [1] One alternative defines each objective by a single variable (1) humanitarian—caloric intake as a percentage of the recommended minimum, (2) economic development— per capita Gross National Product (GNP), (3) market development—grain deficit ratio, and (4) foreign policy—U S inter national economic assistance The variables for each objective are shown in rows 1-4 of table 1

Alternatively, the definitions of each objective can incor porate these additional variables

- (5) Child death rate,
- (6) Import coverage,
- (7) Debt service ratio,
- (8) Trade balance ratio,
- (9) Ratio of urban to total population,
- (10) Average annual growth rate in gross domestic product,
- (11) Average annual export growth rate, and
- (12) U S military assistance

For example, for the humanitarian objective, the definition of food need is broadened to include variables that measure a country's economic and financial ability to meet that need from its own resources—level of income using per capita GNP (variable 2), level of economic development using the child death rate (variable 5), and the balance-of payments position using import coverage (variable 6), debt service ratio (variable 7), and trade balance ratio (variable 8) The weights of the variables for each objective sum to 1 0 The multiple variables that define each objective are weighted as shown in rows 5-17 of table 1

Allocations can be made to achieve single or multiple objec tives Weights are assigned to objectives which sum to 1 0 For example, item 18 in table 1 weights each of the four objectives equally Thus, allocations can vary depending on both the priority of an objective and its definition

The variables used are scaled from 0 to 100 to make them comparable The scaled variables are then multiplied by the appropriate weights The scaled, weighted variables are used to construct two indexes (not shown in the table) to allocate food aid One index determines a country's per capita needs This index is weighted by population to form a second index that determines that country's total needs I examined different combinations of variables and weights to determine the sensitivity of the method to alternative definitions and priorities

Analysis of Alternative Allocations

I allocated the value of P L 480 exports in 1979—$1 242 billion—among 55 low and middle-income countries using the above method and examined 23 scenarios The scenarios were correlated to test for significant differences among both the per capita and total allocations The primary con

Table 1—Weights for objectives and variables

Objective/scenario		Objective weights	Variable weights (see footnotes for each number)											
			1	2	3	4	5	6	7	8	9	10	11	12
Single objective														
Single variable														
Humanitarian	1	10	10	—	—	—	—	—	—	—	—	—	—	—
Economic development	2	10	—	10	—	—	—	—	—	—	—	—	—	—
Market development	3	10	—	—	10	—	—	—	—	—	—	—	—	—
Foreign policy	4	10	—	—	—	10	—	—	—	—	—	—	—	—
Multiple variable														
Humanitarian	5	10	5	2	—	—	03	—	—	—	—	—	—	—
	6		4	1	—	—	2	01	01	01	—	—	—	—
	7		4	2	—	—	—	2	2	—	—	—	—	—
Economic development	8	10	—	5	2	—	3	—	—	—	—	—	—	—
	9		—	4	—	—	2	1	1	2	—	—	—	—
	10		—	4	3	—	1	1	1	—	—	—	—	—
	11		—	25	—	—	—	25	25	25	—	—	—	—
Market development	12	10	—	—	5	—	—	—	—	—	03	01	01	—
	13		—	—	4	—	—	1	1	—	—	2	2	—
	14		—	—	4	—	—	1	1	—	1	3	—	—
Foreign policy	15	10	—	2	2	6	—	—	—	—	—	—	—	—
	16		—	—	—	5	—	1	1	1	—	—	—	02
	17		—	2	1	4	—	—	—	—	—	—	—	3
Multiple objective														
Single variable														
Humanitarian	18	25	10	—	—	—	—	—	—	—	—	—	—	—
	19	4	10	—	—	—	—	—	—	—	—	—	—	—
	20	1	10	—	—	—	—	—	—	—	—	—	—	—
Economic development	18	25	—	10	—	—	—	—	—	—	—	—	—	—
	19	4	—	10	—	—	—	—	—	—	—	—	—	—
	20	1	—	10	—	—	—	—	—	—	—	—	—	—
Market development	18	25	—	—	10	—	—	—	—	—	—	—	—	—
	19	1	—	—	10	—	—	—	—	—	—	—	—	—
	20	4	—	—	10	—	—	—	—	—	—	—	—	—
Foreign policy	18	25	—	—	—	10	—	—	—	—	—	—	—	—
	19	1	—	—	—	10	—	—	—	—	—	—	—	—
	20	4	—	—	—	10	—	—	—	—	—	—	—	—
Multiple variable														
Humanitarian	21	25	5	2	—	—	3	—	—	—	—	—	—	—
	22	1	5	2	—	—	3	—	—	—	—	—	—	—
	23	4	5	5	—	—	3	—	—	—	—	—	—	—
Economic development	21	25	—	5	2	—	3	—	—	—	—	—	—	—
	22	1	—	5	2	—	3	—	—	—	—	—	—	—
	23	4	—	—	2	—	3	—	—	—	—	—	—	—
Market development	21	25	—	—	5	—	—	—	—	—	3	1	1	—
	22	4	—	—	5	—	—	—	—	—	3	1	1	—
	23	1	—	—	5	—	—	—	—	—	3	1	1	—
Foreign policy	21	25	—	—	—	5	—	1	1	1	—	—	—	2
	22	4	—	—	—	5	—	1	1	1	—	—	—	2
	23	1	—	—	—	5	—	1	1	1	—	—	—	2

— = No weight assigned

1 Calorie intake as a percentage of the recommended minimum, 1976-78
2 Per capita GNP, 1978
3 Grain deficit ratio, 1978/79
4 U S international economic assistance, 1979
5 Child death rate, 1978
6 Import coverage, 1979
7 Debt service ratio, 1979
8 Trade balance ratio, 1979
9 Ratio of urban population to total population, 1980
10 Average annual GDP growth rate, 1970-78
11 Average annual export growth rate, 1970-78
12 U S military assistance, 1979

sideration was not whether a specific country's allocation was different for each scenario, but whether the overall pattern of the allocations was different

I first tested the per capita and total allocations for the effect of using alternative priorities for the objectives The per capita allocations changed significantly depending on the priority assigned to these objectives For example, per capita allocations under the foreign policy objective were significantly different from allocations under the humanitarian objective The correlation coefficient (r) was only -0.142 Differences in per capita allocation patterns were greater— the r's were closer to zero—when priority was accorded to a single objective rather than to multiple objectives

In contrast to the per capita allocations, the total allocations for individual countries varied only slightly among different objectives because the allocation for each country correlated well with its population size The rank order of the total allocations was nearly identical for each scenario, and the correlation coefficient between most scenarios was near unity India, with the largest population of the 55 countries, received the largest allocation in all but 1 of the 23 scenarios Thus, when per capita allocations were of primary importance, the choice of objectives significantly affected the allocations However, when total allocations were primary, allocations based on population alone would have satisfied all objectives equally well

I then examined the allocations for the effect of alternative operational definitions for the objectives, using multiple variables to define each objective The allocations for a specific objective did not change significantly if additional variables and weights were included For example, the allocations for the three multiple variable scenarios for the humanitarian objective (rows 5, 6, and 7) correlated highly with the single variable scenario (row 1), r equaled 0 898, 0 891, and 0 889 Using a simpler formula with a single variable is sufficient because allocations do not vary significantly with multiple variables

Comparison with Actual Aid Allocations

Using this method, I compared allocations of Title I and Title II aid for 1979 with the actual country allocations to determine the implied priority assigned to objectives Under the Title I program, the United States provides long-term concessional loans for the purchase of agricultural commodities Under the Title II program, the United States donates agricultural commodities for use in special food programs or to help meet emergency needs The total Title I alloca-

tion for 1979 correlated most highly with scenarios 4, 15, 16, 17, 20, and 22 in which foreign policy was the primary objective (table 2) The actual per capita Title I allocation correlated positively and significantly with only three scenarios (4, 16, and 22), again ones in which foreign policy was the primary objective

This method does not explain the actual Title II allocations The actual allocation was highly correlated with all but one of the total scenarios and with none of the per capita scenarios Because of the method's sensitivity to population size, it did not perform as well as when one country was much larger than the others and, therefore, received a preponderant share of the allocation—for example, India in the Title II allocation In the actual allocations, large countries like India, Indonesia, Bangladesh, and Pakistan received small per capita allocations, whereas in many of the scenarios, these large countries received large per capita allocations because of their relative priority with respect to a specific objective

Conclusions

We can use a simple weighted-average method to ascertain the extent to which a particular food aid allocation meets the objectives stated in the law and to appraise past decisions in light of these objectives I applied this method to P L 480 exports in 1979 to examine hypothetical allocations based on different priorities and objectives Per capita allocations varied according to the relative priority of an objective However, the method's sensitivity to population resulted in total allocations highly correlated with population size Expanding the definition of the objectives from single to multiple variables did not significantly affect the allocations Thus, the method was not sensitive to multiple variables and weights

I used this method to evaluate the implied objectives underlying the P L 480 Title I and II allocations in 1979 Foreign policy was identified as the primary objective satisfied by the actual Title I allocations The method did not identify a primary objective for the actual Title II allocations because the method's sensitivity to population was overwhelmed by the population of India The lack of correlation with the actual per capita allocations indicated that priority among countries was not assessed on per capita need, but rather on a total country basis with population playing a major role Large countries received large total allocations, but relatively small per capita allocations This implies that if the objective is to meet total rather than per capita needs, the simplest rule for allocating food aid is in proportion to population

Table 2—Comparison of alternative allocation with actual Title I and Title II allocations, 1979

Objective/scenario		Title I		Title II	
		Total	Per capita	Total	Per capita
		Correlation coefficient			
Single objective					
Single variable					
Humanitarian	1	0 456	−0 467	0 964	0 157
Economic`development	2	517	− 508	964	088
Market development	3	647	445	334	161
Foreign policy	4	979	662	833	− 047
Multiple variable					
Humanitarian	5	491	− 455	963	172
	6	528	− 305	960	236
	7	547	− 264	957	171
Economic development	8	515	− 485	962	073
	9	559	− 242	960	265
	10	535	− 424	951	005
	11	602	163	950	313
Market development	12	634	441	936	145
	13	514	171	953	290
	14	530	170	953	282
Foreign policy	15	726	272	968	− 078
	16	926	673	865	059
	17	818	378	966	− 038
Multiple objective					
Single variable					
All four objectives	18	608	− 036	964	218
Humanitarian-economic development	19	555	− 311	965	194
Market development-foreign policy	20	691	366	961	206
Multiple variable					
All four objectives	21	606	− 112	962	254
Market development-foreign policy	22	758	646	955	204
Humanitarian-economic development	23	700	458	960	264

Journal of a Tamed Bureaucrat:
Nils A. Olsen and the BAE, 1925-1935

Richard Lowitt, ed Ames Iowa State
University Press, 1980 $16 95, 266 pp

Reviewed by Kenneth R. Farrell*

Journal of a Tamed Bureaucrat is a pithy, highly personal
view of the programs, personalities, and politics of the Bureau
of Agricultural Economics (BEA) and the U S Department
of Agriculture (USDA) during 1925-35, as seen and recorded
by Nils A Olsen, chief of the Bureau for 7 years beginning
1928 An aggressive, egocentric, and protective administrator,
Olsen totally committed himself and the Bureau to depart-
mental affairs and to the seething agricultural policy issues
of his time—the McNary-Haugen two-price plans, the Federal
Farm Board and its market stabilization schemes through
cooperatives, and the birth and early operations of the Agri-
cultural Adjustment Administration

Clearly, the Bureau and the Department were, as Lowitt
notes in his introduction to the *Journal*, "   an exciting,
challenging, and confusing place in which to work" during
the 10-year span of Olsen's diary Personalities such as
Louis Bean, Mordecai Ezekiel, Chester Davis, Herbert Hoover,
George Peck, O C Stine, Jesse Tapp, Rex Tugwell, Henry A
Wallace, and M L Wilson all feature prominently in the
evolution of farm policy as described by Olsen The clash of
ideas and personalities, the bureaucratic intrigue, and jockey-
ing for position, described in detail and relished by Olsen,
provide insight into policy formulation and administration
that students of agricultural policy will find stimulating and
informative

In the introduction, Lowitt has very capably provided an
overview of agricultural policy issues of the era This is a
useful framework for integrating Olsen's sometimes cryptic
notes But it is Olsen's journal entries which impart the
sense of crisis in agriculture of the times, the timid and
conservative views of the Hoover administration, and the
chaos and quantum changes in policies during the early New
Deal Readers will not find lengthy, technical discussion of
the economic rationale undergirding farm programs in the
Olsen journal From the detailed recounting of discussions
with Henry A Wallace on their daily morning walks to
USDA to expression of his private, inner mistrust of Tugwell,
the journal is a highly personal document. Discussion of
policy and departmental administration is cloaked in the
recounting of his personal relationships with his colleagues
in the Department

In some respects the issues, policy and administrative, which
occupied Olsen are strikingly different from those which
occupy comparable bureaucrats in USDA today There was

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Policy Program with Resources for the Future

no Food Stamp Program, regulatory programs were of lesser
scope, cooperatives wielded much more power in the Depart-
ment and in agricultural policy deliberations, commodity
surpluses and depressed farm income were chronic, rather
than sporadic or cyclical, the Department was singularly and
unabashedly the farmers' Department, organization and
administration were simpler (Olsen's position combined the
current positions of Assistant Secretary for Economics,
Administrator of the former Economics, Statistics, and
Cooperatives Service, and substantial parts of the former
Science and Education Administration and the Agricultural
Marketing Service)

But, in other respects the issues confronting Olsen strongly
resembled those of today Export expansion was a major
policy objective, the creation of the Foreign Agricultural
Service over strong objections from Herbert Hoover and the
Department of Commerce permeated many of the early
entries in Olsen's journal Land use was a central issue, albeit
in the context of a relatively cheap, abundant resource and
chronic excess capacity in agriculture In many ways Olsen's
1929 farm policy prescriptions have a ring relevant even
today production adjustment, revision of land policies,
development of foreign markets, promotion of cooperatives,
revision of rural credit systems, improvement of transporta-
tion systems, tax reduction on farm lands, and strengthening
of research and extension

As one who held administrative posts in the Economic Re-
search Service and its successor agencies for 10 years, I see
other parallels in our respective experiences—the sensitivity
of policy officials to price forecasting, the issues of balance
between "service" and longer run research, sporadic reorgani-
zation threats and splintering of the Agency to staff other
offices of the Department by what Olsen labeled the "wreck-
ing crew" in the Office of the Secretary, budget reductions,
tensions arising from the professionalism of BAE and from
the desire of policy officials for ideological commitment to
their policies and programs

Apart from the deterioration of his personal working relation-
ships with Secretary Wallace's immediate staff stemming
from differences with Tugwell and bureaucratic "end runs"
by members of Olsen's own staff, Olsen's most persistent
administrative problem centered on bureaucratic contentious-
ness, first with the Federal Farm Board and later with the
Agricultural Adjustment Administration (AAA). Both entities
were concerned with administration of agricultural adjust-
ment programs, each was independent of BAE, and each was

organized and staffed in part by stripping out functions and personnel from the BAE Olsen was never able to accept those arrangements One can surmise that his personal resentment may have obscured his views of the programmatic and policy merits of the Board and the AAA to the extent that his effectiveness as BAE chief was substantially eroded before his resignation in 1935

Olsen served with three Secretaries during a decade of economic crises and chronic adjustment problems in American agriculture. Then, as now, economic information and analysis were critical to policy formulation and program administration Olsen well understood that essential fact and made the most of it to establish his own role as well as that of the BAE as a vital source of data, economic research, and outlook information Although he was deeply immersed in the "political economy" of agriculture and of the Department, his journal reveals a deep appreciation of the importance of professionalism and objectivity in the economic research and statistical functions of the BAE May it continue to be so in the successor agencies of BAE

As a "tamed bureaucrat" of more recent vintage, I enjoyed reading and commend to students of agricultural policy, agricultural politics, and agricultural history the *Journal of a Tamed Bureaucrat*

Imperfect Markets in Agricultural Trade

Alex F McCalla and Timothy E Joslmg, eds Montclair, N J
Allanheld, Osmun and Co , Publishers, Inc , 1981 $29 50, 240 pp

Reviewed by William E. Kost*

International agricultural markets can best be evaluated in
the context of market structure, conduct, and performance
This is the theme of a book that grew out of a 1979 sympo-
sium on agricultural trade The book surveys the current state
of research on international agricultural markets and the
policies that influence their performance Two positions are
derived from this viewpoint (1) domestic and international
agricultural policy issues are closely related, and (2) the rele-
vant theoretical framework for analysis of international
agricultural markets is imperfect competition

The book consists of an introductory chapter, seven papers,
and an excellent 63-page bibliography on international agri-
cultural trade issues

In "Structural and Market Power Considerations in Imperfect
Agricultural Markets," McCalla argues that one cannot under-
stand international agricultural markets without explicitly
recognizing their structure This recognition leads immediately
to an analysis of market power, and McCalla concludes that
agricultural markets are imperfect A review of literature
reveals that most empirical analysis hinges on assumptions of
perfect competition or monopoly Because these markets
seem to be oligopolistic, the models used to date have only
limited usefulness McCalla concludes that any descriptive
structural model must include a price formation mechanism
that includes explicit recognition of the participants' market
power He suggests that the past emphasis on perfect competi-
tion and monopoly models may be based on economists'
propensity "   to seek deterministic, equilibrium and
market clearing solutions" (p 25), whereas disequilibrium
modeling approaches may be a more fruitful direction for
analysis

In "Price Formation in International Agricultural Trade,"
Sarris and Schmitz argue that various agricultural commodity
markets differ in market structure (state trading agencies,
private traders, multinational firms, and producer marketing
boards) and, therefore, in pricing mechanisms They suggest
that alternative oligopolistic pricing mechanisms exist in inter-
national agricultural markets price leadership, price discrim-
ination, spatial pricing, base point pricing, limit pricing,
futures market pricing, and others They also emphasize the
role of market information in price formation and suggest
that an analysis of the information flow mechanism can shed
some light on the type of market structure that exists and,
thus, on the price formation mechanism They suggest that

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an industrial organization approach to the study of inter-
national agricultural commodity market structures and to
the price formation mechanism is warranted (and has been
little used to date)

In "Domestic Agricultural Price Policies and Their Interac-
tion through Trade," Josling argues that, in open economies,
domestic agricultural policy aimed at domestic supply/
demand problems partly determines the structure of the
world market Therefore, since an understanding of the
structure of the world market is necessary for analyzing and
formulating domestic policy alternatives, the analysis of
other countries domestic policies becomes critical In addi-
tion, any realistic attempt to negotiate international agricul-
tural policy must also consider domestic agricultural policies
Any economic analysis of international agricultural markets
must carefully and explicitly include both domestic and
trade policies

In "Analysis of Imperfections in International Trade The
Case of Grain Export Cartels," Schmitz and McCalla discuss
the issues involved in establishing one class of agricultural
market restrictions—a cartel The review of the state of
research on this topic indicates that the results hinge more on
empirical issues than on theoretical issues and that the relative
importance of the domestic market versus the international
market complicates the analysis

In "Empirical Models of International Trade in Agricultural
Commodities," Sarris reviews alternative trade modeling
methodologies export supply/import demand equilibrium
and supply/demand equilibrium, simultaneous equation
models, spacial price equilibrium models, market share models,
and Armington-type models Sarris concludes that no one
type of model can best answer the entire range of policy ques-
tions Most models reviewed do not adequately incorporate
the linkage between foreign and domestic agricultural policy
nor do they incorporate the oligopolistic nature of the
market Sarris thinks that a promising route to modeling in-
volves looking at the export supply/import demand functions
from a decision theoretic viewpoint that treats the functions
as representing "   active policy rules of governments
following domestic objectives" (p 109) The overall method-
ological framework still seems to fall under the heading of
a microeconomic, general equilibrium, supply/demand model

In "Policy Issues Relevant to United States Agricultural
Trade," Hillman reviews the history of U S agricultural
domestic and trade policy from the viewpoint of the degree

of public involvement, the inconsistencies inherent in these policies, and the consequences of not integrating domestic and international policies

In "International Agricultural Policy Issues in Relation to Research Needs," Josling discusses international agricultural trade policy and the performance of the world food system from the viewpoint of efficiency, stability, and equity His focus is international agricultural policy as discussed at the 1974 World Food Conference

The book's underlying thesis is that agricultural commodity markets and agricultural policy can only be understood and evaluated in the context of an open economy and that these markets can only be evaluated in the context of an imperfect competition model

However, I would argue that the assumption of perfect competition does not underlie a majority of the trade models Most models have included policy/power type variables in their equations Often, these equations could more appropriately be labeled reaction functions or decision functions rather than the traditionally defined structural supply/ demand functions The models do, however, retain the mathematical property of being simultaneous equation systems They assume an equilibrium situation exists They assume that, at the margin, markets clear That is, markets clear subject to the constraints imposed by the variables added to the system (the ones you would not find in a perfect competition model) Therefore, some of the non-competitive features of the market have been recognized and modelers have attempted to incorporate these oligopolistic

features in their models as constraints on a market clearing solution The models built to date may not be as bad as this book implies However, as suggested, other modeling approaches to international agricultural commodity trade analysis (such as game theory) may be more appropriate

The authors indicate that one approach to modeling the oligopolistic nature of the market may be to follow a disequilibrium modeling approach If you accept the argument that a disequilibrium approach is better than an equilibrium approach when representing real world agricultural markets, than all models to date are probably deficient. Disequilibrium (as opposed to dynamic) models have been infrequently used by economists at any level of analysis In this context, does a systems dynamics methodology offer some hope to improving international agricultural commodity market modeling and policy analysis?

This book provides a valuable service It highlights important points that are not examined carefully enough Markets are imperfect Participants do have power Policy can only be analyzed in the context of an open economy These concepts must be recognized if researchers are to build relevant models of international agriculture How that behavior is recognized can vary Existing models have approached it in several ways, these authors suggest several other ways Still others exist

There are minor problems that one could quibble with in each of these articles, however, they do not detract from the underlying theme of the book Anyone interested in international agricultural trade will find this book one of the better additions to the recent literature

The Socioeconomic Impact of Resource Development: Methods for Assessment

F Larry Leistritz and Stephen H Murdock Social Impact
Assessment Series No 6 Boulder, Colo Westview Press,
1981 $23 75, 285 pp

Reviewed by Thomas F. Stinson*

The environmental impact statement (EIS) has gained popular
acceptance as the way to provide local officials with informa-
tion about the potential hazards of proposed developments
Although much of the emphasis is on items such as air and
water pollution and land use conflicts, each EIS also de-
scribes social and economic impacts—including the changes
in local government's costs and revenues—that are expected
to accompany the new project

Unfortunately, many of these socioeconomic assessments
have been of poor quality They have been incomplete or
inaccurate, local officials relying on them have often been
misled Many policymakers and planners have found little
relation between the changes projected in the socioeconomic
assessment and those which actually occurred in their
community

While most of the blame for the substandard studies must
rest with the agencies and consulting firms who prepared
them, there have been some mitigating circumstances
Socioeconomic assessments are a relatively new planning
tool, and there are no well established guidelines for indi
vidual analysts to follow Until recently there was no suffi-
ciently well defined body of literature to which analysts
could turn for assistance Those responsible for estimating
impacts of large-scale development in rural areas faced the
additional problem of adapting techniques designed to assess
impacts in large metropolitan areas so as to take account of
the special characteristics of small towns and sparsely popu-
lated areas

Most attempts to improve the quality of this work have been
precluded by limits on time and budgets Assessments are
usually completed under such severe time pressure that only
incremental improvements in technique have been possible
The transfer of information among researchers is further
slowed by the tendency of the work completed to be re
ported either directly to the contracting agency or in publi-
cations not generally accessible Although advances eventually
become known to those conducting impact assessments, they
remain almost inaccessible to individuals outside the informal
communication network

Leistritz and Murdock's book helps remedy some of those
problems It brings together and summarizes existing informa-
tion about techniques for estimating social and economic

impacts of development Equally important, it devotes sub-
stantial space to discussing the assumptions behind each
technique and the problems in implementing them and to
describing what each approach can and cannot be expected
to do well

Such a book is particularly timely as the development of
impact analysis appears to have hit a plateau Large, first-
generation computer models have been completed, and most
of the easy, incremental modifications have been made
Research now must focus on ways of making major improve
ments in the accuracy of projections This volume provides a
nice marking point, establishing what is generally known,
while making attempts to move on

The book is not for everyone, however It is most appropriate
for those with some training in regional economics or regional
science, but with little experience in preparing socioeconomic
impact assessments Administrators and managers trained in
other fields, but with responsibilities for overseeing the prep-
aration of socioeconomic assessments, will also find it use-
ful Or, the book could be used as a set of companion read-
ings for an introductory course in regional analysis

Those expecting to find a step by step outline describing how
to conduct a socioeconomic impact analysis of a particular
project will be disappointed The authors assume the reader
has more than a passing familiarity with the tools of regional
analysis They describe analytical techniques such as input-
output analysis and gravity models in sufficient detail to pro-
vide nontechnicians with an idea of how they work, but not
in the detail needed for analysts to use them in a particular
assessment or to interpret their findings

The book is also likely to prove somewhat disappointing to
the experienced impact analyst Although the authors do
a good job describing the state of the art in socioeconomic
assessment modeling as of 1980, they provide little to stim-
ulate thinking about new approaches to problems This
deficiency is particularly noticeable in the chapter on model-
ing social impacts, where little guidance is provided about
which of the many possible areas for research are likely to
prove most fruitful Similarly disappointing is the lack of
new insights on possible methods for improving the dynamic
capabilities of regional models

The book has two major sections The first covers the types
of projections needed in an integrated socioeconomic assess-
ment Chapters on economic, demographic, public service

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(here meaning local public infrastructure), fiscal, and social impacts are provided Each chapter discusses the key variables to be estimated, standard ways of estimating them, and problems with the techniques No actual estimates or ranges of estimates are provided, however, the discussion is entirely conceptual The second section discusses problems of combining social and economic assessments into a single integrated model, reviews in detail several current computerized models, and offers some thoughts on the use of assessments in the policy process

In general, the strengths of the book mirror the strengths of existing knowledge The book is most successful in its early chapters and is less satisfying in the chapters on social impacts and the integration of social and economic impacts, areas where current practices and techniques are considerably less well defined Disappointment with these chapters really reflects a frustration with the inability of current socio-economic assessments to provide information of this type, the authors only make the ambiguities and failings of current techniques more apparent

A Conference on Modeling and Evaluating Policy and Institutional Impacts on Farm Firms: Theory, Research, Policy, and Extension Applications

Reviewed by Thomas A. Miller*

How can we better estimate the impact of Government policies on individual farm firms? This question was the focus of a 3-day conference held in Washington, D C , in November 1981 The conference, sponsored by the Economic Research Service (ERS) and the Farm Foundation, discussed using firm (micro) models to improve our understanding of how producers react to changes in policy, institutional, and economic conditions

Agricultural policymakers and economists are continuously challenged to provide insights into the effects of alternative programs and policies Analyses of the costs and benefits and distributional impacts of different policies among farms of different types, tenure, equity, size, and region are a critical part of this process These analyses depend on microeconomic models of the farm firm to provide an understanding of how the units involved in actual production and adjustment decisions react to alternative policy circumstances

In spite of the need for microanalyses, resources for micromodeling activities in the profession continue to be limited The challenge considered by the conference was how to enhance the effectiveness of resources devoted to micromodeling Specific objectives were the following

   1 To develop and improve understanding of the advantages and limitations of farm growth and adjustment models for analyzing policies and conducting extension activities

   2 To foster current and future professional interactions among economists in the U S Department of Agriculture (USDA), universities, and other institutions interested in farm growth and adjustment modeling

Focusing on these objectives was intended to clarify the usefulness of micro farm firm models in evaluating Government policies and to improve the quality of current and future farm growth and adjustment modeling research

A broad range of firm modeling topics came under discussion (1) an overview of farm firm models for evaluation of policy and performance, (2) theoretical considerations in modeling firm growth, (3) methods for linking farm and sectoral performance models, (4) implications of the current policy agenda for modeling farm behavior, (5) representation of institutional and legal considerations in farm firm models, (6) risk management models, (7) simulation models, (8) optimizing models, and (9) use of farm models in extension activities During these sessions, 18 major papers were presented and 24 discussants were heard A concluding session summarized accomplishments and provided a forum for evaluating the conference

During the first session of the conference, John E Lee, Jr , the Administrator of ERS, described the history and need for micromodeling in policy analysis From the ERS standpoint, the aggregate models being used by the Agency are deficient in their ability to evaluate policy because farm impacts are not represented Micromodels are needed to improve understanding of the differential impacts of policy and to improve policy appraisal Knowledge of individual farm circumstances is important both in the assessment of current conditions and in the estimation of how policy will affect farms of different types, sizes, and regions Issues concerning the structure of agriculture and the resulting USDA Structure of Agriculture Project underscored this point Existing models, both in ERS and at land-grant universities, sometimes did a poor job of forecasting the response of firms to alternative policies and were sometimes unable to estimate the distributive impacts of policy

Lee summarized ERS needs for firm-level analytical capability (1) to understand likely responses of farm firms in alternative regional, commodity, size, and financial situations to various market conditions and policy provisions in order to understand (but not measure) likely aggregate responses, (2) to understand likely distributive impacts of various policy and market situations, and (3) to use this analysis in conjunction (informally) with macro and econometric models Using micromodels for these purposes defines a legitimate and important subset of activity for economists in the years ahead—sufficiently important to justify investing in this conference and in improving the realism of behavioral models of farm firms

Historically, the attention of agricultural economists has cycled from micro to macro and back, with USDA and the land-grant universities currently having quite different focuses Lee asked for a renewed cooperative effort between ERS and university economists, both in advancing the state of the art in micromodeling and in applying the resulting analytical capability to important economic issues He made it clear that this effort was not to get ERS back

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into the farm management business, but to allow ERS to pick up a neglected analytical tool that can be used to broaden its capability in policy analysis

The conference papers can be characterized as a collage of observations, hypotheses, model descriptions, problems, conclusions, and unanswered questions In total, this collage represents the state of the art in farm firm modeling The highlights include the following sample

- The actual behavior of agricultural firms is complex, it can only be understood by micromodels that represent the complex dynamics of economic change Such models provide both qualitative and quantitative results, and research should focus on understanding the behavior of farm firms, rather than on predicting it

- Policy analysis requires complementary micro and macromodels of agriculture, as well as explicit institutional arrangements that allow policymakers access to the results and the understanding gained from modeling activities

- The concept of an economic firm is greatly complicated by tax and legal form-of-ownership considerations, and such complications must be dealt with in farm firm model building Inflation, tax rules, the resulting financial considerations, and complex legal entities render the concept of a profit-maximizing farm firm only a crude approximation of the real situation

- Model builders must incorporate risk into micromodels to understand how risk management and the differential risk-bearing ability of farms affect behavior, survivability, and the long term structural impact of policy

- Simulation models of farm firms and households can help researchers understand the complex interaction of tax laws, inflation, credit use, and public policy Unfortunately, the enormous detail required to represent actual behavior in such models may restrict their use in policy analysis

- Polyperiodic, goal programming, and Monte Carlo programming models have been used to represent farm response to selected economic parameters

- Extension applications of farm firm models are increasing with the advent of desk-top computers Researchers must provide highly flexible and generalized software if farmers are going to make effective use of modeling techniques in problem solving

Clearly, farm firm modeling advanced substantially in the seventies, with numerous successes Nevertheless, these advances have illuminated new barriers, theoretical questions, and difficulties that still limit the use of micromodels in evaluations of the impact of policy and institutional changes on farm firms

The final session of the conference summarized some of the remaining questions The second conference objective, the hoped-for professional interaction among economists interested in farm modeling, certainly was accomplished, with the potential for mutual benefit

Regarding the first conference objective, understanding the advantages and limitations of farm firm models, the conference identified as many limitations as advantages This statement is not intended to be negative The limitations identified, the issues unresolved, and the questions unanswered provide the foundation for further progress Therefore, my review concludes with a summary of these issues and questions

What are the uses of models, and who are the clients? Academic scholarship, firm decisionmaking, and policy analysis sometimes represent competing uses for models that tend to muddle the objectives of model research Potential funding sources are often alienated by this apparent confusion

Can multipurpose micromodels serve different clients and evaluate different kinds of policies? What consequences of policy are to be evaluated? Should the model builder ask the policymaker what impacts to evaluate? Who are policymakers—the administration, the Congress, lobbyists, or farm organizations?

How can complementary micro- and macromodels be used in policy analyses? Must the aggregation issue be resolved? What role should case studies play in the political process? How complex should models be?

How can human organizational linkages be established between model builders, extension policy educators, policy analysts, and policymakers? How can we diminish the current gaps between ERS economists and model builders at universities? How can modeling activities be divided, and what clientele could each institution serve? How can the experience gained from model building be used in policy analysis?

The complete conference proceedings will be published in 1982 My intent here is to increase demand for the full report I believe the proceedings will become a benchmark in the literature of farm firm modeling