# Book Reviews

## Energy and the Food System

**Food Production and Consumption**. The Efficiency of Human Food Chains and Nutrient Cycles. A. N. DUCKHAM, J. G. W. JONES, and E. H. ROBERTS, Eds. North-Holland, Amsterdam, and Elsevier, New York, 1976. xx, 542 pp., illus. $48.95.

It is a fascinating challenge to an economist to review this book on the efficiency of human food chains and nutrient cycles. Economics is, after all, the science of efficient allocation of scarce resources to meet human needs. Economists have long argued that with the "right" prices and with all externalities considered, cost-benefit analysis provides investment and consumption allocation rules that maximize social welfare within a given income distribution. A corollary of this basic theorem is that no single unit measure of efficiency, whether output per hectare, per man-year, or per joule of incoming solar radiation, provides an appropriate criterion for making either private or social decisions.

A new perspective has emerged in the past decade to challenge economists' stranglehold on decision criteria. In the words of the editors of this book, "For long-term planning, energy is a more basic currency than cash since cash values are subject to ephemeral and artificial fluctuations" (p. 499). Thus the book uses the efficiency criteria of energetics rather than those of economics to judge the human food chain, from incoming solar radiation to final digestion of dry matter, protein, vitamins, and minerals by the human biomass. The book contains chapters describing the ecological and biological processes that play a role in human food chains and nutrient cycles as well as chapters on the social and economic aspects of the subject.

The finding that only about 0.4 percent of the net photosynthate that could be formed on cultivatable land is actually eaten by humans conditions the entire orientation of the book. The finding makes the inefficiencies in the demand sector (level of income, distribution of income, price levels, habits and tastes, and so on) look small. And so the various authors concentrate on the production side, arguing that it is there that the large gains can be made and that "increasing supply by biological improvements in order to meet biological and economic demand may be politically and socially more acceptable . . . than attempting to satisfy biological demand between, and within, countries and households by political and social means. . . . The aim should be to double or treble supply, at household level, by biological means at the lowest economic cost, with minimal social upheaval, with minimal support energy and with the minimal number of decision makers" (pp. 513–514).

Even an economist can recognize an overobjectified system when it is as obviously so as this one. It is impossible to minimize economic cost, social upheaval, support energy, and number of decision-makers simultaneously. Clearly, some trade-offs must be made, and it is precisely the need to cope with trade-offs that makes the decision criteria of economics and not those of energetics the ones of choice. Economics forces decision-makers to consider alternative outcomes, which usually have different political implications, and it is economics and not energetics that offers the means to calculate the various outcomes in the face of a large number of inputs and objectives.

Given such a perspective, the approach taken in the book under review is problematic. The decision to treat the demand issues as relatively unimportant in the task of feeding the world to the year 2000 flies in the face of the recent National Academy of Sciences World Food and Nutrition Study, which gives the issue of food access at least as high a priority as that of production. The concentration on supply efficiencies leads, almost inevitably, to some inane and naive recommendations and observations, such as that "potentially cultivatable areas which cannot now be used because of pests and disease problems should be brought into cultivation, especially in potentially or currently densely populated areas" (p. 474) and that "the poor in developing countries often do not spend enough money to satisfy their biological demand" (p. 465).

Obviously any value the book has must lie in other areas, and it does make several valuable contributions. Energy flow through the agricultural and food system is a useful concept by which to organize an extraordinarily complex subject, and some of the observations about the relative energy efficiencies of different systems may point to productive research opportunities. The chapter by Leach presents this view well and should prove a valuable reference for those not prepared to read his book on the topic. Similarly, the complexity of the food chain forces most authors to use at least conceptual models. Charlton has provided an elegant chapter on the use of models in systems research. He is properly skeptical and enthusiastic at the same time. His influence is felt throughout the book and is no doubt the reason no full-blown model of the system is actually attempted.

For all the flaws and the biased perspective, the book is a major attempt by eminent scientists to address the most pressing problem of our time. Good science by itself will not eliminate world hunger or diet-related diseases of affluence. But good science will play a major role in delimiting the options available in the short run and widening them in the long run.

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## Housing Choices

**Environmental Choice, Human Behavior, and Residential Satisfaction**. WILLIAM MICHELSON. Oxford University Press, New York, 1977. xx, 404 pp., illus. Cloth, $10.50; paper, $6.50.

William Michelson's book reports on the first major longitudinal study of housing conducted in North America, a study of more than 750 households in metropolitan Toronto, each of which was interviewed immediately before a move and at subsequent points ranging up to slightly over four years after the move.

Michelson attempted to explore the questions "who moved where?," "why?," "how did they like it?," "how did it affect their behavior?," and "what were their future plans?" The questions are obviously not independent, and it is the interactions between the answers to

them that form the basis of some of the more interesting findings.

To structure the study, Michelson defined four residence/location categories combining one of two housing types, high-rise apartment or single-family detached home, with one of two locations, downtown or suburban. In addition, he limited the study to middle or upper-middle income married couples and families for whom any of the four categories was (theoretically) economically feasible.

The answers to the questions "who moved where?" and "why?" are not very surprising. The general assumption that families who have children and who are concerned with their neighborhood and interested in access to open space will move to suburban single-family homes and that childless couples who are interested in access to such amenities as theaters, museums, and restaurants will move to downtown apartments was clearly supported. The myth that persons who have experienced high-rise living will be more likely to opt again for that kind of residential environment was clearly shattered.

In general, all the households studied were highly satisfied with the type of residence and the location they selected. For the most part, the problems with the previous home that were given as reasons for moving seemed to have been eliminated in the new dwelling. At the same time, expectations about the attractions of the new dwelling seemed to have been met. Downtown apartment dwellers immediately began taking advantage of the amenities of their new locations. Residents of suburban single-family homes tended to take longer, upwards of a year, before feeling comfortable and experiencing the benefits of their new homes. The lowest level of satisfaction was voiced by people living in suburban apartments.

There is a long-standing debate in the housing literature about whether households adopt behavior because of their residential environment (housing type and location) or select their residential environment in order to facilitate either current or intended behavior patterns. Michelson's findings, although mixed, appear to support the self-selection hypothesis. With few exceptions, his respondents indicated that they selected the residence type and location that would best facilitate their desired behaviors.

Regardless of type of residence and location, most households indicated that their ultimate housing ideal was a single-family detached home, which was seen as providing the best living environment for a family. Most of the respondents also stated that their ideal location was suburban. This seems at variance with the high levels of satisfaction expressed by downtown apartment residents. The resolution of the inconsistency lies in the short-term satisfaction of what Michelson calls interim housing objectives. Although most households evidenced an ultimate preference for a single-family dwelling, those that selected apartments, particularly downtown apartments, saw as more immediately important the satisfaction of intermediate objectives—easy access to entertainment, cultural activities, and places of work—that they saw as short-run concerns. Indeed, people in apartments tended to be highly mobile, to have children during the study period, and to have a high expectation of moving soon. A large proportion of them moved a second time during the study period, many to single-family homes. All these households acknowledged that they satisfied their short-run objectives while they were living in apartments. Apartment-dwelling households who for one reason or another could not move tended to be least satisfied with their dwellings while residents of single-family homes tended to be most satisfied, regardless of whether or not they expected another move in the near future.

This review has consciously focused on the polar extremes—those living in downtown apartments or suburban single-family homes—and in so doing has done an injustice to Michelson's work. Some of his greatest insights have to do with those living in the two intermediate residential environments. He suggests that there is a strongly dedicated, highly satisfied, and nontransient group of people preferring downtown single-family homes, a preference that is seriously threatened by the current trend to replace downtown homes with high-rise apartments. On the other hand, suburban apartment residents tend to be dissatisfied, saying that their housing has all of the negative aspects of apartments and suburbs without any compensating benefits. In addition, suburban apartment residents have the lowest expectation of bettering their housing situation.

Michelson's study adds an important dynamic element to our understanding of residential choice and residential satisfaction. Households do not view each residential choice as a stepping stone along a linear progression to the ultimate dwelling. Instead, they perceive each dwelling as a means of satisfying objectives that are important at a given time. The implications of this pattern are immense, and Michelson explores them briefly in the final chapter. His book offers valuable insights for those concerned with housing as an element in social behavior, as a physical artifact, or as a major policy concern in urban areas.

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## Decisional Problems

**Decision Making.** A Psychological Analysis of Conflict, Choice, and Commitment. IRVING L. JANIS and LEON MANN. Free Press (Macmillan), New York, and Collier Macmillan, London, 1977. xx, 490 pp., illus. $15.95.

This book is about decisional problems with which we are all familiar either by firsthand experience or by observing others. Jane blithely ignores information that she would benefit from more exercise; Bill unquestioningly follows his broker's suggestion to invest in utilities; the chairman of the department is so upset about the possible loss of undergraduate enrollments that he won't even talk about it, let alone decide what to do; and when Mary, top student in her class, gets her Ph.D. and is given three days to accept or reject a job at Slipshod State, she panics and takes the job before she knows what other possibilities are available. Faulty decisions can be understood as the result of normal psychological processes, according to Janis and Mann, who believe such decisions can be eliminated or at least minimized.

The authors conceptualize decision-making not as a single act at a point in time but as an extended process that includes the acquisition and evaluation of information prior to choice, some degree of commitment to one of the choice alternatives (resulting in the decision), and a postchoice phase during which the individual continues to process information relevant to the decision. Indeed, the postchoice phase may never end because new information can challenge the decision and result in a new decision. Information-processing both before and after the decision can be active or passive, biased or unbiased. The heart of the theory is the character of this information-processing.

The theory, which is prescriptive as well as predictive, stipulates conditions under which the predecisional search for and appraisal of information will be inadequate or biased and, more generally, conditions under which good or bad de-