Research Review

THE LESSONS OF WAGE AND PRICE CONTROLS— THE FOOD SECTOR

Dunlop, John T., and Kenneth J. Fedor, editors, Harvard University Press, Cambridge, Massachusetts, 1977, 344 pages, $19.50.

*Reviewed by Abner W. Womack**

For those interested in analyzing the impacts of the wage and price controls lasting from August 15, 1971, to April 30, 1974, this book is essential. It provides behind-the-scene interactions, reactions, and counteractions between key Government agencies and industries, and a careful chronology of events. We are fortunate that these authors took the time to set down their experiences with wage and price controls. Five of the six authors were with the Cost of Living Council during the control period, and each reflects areas of responsibility and professional background. The reader finds areas of overlap and varying conclusions drawn, but, in most cases, the story is much the same: Controls are difficult to manage in the food sector. Complete controls would require a substantially greater number of Government employees to monitor all segments of the industry from the farm to the retail market. If the Administration settles for a piecemeal program, industry and Government will find themselves acting and reacting to economic events guided by structure, expectations, and economic incentives that do not conform to models and intuition based on periods without control.

Given this unsettling information, one wonders why the whole matter of controls would not be dismissed and more viable alternatives considered. But the notion is often very popular; as we reach periods of relatively high food prices, popular pressures for controls are likely to surface again. This book can be considered one of the best sources of information on structural adjustments that are likely if similar controls are adopted in the future.

In chapter one, "Agricultural Development," author Glenn Nelson reminds us that Freeze I, August 15, 1971, to November 13, 1971 was a three-pronged attack on rapid inflation, a balance-of-payment deficit, and high unemployment. For each of the five control stages, Nelson examines the announced policy, the state of the general economy, the feed grain-livestock sector, wheat, protein meals, and dairy products. He provides insight on how the food economy reacts to ceilings on retail prices when raw product prices are unconstrained. We see how processors are squeezed out of business, and how the Administration attempts to readjust with cost-passthrough provisions.

Of particular interest is the author's discussion of constraining beef prices while other meat prices were allowed to seek free-market equilibriums. If his interpretation is correct, researchers will find that a quantification of supply response for beef products during this period, at the farm level, will demonstrate a structural change relating to price information. At a time when hog and poultry producers were cutting back production, beef producers interpreted the freeze to imply a bottom price. Producers passed up profitable prices only to lose heavily after the freeze was rescinded. Not surprisingly, forecasting models of the U.S. Department of Agriculture and other Government agencies did not predict this turn of events.

Behind-the-scene accounts are given of displeasure with USDA policies. Marketing guides designed to support egg and poultry prices, and the announcement in December 1972 of a 25-million acre set-aside program for 1973 feed grains in the face of higher prices, were cited as being out of step with the overall goals for curbing inflation and lowering food prices. A special food committee of the Cost of Living Council, chaired by Secretary of the Treasury Shultz and including Secretary of Agriculture Butz, was created to stimulate greater emphasis on consumer interests. USDA was viewed by other Government agencies as being biased towards maintaining higher farm prices; thus, as pointed out by Nelson, its ability to fight successfully on policy issues was rapidly eroding.

In chapter two, "The Agribusiness Market Structure and Controls," author Ray Goldberg reviews the agribusiness background, particularly the significance of a relatively stable farm price in conjunction with excess supplies. He provides a rather detailed description of the freeze implications on the beef industry. The reader is led through the relatively stable period of Freeze I and Phase II up to the more unstable period covering Phase III and Freeze II, January 11, 1973, to July 18, 1973, by which time retail beef prices had moved up 18 percent. These higher prices precipitated a ceiling price of beef set at the end of March 1973. Goldberg hypothesizes that beef cattle producers perceived the ceiling price to be a floor and modified production decisions accordingly. But this withholding strategy occurred at a time when the beef price cycle was coming to a peak. Thus, an attempt by the

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Administration to curb price increases had a perverse effect on the industry and accentuated the problem.

Goldberg concludes that the programs under which the agriculture sector had been operating for 25 years should have been examined more closely for desired response in lieu of imposing new constraints.

Kenneth J. Fedor and Reginald J. Brown wrote chapter three, "The Design and Implementation of Food Price Regulations." They address two questions: (1) To what extent should the regulations limit price increases by forcing firms to absorb rising costs; and (2) to what extent should all segments of an industry be controlled? Several arguments are given on the economic shortcomings of a food price freeze. Prices set below equilibrium levels imply rationing, which ultimately requires large numbers of Government employees; if the freeze is short term, this procedure is not acceptable. It is difficult to regulate prices of raw agricultural products. Since raw products were considered to nearly reflect free market prices, and the program was perceived to be short term, policymakers omitted price controls for raw products. The authors examine the fallacy of this decision in substantial detail.

Fedor and Brown also treat the economics of cost passthroughs that were allowed in Phase IV, July 19, 1973. Subjects include: allowable costs, formulas for cost passthrough, special regulations for retailers and wholesalers, base periods for determining customary initial percentage markup, and category versus item control. They conclude that the anti-inflation programs in the food/agriculture area should have been limited to changes in existing Government programs.

Wage stabilization aspects of price and wage regulation receive attention in chapter four, "Wage Stabilization in the Food Industry," written by William M. Vaughn, III. He particularly notes the experience of the Tripartite Food Industry Wage and Salary Committee. Vaughn looks at issues associated with previous wage and price controls and at committee experience based on problems confronted during the period under consideration. Lessons learned he summarizes in a section appropriately titled: "Costs and Benefits, Lessons Learned, and Open Questions."

A sobering point concerns the amount of startup time and personnel necessary. Combining this with the need for cooperation among affected parties leaves one with the impression that a program aimed at shortrun controls will be severely constrained from the start. Two important questions are debated: (1) Do price controls necessitate wage controls and (2) does a wage control program need strong compliance. Voluntary compliance may actually be viable.

Chapter five, "International Food Policy Issues," is also written by Glenn Nelson. He examines international policy from the perspective of domestic food prices. Numerous charts and graphs present characteristics of the international markets including natural phenomena, social and political institutions, cycles of economic growth and recession, shifting exchange rates, foreign agriculture and food policies, state trading arrangements, and expected future trends. These major issues lead to the question of a reserve program with all of its economic ramifications, a choice that the United States would seem forced to make because of the international environment. Nelson points out that our open economy takes on an undue share of the changes in the supply-demand balance in the world markets.

The first five chapters are summarized and additional insights provided in chapter six, "Lessons of Food Controls, 1971-74," written by John Dunlop. He warns the reader about the implications of a controls program remaining in effect too long, and the merits of considering one that concentrates on nonfood items and leaves the relatively competitive agriculture market to seek equilibrium. He maintains that control programs become confusing to all parties as time goes on. During the 35-month period, we experienced two different freezes and three phase modifications. Getting out of controls can be much more difficult than getting in, he cautions.

Dunlop attempts to disentangle the economics of short supplies and increased exports from the popularly held concept of controls. The latter can overpower the former; a case in point is the freeze placed on meat prices by President Nixon in the spring of 1973. Dunlop attributes motivation for this action as a reaction to the popular attitude that profits in the food industry were responsible for high prices. Unfortunately, the President over-rode his economic advisors and bowed to these popular and more political pressures.

I suggest that readers of this book remember a statement attributed to Professor Willard Cochrane, that, in making economic policy decisions, we must consider the political equilibrium as well as the economic equilibrium. My problem in grasping the main theme of the book was related to this point. I continued to read from an economic standpoint and did not zero in on this political

(Continued on page 36)

. . . AND THE DESERT SHALL REJOICE: CONFLICT, GROWTH AND JUSTICE IN ARID ENVIRONMENTS

Arthur Maass and Raymond C. Anderson. MIT Press, Cambridge, Mass. 447 pages. 1978. $19.95.

WATER PRODUCTION FUNCTIONS FOR IRRIGATED AGRICULTURE

Roger W. Hexem and Earl O. Heady. Iowa State University Press, Ames, Iowa, 215 pages. 1978. $8.95.

SELECTED WATER MANAGEMENT ISSUES IN LATIN AMERICAN AGRICULTURE

Pierre R. Crosson, Ronald G. Cummings, and Kenneth D. Frederick, editors. Published for Resources for the Future by the Johns Hopkins University Press, Baltimore and London, 190 pages. 1978. $14.95.

*Reviewed by Harry W. Ayer**

The unifying theme of these books is the economics of irrigation. They vary greatly, however, in the specific problems and decision level treated (farm, irrigation district, large region), location (a variety of regions within several countries) and analytic methods employed (basic production function methodology, simulation, linear programming, and others). Overall, the three books are of high quality. All will interest researchers working with the economics of irrigation at the aggregate level. The Hexem and Heady book could be used as a supplementary text in a production economics course. The books by Maass and Anderson, and Crosson, Cummings, and Frederick also have merit for water policymakers. The single greatest shortcoming of these books, and of the existing literature on the economics of irrigation, is that they fail to specify adequately the micro-level water-crop production function for on-farm decisions.

. . . AND THE DESERT SHALL REJOICE . . .

Maass and Anderson study six irrigated settlements—three in Spain, and three in the United States. Their purpose is formidable: ". . . to understand the (water) institutions and procedures, to discover the objectives, and to evaluate the institutions and procedures in terms of how well they satisfy the communities' goals." They accomplish their purpose admirably. In so doing, they provide a framework and methodology, and draw important policy conclusions for future economic research and policy on irrigation.

For each irrigation settlement, the physical setting (including location, climate, crops, farm size, land ownership, topography, water volumes, and sources) is detailed carefully, and the physical features are related to the history of rules which govern water use in the area. The controlling and regulating institutions are described faithfully—which interest groups are in control, what operating procedures exist for decisionmaking, who the key personnel are and what are their duties, how expenses are met, and how procedures are enforced.

For economists, a focal point is the simulation model used to evaluate the effects of alternative water use rules imposed on or by the irrigation district. Unfortunately, the model is described only briefly, and the reader is referred to the authors' previously published bulletin. The model is based on budget data for each of 10 representative farms of each region and on the decision rules which allocate the region's water among farms. The model selects that combination of crops and water use, by 2-week intervals during the growing season, which maximizes net revenues. Operating procedures (when and how much to irrigate each crop) can be altered throughout the growing season in response to changing water availability. Results indicate for each farm the acreage of each crop, the amount and sequence of water application, and total revenues, total costs, and net revenues. Researchers can use the model to evaluate the impact on production, revenue, and water use of alternative water allocation rules—such as distributing water based upon the proportion of the region's total acreage owned by a particular farm—and the impact of new irrigation facilities—such as a reservoir to eliminate seasonal water shortages.

A shortcoming of the model (and most economic models of irrigation) is that the underlying production function which specifies crop response to irrigation water is only very roughly specified. It is assumed that water may be applied at specified intervals, and that water scarcity is reflected by omission of one or more entire water treatments, rather than by use of a lesser amount during an application period. Thus, irrigation is assumed to be a very discrete, all-or-nothing, operation within periods.

The authors derive guidelines for regional water policy from the study. Three of the most important and broad pertain to the 160-acre limitation, the ability of local irrigation districts to control water which is supposedly under considerable large-region or central government control, and the equity of the distribution of net benefits derived from alternative

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theme until chapter three. Because this chapter covers initial groundwork necessary to appreciate particular controls programs, it would have been better if it had been first.

The book succeeds in adhering to the intended subject: "Lessons learned." It contains numerous insights into quantification of economic events during 1971-74, and should prove invaluable for the researcher in the food, labor, and other related industries. For the policymaker faced with pressure to curb high food prices, this book should serve as a grim reminder that controls can have perverse effects.

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water policies. The Maass-Anderson study was completed before the current debate over the 160-acre limitation rule, but they provide historical information which is "must" reading for anyone now concerned. Frequently, communities in arid areas seek local control of water, and, at the same time, the State, multistate region, or Federal Government may desire more control of a region's limited water to internalize externalities. What the Maass-Anderson work demonstrates, for a wide range of geographical and political settings, is that local control has reigned supreme. Finally, the model indicates, contrary to much popular opinion, that rules and institutional arrangements which most closely approximate a market economy for water also provide the greatest degree of equality and equity.

The authors conclude with a thorough, enticing discussion of hypotheses for further research suggested by their study. For example, land speculation and corporate wealth may have an impact on regional agricultural development. Data from their work can also be used, they suggest, to investigate the impact of uncertainty on irrigation decisions at all levels.

WATER PRODUCTION FUNCTIONS FOR IRRIGATED AGRICULTURE

Hexem and Heady focus on the estimation and application of water production functions for the Western States. Their work was prompted by the U.S. Bureau of Reclamation which needs underlying, basic crop-water response information to provide an economic rationale for its proposed programs.

The authors provide an overview of production economics principles and the statistical procedures used to estimate crop-water production functions empirically. They treat the theory compactly, yet adequately as to the key variables, optimizing criteria, and functional forms used in basic production function analysis. They use graphs and basic calculus effectively to illustrate the physical and economic principles involved. They also provide basic information on experimental design and the estimation of parameters through regression analysis (OLS) and associated statistical tests.

The production functions were estimated from experiments conducted in Arizona, California, Colorado, Kansas, and Texas from 1967 through 1972 by agricultural experiment station staff. For each crop—corn, wheat, corn silage, cotton, and sugar beets—both irrigation and nitrogen fertilizer levels were varied, and other factors of production were held fixed within sites. Among sites, both weather and soil factors varied, and generalized production functions over sites attempted to account for these variables.

The heart of the book is a crop-by-crop, State-by-State presentation of the "best" production function estimates. In each case, empirical estimates of one or more production function forms are given, along with tests of significance and R^2's. Marginal product curves and isoquants plus graphs of the total, marginal, and isoquant functions are given for each crop, but not for each site. Generally, the estimated functions relating yield to annual applications of water and fertilizer fit the data rather well. R^2's are typically greater than 0.7 and the key variables are often significant with the expected sign. The generalized production functions, which account for soil (pH, electrical conductivity, and other factors) and weather (pan evaporation) differences among sites, also produced high R^2's, but individual parameter estimates were not always as expected. Essentially no economic analysis is provided.

Potential use of crop-water production functions in economic analysis and policy formation is described, however. The authors draw upon an empirical study of two watersheds in central Utah. Crop-water production functions were incorporated into a linear programming model of representative farms of the region. By varying water price, the Utah analysts estimated the demand for water in both regions. In the aggregate model, they allocated water by the water conveyance system between the regions and through time so that consumer surplus to the regions was maximized. Policy implications can be drawn concerning the efficiency of the dam and delivery system of the area, and the method of operating the system. Although short, this treatment illustrates for policy analysts the usefulness of crop-water production functions, and the authors suggest research methodology for persons conducting economic studies.

Data used in making the production function estimates, and other tabular material appear as microfiche inserts in the book.

Persons concerned with regional (versus on-farm) water policy in the West can use material in the book. Agronomists would also benefit from the section on experimental procedures and data needs for economic analysis of crop response to irrigation. Graduate students studying production economics will find this book a good supplemental text in

treating production theory, statistical analysis, and application of the theory and statistics.

SELECTED WATER MANAGEMENT ISSUES IN LATIN AMERICAN AGRICULTURE

Crosson, Cummings, and Frederick present papers on a variety of water problems in agricultural areas of Latin America. Several economic empirical methodologies are employed to analyze a number of policies and projects intended to make more efficient use of scarce water. The editors' objectives are to improve water policy in Latin America and elsewhere, and to provide methodological ideas for those conducting research on the economics of irrigation. In general, the presentations are convincing and deserve the attention of both those who study and those who formulate water policy.

The editors provide a sharp review of problems and policy in irrigated areas, effectively using the papers presented and other literature also. They consider factors affecting the efficiency of investments in water control projects and the efficiency of water management. Timing, regional location, and project design affect investment efficiency. Management efficiency is determined by the time path of use of stored water, political interests which determine the distribution of water between farm and nonfarm sectors, and policies which determine the price of water to the agricultural sector and the distribution of irrigation water between leaching of salts and direct plant uptake.

Seagraves and Ochoa investigate alternative water pricing policies in Canele, Peru. Most of the country's agricultural production occurs in the desert, coastal areas where rivers, originating in the Andes, feed irrigation canals. Problems associated with the irrigation system include scarcity of water during particular months and flooding during others. To cope with these problems and expand agricultural production, the government is involved in major canal and water storage projects. The authors investigate the economics of the projects and alternative water pricing policies.

They dwell considerably on methodology, and they use linear programming techniques which incorporate both supply and demand equations. They conclude with several policy recommendations, among them proposals pertaining to investment strategies and water fees.

In his study, Frederick focuses on threats to an irrigated grape-wine area of Argentina. The grape-wine industry and local communities depending on the industry are threatened because water use exceeds river flow and ground water recharge. Past and current government policies encourage a socially inefficient allocation of water. Water pricing policies, tax policies, pump energy pricing, and subsidies to grape production all encourage overuse of water in grape irrigation. Out of a largely qualitative analysis, the author draws several policy conclusions.

Cummings and others investigate the economics of allocating water between shrimp lagoons and crop irrigation in northwestern Mexico. The model used is a chance-constrained stochastic, dynamic program and it includes a biological model of shrimp production. Besides illustrating the use of a rather complex methodology, the authors reveal, perhaps surprisingly, that shrimp production competes economically with irrigated agriculture for substantial quantities of scarce water.

In McFarland's study on water scarcity and salinity in northern Mexico, he indicates that the underground water table has fallen and sea water has intruded into the aquifer as farm use of irrigation water has expanded. Not only have pumping costs increased, but saline irrigation water also threatens crop yields. Several policies have been proposed to counteract these problems: the introduction of salt-tolerant crops such as garbanzo beans, the installation of artificial drains, and interbasin transfers of water. McFarland, using a dynamic programming model, investigates the optimum policy and time allocation of water between leaching and direct crop use.

Millan and Mijia, evaluating a multipurpose flood control project in Colombia, attempt in their model to account for the myriad socioinstitutional, economic, and hydrologic interrelationships which often characterize multipurpose flood control projects. They explain portions of the simulation model but refer the reader to another publication for details. They evaluate a flood protection project on the Cauca River of Colombia, but because of weak underlying data, provide only tentative policy conclusions.

Overall, authors of these papers on important water problems refine and demonstrate the use of empirical methodologies which can be applied to similar problems of other geographic areas, and they offer policy conclusions to improve economic efficiency in the areas studied. They provide adequate, compactly presented information for both researchers and those who form policy.

INDUCED INNOVATION: TECHNOLOGY, INSTITUTIONS, AND DEVELOPMENT

Hans P. Binswanger, Vernon W. Ruttan, and others. The Johns Hopkins University Press, Baltimore, Md., 1978, 423 and XIV pages. $22.50.

*Reviewed by Ted Thornton and William B. Back**

Induced innovation refers to the study of how prices of factors, products, and other key economic variables interact in determining the rate and direction of technical change, and, consequently, characteristics of economic growth. Rather than regarding innovation as autonomously or exogeneously given, the authors place it within microeconomic theory wherein the nature, rate, and direction of innovation become determined by the economic incentives, decisions, and actions of firms operating in a market economy.

Binswanger, Ruttan, and the other authors provide both a valuable introduction and a rigorous statement of the theory of induced innovation. They also give historical perspective on use of the theory in the United States, Japan, Brazil, and Argentina. The book will appeal to economists and researchers interested in innovation as a variable in microeconomic analysis, and who have sufficient mathematical background to understand and to appreciate the modeling and related refinements in the theory. In particular, the book may appeal to persons beginning research on technology. The authors present straightforward treatments on the divorce of compensation of the innovator from charges to the user of the innovation, publically financed research, patent laws, the relationship between market structure and technical change, changes in income distribution and factor shares resulting from technical change, technology transfer, and the recent developments in the theory of induced innovation.

The strength of the book lies in the rigorous expression of a theory of induced innovation, made possible by the authors' placing the concept of induced innovation within the context of microeconomic theory of the firm. Innovation can thus be studied with the traditional tools of economic analysis as to its role in the effects of prices and resource availability on the allocation of goods and services. The models presented are manipulated to examine the place of innovation in the firm and to describe innovation in terms of changes in final demand, factor prices, resource availability, and resource allocation over time.

The shortcoming of the book relates to the limitations of microeconomics as a source of criteria for public decisionmaking. Many innovations do not result from economic incentives or forces within a market economy but from government regulation or nonmarket demands. For example, a firm ordered by a government to reduce emissions from a smokestack will consider economic factors in determining the type of innovation to reduce emissions, but the impetus for innovation did not come from economic forces endogenous to the firm or market. Also, market forces may have little bearing on military innovations, or innovations in public services. The problems of market failure are well known to economists. But just as the market may fail to provide a socially desirable amount of goods and services, it also may fail to provide the innovations that society wants or needs. The induced innovation theory does not account for the wide variety of innovations generated outside the market system. Nor does it account for impacts of technology other than the income effects distributed by market forces. Therefore, the theory presented fails as a criterion for public policy relating to technology and innovations.

Nevertheless, *Induced Innovation* is worthy of professional attention. It will serve as a base for some research on the economic determinants of innovation and the social effects therefrom. The unmet need is for a macroeconomic theory of innovation which can serve as an analytical base for technology assessment.

*The reviewers are agricultural economists in the National Economic Analysis Division, ESCS.

In Earlier Issues

In the search for wise use of natural resources, too little attention has been given to the watershed, too much to dams and levees on the river.

Review of: *Water, Land, and People* (Bernard Frank & Anthony Netboy)
E. H. Wiecking
April 1951, Vol. 3, No. 2, p. 61

ENVIRONMENTAL IMPROVEMENT THROUGH ECONOMIC INCENTIVES

Frederich R. Anderson, Allen V. Kneese, Phillip D. Reed, Serge Taylor, and Russell B. Stevenson. Resources For the Future, The Johns Hopkins University Press, 195 pages, 1977. Cloth, $13.00; Paper, $4.50.

*Reviewed by David Wilson**

This book was written for persons concerned with environmental management strategies. It will be especially useful for all legislators, agency personnel, political scientists, economists, planners, engineers, and attorneys involved in developing environmental policies and controls. The authors treat the interdisciplinary nature of protecting the environment by focusing on the economic, technical, legal, and political aspects in different chapters. They have coordinated these aspects reasonably well.

Direct regulation, control, and management of environmentally harmful activities have been inadequate, state the authors. Although the regulatory approach has produced important gains, they conclude, it has also allowed many polluters to avoid being regulated.

Political and economic costs of an effective direct regulation program are seen as being too high. The authors question current regulatory programs, which are costly, cumbersome, and ineffective. If these programs do not produce more results at reasonable prices soon, discouraged legislators will cast them aside. The major problem with regulatory programs is that, in practice, enormous administrative costs are incurred in meeting objectives.

The authors examine the strategy of levying pollution charges instead of, or in conjunction with, direct regulation. Such charges would provide an incentive to discontinue or abate polluting activities. The argument is that pollution standards could be enforced much more easily if an incentive structure existed which would induce firms to choose the most economically efficient abatement alternative.

The primary economic purpose of the environmental charge system is to create new markets that would allocate resources efficiently and produce net benefits to society. The lack of markets is viewed as a major cause of environmental problems. Air and water resources have in the past been used to absorb raw wastes because it has been economically advantageous to do so. Other resources have been subject to market prices and constraints while the use of environmental resources has not been.

The authors point out that many of the political problems related to using a charge system stem from a national preference for direct regulation as the only appropriate legislative means of answering a social need. The market approach, they indicate, will be opposed by industrialists out of self-interest; by regulatory authorities out of fear of failures of current programs; and by politicians who do not want a more publicly visible pollution control strategy. Major policy revisions come only infrequently and only after a number of years for an existing policy to prove itself ineffective.

Use of pollution charges could, the authors believe, increase administrative and economic efficiency and equity. Levying charges for polluting activities is a technique very likely to be much debated and probably tested in the near future. Adoption would form a new category of regulatory legislation, one not fully tested in the courts.

*The reviewer is an agricultural economist in the Natural Resource Economics Division, ESCS, stationed in Utah.

In Earlier Issues

A general nonprice equilibrium rather than a general price equilibrium may actually house the strongest forces involved in real problems. General price equilibrium may be more misleading than helpful in understanding the nature of economic problems.

Review of: *A Reconstruction of Economics* (Kenneth E. Boulding)
John A. Baker
April 1951, Vol. 3, No. 2, p. 60

POLICY STUDIES JOURNAL,
VOLUME 6, NO. 4,
SUMMER 1978

*Reviewed by Preston E. LaFerney**

This somewhat unusual review features a journal issue in its entirety. The decision to review the entire issue stems from the subject matter—the Symposium on Agricultural Policy sponsored jointly by the Policy Studies Organization, the U.S. Department of Agriculture, and the Farm Foundation.

The *Policy Studies Journal*, published quarterly in the Political Science Department of the University of Illinois, represents the product of the Policy Studies Organization, a group composed largely of political scientists. Past issues have covered general approaches to policy studies and specific policy problem areas. (Contents of past symposia issues, available from the Policy Studies Organization, are listed on p. 588 of the summer 1978 issue.)

Contents of this issue include a brief, historical sketch of the Political Studies Organization; the symposium on agricultural policy, edited by Don Hadwiger of Iowa State University, William Browne of Central Michigan University, and Richard Fraenkel of the U.S. Agency for International Development; and three articles on public opinion as a factor in policy formulation, potential conflict between policy evaluators and persons responsible for policy formulation and administration, and questions useful in analyzing public policy. Lastly, a literature review section (a standard feature) provides a bibliography of policies on poverty and civil liberties, and brief essays on regulatory reform, criminal justice, health policy, and urban services.

*The reviewer is Deputy Director of the Commodity Economics Division, ESCS.

The Journal's editors quote Don Paarlberg, formerly USDA Director of Agricultural Economics: "The agricultural establishment has, in large measure, lost control." They cite this statement as indicative of a state of flux, in the late seventies, within involved political institutions and among items seriously considered on the agricultural policy agenda. Too, the statement prompted the Policy Studies Organization to focus this issue of the *Journal* on the questions of "what changes?" and "how much?"

Within the symposium section, the first seven articles present aspects of political institutions. More precisely, the authors focus on political institutions active in agricultural policy formulation now and in the past. They also examine evidences of significant changes within these institutions, and, in some cases, they indicate potential impacts on the policy process within the agricultural community.

The political institutions active in the agricultural policy process historically have comprised a tightly knit, closed group. The authors offer considerable evidence that this characteristic is changing, with the emergence of significant new participants in the development of agricultural policy. Charles Hardin, University of California-Davis, focuses on the political role of bureaucracy in setting agricultural policy, citing the Agricultural Adjustment Administration, the Production and Marketing Administration, the Commodity Stabilization Service, and USDA's Agricultural Stabilization and Conservation Service as institutions through which farm policy was heavily influenced by politicians with agricultural constituencies. He argues that no effective oversight was given by either the executive branch or the Congress as a whole. Hardin points to the shift away from this situation in the sixties as the farm bloc's power eroded, culminating in various coalitions involving it and other interest groups—labor and consumer interests, particularly—in the formation of the 1973 farm bill.

Laurellen Porter, Indiana State University traces some recent, significant congressional changes which have eroded the power base of traditional agricultural interests, and examines the consequence for agricultural policy. Alex McCalla, University of California-Davis, examines the policies of the agricultural research establishment, arguing that inertia, not political manipulation, essentially governs research content in the short run. Only over time can specific interests (particularly those with money) significantly influence the research content.

Client support for agricultural agencies in the Congress is treated by Kenneth Meier, University of Oklahoma, who indicates recent erosion of such support for agricultural policy. Jonathan Lurie, Rutgers University, writes critically of regulatory (especially self-regulatory) features of the commodity exchanges. William Browne, Central Michigan University, and Charles Wiggins, Iowa State University, argue that the lobbying efforts of general farm organizations have changed from the historical ideological base toward the more pragmatic issues faced by their memberships—basic economic issues of farm legislation—and toward considerable involvement with other interest groups in their lobbying activities.

The rapidly emerging consumer organizations and their role in agricultural policy formulation are examined by James Guth, Furman University, as to their strengths and

strategies in influencing agricultural policy.

Issues beyond the traditional area of agricultural policy form the topics of the next six articles. Authors look at who sets the agricultural policy agenda and examine "new" items, such as human rights, energy, and organic farming. Don Paarlberg argues that the real question in policy formulation is whether the high-priority issues on the agenda are relevant, not simply the choice among alternatives. Further, he points out that power to decide what is NOT on the agenda is critical to essential policy content. This power of the "establishment," he states, favored big farm operators for many years—until the sixties and continuing into the present, when a new set of challengers began to emerge from among the poor, the rural nonfarm people, hired farmworkers, minority groups, consumers, and environmentalists.

William Payne, previously with the U.S. Civil Rights Commission, argues that USDA largely continues to ignore the rural poor. Similarly, Isidro Ortiz, University of California-Santa Barbara, concludes that California, even under sympathetic administration, fails to provide farmworkers with collective bargaining although it is now a "right" under Federal law for most other workers.

Considering land and water policy relating to agriculture, Richard Esseks, Northern Illinois University, and John Richard, University of Wyoming, conclude that fragmentation and complexity of policies and a shifting power base increasingly favor municipalities and industries over agriculture in the use of these scarce natural resources. Garth Youngberg, Southeast Missouri State University, addresses some potential concerns in his article on organic farming as an "alternative agriculture,"as yet an essentially nonpolitical, embryonic movement.

The last three articles focus on the relationship between U.S. foreign policy and agricultural exports. "Sales Surpluses and the Soviets," "Grain as a Foreign Policy Tool . . .," and "The Failure of Food Power," by Trudy Peterson, Roy Laird, and Robert Paarlberg, respectively, indicate the policy issues examined. The authors look at implications of embargoes, use of agricultural commodities as instruments of foreign policy, and effects of foreign policy considerations on U.S. agricultural exports. Generally, they conclude that it is unrealistic to expect that U.S. policymakers will be able to restrict access to U.S. supplies of agricultural products, although just *how* they are made available to other nations can be affected by policy forces.

Each symposium article is a brief concise treatment of the given issue. Thus, the symposium constitutes an overview, reflecting the authors' perceptions of significant changes occurring in agricultural policy formulation and providing some attention to possible outcomes and impacts. The planners of the symposium succeeded, in my view, in arranging an informative treatment of the kinds and significance of changes occurring in the agricultural policy agenda and policy-forming processes in recent years—and in relating these changes to the political process.

The introductory symposium article, pages 463-466, provides a very good, more detailed summary of the topics and major conclusions of the various authors.

UNSKILLED LABOR FOR DEVELOPMENT—ITS ECONOMIC COST

Orville John McDiarmid, The Johns Hopkins University Press, Baltimore, Md., 206 pages, 1977. Cloth, $12.50; Paper, $4.50.

*Reviewed by Jeanne M. O'Leary**

When selecting a project aimed at promoting economic development, planners often base their choice on cost-benefit or internal rate of return analyses. Developers consider the ratio of capital to labor to be utilized, and weigh the cost of these inputs against the yield to be gained from undertaking such a project. Computing return from the project, however, often excludes resulting social costs and benefits.

Orville John McDiarmid, author of *Unskilled Labor for Development--Its Economic Cost,* asserts that, in many developing countries in which the labor market functions inefficiently, particularly when high rates of unemployment and underemployment exist, the prevailing market wage rate inaccurately measures the cost of labor. When only the market wage is considered, it distorts not only selection of the project but also the choice of a production process so that factors are not employed to their maximum efficiency among alternative uses.

For developing countries with abundant, unskilled, underemployed labor, McDiarmid advocates the formulation and use of an economic or shadow price which would incorporate valuation of externalities incurred by society as a result of one's employment. Components of this economic price are the opportunity cost of labor, effect of employment on consumption, savings

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and investment, and the redistribution of income.

McDiarmid presents a well-conceived rationale for rejecting the use of the market price of labor. First, he discusses the segmentation of the labor force in developing countries and subsequent wage discrepancies. He classifies the urban labor market into formal and informal sectors where the latter is composed of new arrivals from rural areas who are unable to find employment. As with unskilled rural workers, those in the informal urban sector are assumed to present an infinitely elastic supply with low marginal productivities. The formal urban sector is associated with workers earning higher wages from working at higher skill levels in more capital intensive production processes.

Wage differentials are exacerbated by increasing numbers of capital-intensive development projects which attract unskilled rural labor to urban areas that lack sufficient jobs to absorb these workers. Therefore, because the market price of labor in the formal sector is not adjusted for unemployment and underemployment, pressure on urban unemployment is aggravated from increased urban migration, further increasing societal costs.

McDiarmid then illustrates the effects of foreign investment on employment, unemployment, and the resulting market price of labor. Foreign aid, he points out, is confined largely to importing capital equipment, which distorts investment toward capital-intensive, rather than labor-utilizing, industries. Foreign-owned firms often pay higher wages, further encouraging substitution of capital for labor. In fact, the larger and less labor intensive agricultural endeavors, McDiarmid states, tend to be the most highly subsidized because of lower risk and taxation. Therefore, he admonishes countries to be cognizant of what he calls the "suitability" gap, wherein technologies are adopted which may be ill-suited to the overall interests of the society's economic growth. McDiarmid advocates setting an economic price of labor at lower than market price when unemployment and underemployment exist.

In computing an economic price of labor, McDiarmid evaluates in detail the components of the Little-Mirrlees and the United Nations Industrial Development (UNIDO) methodologies. He prefers the UNIDO method because it accounts for the effect of income distribution on employing workers in jobs in which their wages are higher than in other alternatives. McDiarmid adds his own refinements to the two methods, one of which is the accounting of transfer costs associated with moving a person into a new job. His inclusion reflects the growing concern of labor economists over the duration of unemployment, costs incurred with search activity, and costs of training a worker for a new job.

Following his analyses, McDiarmid evaluates labor market conditions in four developing countries, attempting ultimately to compute a ratio of the economic price to the money wage. In perhaps the most disappointing section of the book, he attempts to calculate an economic price using secondary, national data, neglecting his caveats concerning need for regional estimates. Peppered throughout the text are what McDiarmid himself terms "heroic assumptions" of data, particularly on unemployment rates, which could mildly be termed suspect.

Nevertheless, McDiarmid makes comparisons between Korea and Taiwan, two rapidly expanding, relatively full employment economies. Mindful of definitional differences in statistics and unreliability of estimates, he uses the existing data to present a very thorough discussion of effects of seasonality of agriculture, government intervention, and institutional constraints on the potential calculation of an economic price. Similarly, for Indonesia and the Philippines, two countries with problem underemployment and unemployment, the author presents a good analysis of the social costs of such factors as urban unemployment, resulting from rural-to-urban migration. McDiarmid was able to calculate, using these "heroic assumptions," ratios of economic price to money wage of 71 percent for Taiwan and 50 percent for the Philippines.

Development of the justification to utilize an economic rather than market price of labor, to incorporate social welfare costs and benefits in selection criteria for economic development projects, was thorough and judicious. However, his testing of this rigorous theoretical structure met with a typical frustration many researchers encounter: unreliable data. Use of primary sample data on a small-area basis might have reduced problems with unreliable data and provided a better test of the guidelines for developing an economic wage. However, the author's attention to the underutilization of unskilled labor for development, and the importance of incorporating the cost of externalities of employment in the economic price of labor, represent two important contributions of this book.

RURAL EMPLOYMENT DATA GAPS

*By Clark Edwards**

Rural residents of the United States tend to have less access to economic opportunity than urban residents. Consequently, their incomes are lower and poverty is more intense. Federal programs have been initiated to promote rural economic development and seek balanced regional growth. Monitoring the effectiveness of these programs and researching proposed solutions to rural development problems presupposes an adequate data base. Yet major gaps exist in the data base currently available.

USDA economists have developed a handbook describing sources of rural employment data.[1] These sources include censuses, samples, and administrative records. The handbook also contains an assessment of data gaps. Data assessed were for rural employment, but the method used applies equally well to other rural data series, including population, income, health, and education. Several causes of data gaps examined in the handbook are summarized below.

OBSOLESCENCE

People have asked whether agricultural data in the U.S. systems are obsolete.[2] This question implies that a data base once served the needs well, but that it has not changed over time as needs have. This is not the case with rural employment data. Rather, the nonfarm rural viewpoint was not considered when employment series were constructed. Some series measure farm employment and treat nonfarm employment as a residual, but over 90 percent of rural employment is nonfarm. Other series are national- and urban-oriented and treat nonmetropolitan data as the residual. Data for monitoring the economic well-being of the nonfarm, nonmetropolitan population have not been available, but now they are wanted.

INFORMATION NOT COLLECTED

There are some concepts for which no useful measures exist, simply because the data required are not collected. These include information on (1) local market structure, such as the degree of monopoly or competition in the rural labor market; (2) institutional arrangements, such as local laws, regulations, rule, and agreements which affect unions, zoning, or program benefits; and (3) values and attitudes related to the work ethic, quality of life, and nonmonetary rewards. More information also needs to be gathered to measure underemployment, hidden unemployment, quality of jobs and workers, and productivity.

Collection of ungathered data would close some data gaps, but would leave untouched other, perhaps more important, problems. The other problems arise because many data already collected are not as useful as they might be if small changes were to be made in the series, and many data that are collected are available for urban research and policy uses but not for nonfarm rural uses.

REPORTING UNITS

Data collected from households have limited value in analyzing establishments; and, if these data are reported as aggregates by county or State they have limited value even for analyzing households. Some data tell us where people live; others, where they work. Some tell us about social and economic characteristics of workers; others, about the prices and quantities of resources and outputs associated with the work done. The unit used in initial data collection may be a household; the unit used in reporting the data may be a county; and the unit desired for program monitoring and analysis may be a labor market area.

Differences in the units suitable for observation, reporting, and analysis cause data gaps. To close all of these would require a data base so vast as to be prohibitively expensive. Thus, these are gaps we must live with. But they can be lessened if more attention is given to standardizing the household and establishment units of observation and to reconciling reporting units with analytic units. In addition, public use samples might be developed which establish linkages between, say, an establishment and the households of workers in that establishment.

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[1] Clark Edwards, *et al.* "Employment Data for Rural Development Research and Policy," Econ., Stat., and Coop. Serv., U.S. Dept. Agr., EDD working paper no. 7809, 1978. Also available in: *Proceedings of Workshop on Agricultural and Rural Data*, Series B, Econ. Res. Serv., U.S. Dept. Agr., May 4-7, 1977.

[2] James T. Bonnen, *et al.* "Our Obsolete Data Systems: New Directions and Opportunities," *Am. J. Agr. Econ.*, Vol. 54, No. 5, Dec. 1972, pp. 867-875.

TIME

Most data collection methods involve inquiry into the status of the respondent as of a certain time. Occasionally, questions are asked about what the respondent was doing or where living, say, 5 years ago. These questions provide exceedingly useful information. But, for the most part, questions are not asked which allow for longitudinal studies of life cycles of establishments and households or for seasonal variations in employment patterns. Linkages, through social security numbers, of households in the 1970 public use sample to those in the 1960 sample illustrate the kind of time linkage which would increase the usefulness of the existing data base. Achieving such goals may not be easy. There are problems with privacy and confidentiality, accuracy of social security numbers, and additional costs. However, sampling techniques might be explored to circumvent these difficulties and to develop more longitudinal employment information from the existing data base.

PLACE

Rurality is in part a geographic concept. For rural development purposes, lack of geographic detail in published data is probably the most important source of data gaps. Rural data users want national data disaggregated into regional data. They want State data disaggregated into multicounty district data. And they want county data disaggregated into minor civil division data. Linkages among areal units are needed to trace flows of people, goods, and capital. Reports need to indicate where people live as well as where they work, where goods are consumed as well as produced, and where capital is saved as well as invested.

Many of the geographically specific data needed for rural development policy and research are collected but not published. Some data cannot be supplied because of rules of disclosure, the volume of detail which can be included in publications, and the statistical unreliability associated with sparse observations in small areas. These difficulties can be overcome. But to do so requires that we overcome the urban bias which currently underlies reported data. Present sampling and reporting practices emphasize national information first, then State, and finally county. Large metropolitan areas survive this priority scheme because they are densely populated and the data allow detailed cross-tabulation without the limits of disclosure rules or sparse observations. Small rural areas do not survive this scheme and much of the useful information collected remains unused in the collecting agency's files.

This rural detail could easily be made available to rural-oriented users. For example, consider the four-digit industry detail collected for the Census of Manufacturing. For a single rural county, there are usually so few establishments in an industry that the central tendency there will not be statistically significant. Further, if there are so few that publication of the data might permit identification of an individual firm, the data are retained to prevent such disclosure. But available data would support a table published in virtually full detail for the nearly 2,000 rural counties in the United States. Many data would be publishable for the nonmetropolitan parts of census divisions and regions, or of States. Rural development research and policy interests would be served if data now withheld for disclosure reasons were aggregated into rural combinations for which detailed employment and economic structures could be compared with currently published data for metropolitan areas.

The difficulty of excessive bulk if all collected data were published with maximum disclosable detail can be resolved with user-oriented data tapes, such as the public use sample tapes. Currently, special tapes are usually relatively expensive to obtain, edit, and learn to use. Reformatting these tapes for easier user access, and lowering the marginal cost to users, would increase the value of the existing data system.

UNRELIABILITY

Data are relatively more or less reliable dependent on the number of observations underlying a reported average, and also on the accuracy with which released data are edited. The statistical unreliability of sparse observations in small rural areas can be overcome either by aggregating rural areas into a larger geographic reporting unit as suggested above, or by increasing the sampling rates for rural areas in sample data. Recently, plans were made to expand the Current Population Survey (CPS) to include more rural as well as urban respondents. The sample was stratified to make employment estimates reliable at the State level. Perhaps when this sample is redesigned based on 1980 census information, it could also be stratified to provide statistical reliability for the nonmetropolitan parts of regions, divisions, or States.

Reliability problems associated with unedited data tapes which disagree with published data could be

resolved by regarding the tapes as one of the final forms in which official data are released, instead of as means to printing carefully edited reports.

Reliability problems associated with using statistical methods to impute rural area employment characteristics already in the file of reporting agencies could be improved by releasing more rural detail, as discussed earlier.

OPERATIONAL DEFINITIONS

Several data gaps occur because of the way the present data system is conceptualized. Alternative conceptualizations come slowly and they involve considerable interaction among policymakers, data suppliers, and researchers. For example, consider the limitation of the product-market orientation of the Standard Industrial Classification (SIC) codes. Employment, on the other hand, is a factor market concept, as are land and capital. There is often more variation in employment attributes within a SIC code than there is among codes. An alternative set of factor-market oriented codes is required which groups industries not by the similarity of outputs, but by the similarity of inputs. The development of an input-based industrial coding system is needed to monitor and analyze employment relative to capital, land, technology, water, energy, and the environment.

The initial conceptualization of a data series may appear differently to different persons. Until an operational measure becomes fixed in the statistical reporting process, there is opportunity for feedback and refinement in the conceptualization. For example, before a statistical measure of unemployment was developed, a policymaker might have expressed a vague and qualitative concern for an unemployment problem. A statistician's effort to measure the concept of unemployment would add precision, but might also change the meaning from that which the policymaker intended. Another statistician might collect and publish data based on a slightly different operational definition. One theoretician might define the unemployment according to neoclassical competitive equilibrium theory, which would change the concept. Another theoretician might redefine the concept according to the Keynesian model, again changing the concept. Interchange among the policymakers, program evaluators, statisticians, and theoreticians might eventually lead to a mutually agreeable concept.

On the other hand, they might not agree, in which case a version not mutually agreeable likely would be provided; later, opportunities to claim data gaps would arise. This lack of agreement on conceptualization currently creates problems in developing operational measures of underemployment and hidden unemployment. Some of the difficulties rural development researchers and program monitors have with employment data arise because problems concerning the basic conceptualization of the theory and process of rural development are not yet solved.

INSTITUTIONS SUPPLYING DATA

The separation of data suppliers from data users through increased institutional size, economies of scale, and specialization has many advantages. However, this separation has also been identified as a source of data gaps. Responsibility for determining data needs is frequently abdicated by the user, and the supplying agency is left to do the best it can with available time, ingenuity, and resources. Gaps in employment data for rural development could be reduced by increased communication and exchange among decision-makers who identify and respond to rural development problems, researchers who analyze and explain them, and data suppliers who collect information with which to describe them.

Users often do not know how to access the myriad of employment data now collected. More guides are needed, such as handbooks, data-oriented sections in professional journals, and user reports of data gaps encountered in program monitoring and research. The appendix referenced in footnote 1 is one example of a user guide. The now obsolete, out-of-print supplement to *Economic Indicators* is a better example.[3] Such handbooks should be updated periodically with reliable and useful information.

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In conclusion, many gaps exist in the data used for rural development research and policy. Some are formidable—their resolutions would not be cost effective and we must learn to live with them. Others can be ►

[3] *1967 Supplement to Economic Indicators: Historical and Descriptive Background.* Joint Economic Committee, U.S. Congress, U.S. Govt. Print. Off., Washington, D.C., 1967.

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(Continued from page 46)

narrowed at nominal (virtually zero) cost, simply if small changes are made in data collection and reporting methods. Some of the most troubling gaps for data users appear to stem from reporting agency bias. Agricultural agencies, focusing on farm data, fail to collect and report related rural nonfarm information. Other agencies are urban oriented; application of agency rules and habits as to disclosure, volume, and reliability result in a relative abundance of urban detail. But the rural-oriented detail collected is never made readily accessible to rural-oriented users.

The rural point of view is often not presented in meetings in which changes in census, sample, and administrative data are discussed. Sometimes a data gap can be closed by slight changes in the way a question is worded on a questionnaire, a sample is stratified, or sorting and merging is done that underlies the publication of a table. Relatively large gains can be had at nominal cost if the rural point of view is expressed at the appropriate moment in the planning process. Rural employment data users should become more involved with the development of rural-based data series. To achieve this end, nonfarm rural interests should have greater representation on Federal data committees.