Beyond Economics and Nutrition: The Complex Basis of Food Policy

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Governmental nutrition policy, given appropriate conditions for the feasibility of its development, is determined by the body politic. Inasmuch as nutrition is usually recognized to be, at least in part, a technical area, scientists (health specialists, nutritionists, and economists) are generally called upon to advise legislators, cabinet ministers, and planners in the formulation and implementation of policy.

Let us at the outset recognize that scientists have had a considerable favorable influence in the past 50 years, not only in their purely technical roles (for example, quantitative definition of nutritional requirements) but also in an ethical framework (such as implicit recognition that all human beings must be fed a similarly adequate diet). This article, however, is not concerned with past achievements but with trying to examine the factors that are hampering the development of practical and acceptable policies in the fields of foods and nutrition. In particular, we shall analyze the disciplinary limitations that prevent physicians, nutritionists, and economists from working together with governments to present coherent, broad-based plans in these fields.

Object of a Nutrition Policy

We shall assume in this article that the government has decided that adequate nutrition for all the people is an appropriate national goal, as an alternative to the traditional practice of letting nutrition status be secondary to agricultural policy, foreign trade, health policy, social policy, and economic conditions (*1*). This being accepted, there are a great many different possible means, some direct and some indirect, for bringing about positive nutritional effects. A number of such means are listed in Table 1 (*2*).

Consideration of this table shows that means of influencing the state of nutrition are extremely varied. This observation, evident to the nonspecialist, is often lost sight of by nutritionists, physicians, and economists, each of whom tend to consider only those means which can be activated exclusively within the confines of their own disciplines. Thus, physicians will usually be concerned solely with medical intervention—whether preventive, curative, or rehabilitative—dealing with deficiency diseases, nutrition-related infections, and degenerative diseases. Nutritionists will be concerned with supplementary feeding, nutrition education, food advertising, and labeling. Economists, if they are at all concerned with levels of food consumption, will consider measures having to do with production, imports, and income policies. The consumer is perforce broader in his interest and will be aware, however inchoately, of a multiplicity of factors impinging on his nutritional well-being.

Inadequacies of Present Models: Rationing Model

While nutrition scientists may be uniquely qualified to define nutritional targets and goals, they sometimes are strangely unsophisticated in discussing the means to be used in reaching these objectives. Their models seem almost uniformly to be based on considerations that are applicable only under conditions of total war and are carried out by a well-informed government, a large and well-organized bureaucracy, and a highly disciplined population (such as in Britain in World War II). Under such conditions, food supplies are tailored to physiological requirements for nutrients by strict rationing systems. The social conditions are adjusted so that everyone can obtain the foods covering the requirements ascribed to his or her classification (sex, age, reproductive status, and intensity of physical labor). In turn, the national procurement policy is conducted so as to cover the collective national nutrient requirements. At most, adjustments are made from time to time to replace certain sources of calories and nutrients by equivalent amounts of appropriate alternative foodstuffs. That such systems, based on the calculations of nutritionists, worked as well as they did in the United Kingdom and in Switzerland during World War II is a tribute to the scientists, the governments, and the populations of these two countries (*3*). A less elaborate system worked reasonably well in the United States at the same period. However great these achievements, similar rationing schemes do not represent satisfactory models for peacetime food and nutrition policies in countries, whether wealthy or poor, that do not have simultaneously the scientific resources, the organized bureaucracy, and the coercive governments necessary to carry out nationwide, prolonged rationing schemes. Total control of production, distribution, and information is needed for such programs to be successful, and there is a question as to whether, even under such conditions, rationing can go on indefinitely. Awareness of the inevitable inequalities and inefficiencies eventually destroys the best-planned directive measures for food control. While consumers may be willing to undergo inconvenience and deprivation during wars and revolutionary periods, they are usually loath to do so indefinitely. It is a misconception to believe, incidentally, that the centrally planned economies of Eastern Europe and Asia have succeeded in implementing nondemand nutrition policies while the capitalist countries have lagged behind. While centrally planned economies do have food production and income policies, they do not usually have integrated nutrition policies as such, and many of their purported nutrition policies are not necessarily appropriate or successful. It is a gross oversimplification to believe that a centrally planned socialist economy means that problems of demand have been eliminated and that supply is automatically adjusted "to each according to his needs."

The prerequisites for highly central-

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ized direction of all aspects of the food supply do not exist at present in most countries. Thus, models for intervention other than adjusting supplies and distribution directly to requirements must be sought.

Controlled Demand, Nonincome Models

While most nutritionists are resigned to the idea that they cannot, under normal conditions, control supplies, they often strive for a utopia in which they control demand. Their ideal is a development of popular nutritional awareness so total that price, income, and taste can be eliminated as factors of practical importance in determining demand. They often forget the primacy of economics in influencing patterns of consumption and concentrate almost exclusively on the duel (indeed, the crusade) of education against advertising, which, in their view, represents the decisive factor in determining what people will eat. For many nutritionists, this viewpoint leads directly to a yearning for a directive banning all food advertising. In their view, the elimination of this enemy would lead in due time to the provision of a balanced diet for all consumers. Unfortunately, while there is abundant evidence that demand can be modified to a degree by limiting or eliminating unjustified claims or misinformation in food advertising, as well as by consumer information and health and nutrition education, there is also overwhelming evidence that such economic factors as price and income have at least equal importance, if not much greater influence. To focus exclusively on the cognitive aspects of food choices to the exclusion of economic means of intervention is to limit drastically the possibilities of implementing a nutrition policy.

Ignoring actions that modify supply as well as demand is to be equally myopic and self-limiting. Whether the middleman, fast food service institutions, food processing, "factory farming," agribusiness, and the entire food distribution system are in any way villains, which some groups declare them to be, is of little significance. The fact is that every component of the food system can be acted upon to bring about improvements of the nutritional status of large numbers of people. Similarly, income policies are crucial to raising the nutritional levels of large numbers of people. The most successful nutrition education system and the total elimination of noxious advertising, however desirable, will not substitute for an income adequate to bring an inexpensive but nutritionally satisfactory diet conforming to national preferences. Unless all these factors are taken into account in the elaboration of a planning model, the development of a sound nutrition policy is seriously hampered.

Economic Models That Are Not Health-Directed

Economists suffer from their own limitations. They are unwilling to pay much attention to those commodities that do not travel through channels of trade (in fact, most of the foodstuffs produced in subsistence farming areas) or to those commodities—fruits, vegetables, and small amounts of homegrown animal products, human milk, eggs, rabbits, and the like—that make a considerable contribution to good nutrition but are difficult to quantify. They thus arrive at such statistics as calculating average incomes for entire populations as equivalent to, say, less than $50 a year, a conclusion that does not lend itself to any international nutrition comparisons. Another bias of economists is their preference for theoretically cost-efficient measures such as fortification with added nutrients, however impractical and inadequate these measures usually are in the developing countries that are supposed to benefit most from them. It sometimes seems that the economists' models, consisting as they do of quantifiable food tonnages that move or can move through channels of trade and of the products of industrialization, suggest an ideal diet made of a homogeneous mixture of the dominant regional cereal (preferably one variety), and one variety of soybean, this mixture to be fed to humans or farm animals, to travel, or to be distilled depending on available systems and local incomes. If health problems are taken into consideration at all, they are often dealt with through suggestion of appropriate fortification with vitamins and amino acids. However convenient the oversimplified diet of economists may be for the purposes of international negotiations (the Rome World Food Conference dealt almost exclusively with cereals, with few mentions, at most, of soybeans and sugar), it bears little resemblance to the diets that are examined by health and nutrition workers for nutritional adequacy. The two groups must come closer in their definition of "food" if adequate food and nutrition planning is to evolve.

Prerequisites for Joint Planning

We must emphasize that economists and planners appear unreceptive to qualitative statements, however well

Table 1. Actions and interventions that may alter nutritional status.

Category	Action
Need	Actions affecting health and biological utilization of food
	Supplying missing nutrients on either a prophylactic or curative basis
	Alterations of environmental sanitation that have indirect impact on health and biological utilization of foods
	Altering physiological requirements of persons by environmental manipulation
	Surveillance and treatment activities to assess special nutrient needs of the ill or otherwise handicapped
	Actions or events decreasing the numbers of persons at risk of malnutrition by various means
Supply	Altering production factors (land, labor, capital, technology) or inputs needed to raise food
	Changing type of foods produced or how they are used
	Altering processing and manufacturing of food products
	Altering marketing efficiency
	Foreign trade regulations modifying the food balance of a country
	Provision of food aid to the poor within the country or from abroad via food distribution programs which, in effect, transfer food or purchasing power specifically for food from more affluent to more needy groups
	Enrichment or conservation of food in the home or at the point of consumption
Demand	Increasing income by raising gross national product, or distributing income to poverty groups so as to increase their purchasing power
	Government interventions to affect price structures and hence demand
	Government programs to influence consumption
	Education
	Altering food habits and mores
	Favoring or promoting conservation of breast feeding and increasing its prevalence and duration

established. The statement that problems of malnutrition are severe and must be eradicated is unlikely to bring about changes in their economic plans. Their tools involve quantifiable variables, and unless the problems are presented to them in quantitative terms, they are unable to grapple seriously with them. Specifically, the information they require is the following: (i) the size and nature of the malnutrition problem, expressed in terms of the demographic and socioeconomic characteristics and number of persons who are malnourished or at risk of malnutrition; (ii) short-term and long-term targets, again in quantitative terms; and (iii) yardsticks for measuring progress.

Before these data are furnished, little is likely to be done. At the same time (except for extreme emergencies, when cases of starvation, edema, severe weight loss, or acute deficiencies can be counted with little margin for disagreement between experts), the data economists want are in the very areas where clinicians and nutritionists are most loath to come out with flat, numerical statements. Health professionals will agree that the definition of malnutrition —entailing, as it may, choices between clinical, anthropometric, biochemical, or dietary criteria—is uncertain and subjective; that the standards for all of these criteria are arbitrary; and that small variations in cutoff points will yield widely different prevalences of malnutrition. Faced with this confusion and lack of agreement on the part of health and nutrition experts, economists and planners are likely to ignore the problem of malnutrition or to go ahead on the basis of indirect but quantitative estimates, such as a "poverty line" based on income, or budget study data compared with the food purchases of "representative" families. In the United States, it was only in the 1970's that partial baseline data on malnutrition were obtained in the course of the Ten State Nutrition Survey (*4*). Even then, nutritionists were hard put to summarize clearly the results of this (partial) survey or to recommend targets for action and yardsticks for measurement of progress.

Nutrition scientists must be encouraged to formulate serviceable definitions of malnutrition that can serve as necessary bases for action. Definitions worked out by nutritionists, although not infallible, should come closer to the realities of health than do those worked out by economists, managers, and politicians. That the politicians have been willing in the past to attempt such definitions, unaided as they were by specialists, has been in many cases the prime impetus to development of socioeconomic conditions leading to better nutrition.

Who Are the Nutrition Experts?

Nutritionists have another complaint about economists and planners for which lack of communication between the two groups must again be blamed. They understandably object to the unfortunate tendency of economists to check with the wrong people when matters nutritional arise. In the absence of a permanent, constructive dialogue with nutritionists, the economist, when faced with claims that economic and agricultural conditions are leading to many people being ill, logically enough calls in a physician as adviser. Unless the economist is particularly well counseled or lucky, he or she may, however, have the wrong adviser. The reasons for this are several.

First, deficiency diseases and diseases exacerbated by malnutrition are overwhelmingly diseases of the very poor, the class least likely to be seen routinely by physicians. When the poor finally receive medical treatment, usually very late in the natural history of the disease process, the nutritional factors in the etiology and pathogenesis of their health problems may be camouflaged by other, more dramatic medical conditions that have also gone untreated, and the underlying malnutrition may be disregarded.

Second, in developing countries and even in rich countries, the poor are least likely to be seen by the influential private physicians or senior academics among whom advisers to planners are likely to be recruited.

Third, throughout the world, and particularly in the United States, senior physicians are more likely to be enthused about dramatic methods of curative medicine than about the drabber, although ultimately more useful, preventive aspects of medicine, of which nutrition is the most important example.

Finally, even when physicians are conscious of the importance of nutrition as a discipline, they are almost invariably unable to translate "nutrition" into foods and their relation to habits and patterns of various socioeconomic and ethnic groups, or, for that matter, into the nuances of microeconomics and food distribution within the family. Thus, their opinion in feeding programs, food assistance interventions (whether in the form of money, food stamps, or other distributive measures), nutrition education, consumer education, and so forth, are generally far less factually based and authoritative than their views on, say, the etiology and treatment of acute diseases. Unless the physician asked to serve as adviser on nutritional problems is well versed in epidemiology and public health nutrition and has some knowledge of food science and the sociology of nutrition, his advice may be useless or misdirected.

Nutrition, Socioeconomic Analysis, and Advocacy

All too often, nutrition scientists seem unable to correlate their findings about the state of nutriture of individuals with socioeconomic variables. This inability, coupled with overcaution in analysis of economic determinants of consumption, means that advocacy is all too often left to consumer spokesmen with no real understanding of health priorities in human nutrition. The often exaggerated or inaccurate statements of such spokesmen, instead of prompting nutrition scientists to take over the advocacy role and put it on a firm factual and scientific basis, seems, on the contrary, to frighten them even farther away from such a role. As a result of this attitude (probably due to overdefensiveness about their colleagues' opinion), interventions necessary to correct nutritional inadequacies are not undertaken, and no systematic trials and evaluations are conducted to assess what the best method for attacking nutritional problems may be or what progress is being made. As an example, since the 1969 White House Conference on Food, Nutrition, and Health (*5*), federal expenditures on food programs (food stamps, school lunch and breakfast programs, summer food programs, community meals and meals-on-wheels for the elderly and shut-ins, and special programs for pregnant and nursing women and infants) have risen from $600 million to over $6 billion without adequate monitoring of their relative effectiveness. The surveillance of the state of nutrition of the nation, recommended by the conference, has not been organized, and the American people have gone through a massive change in the nature of the food supply, massive increases in the price of various foods, profound changes in welfare and

social security legislation, a deep economic recession, and an explosive increase in the size of government food programs without any serious effort being made to follow the consumption levels of the various groups in our population. Indeed, the decennial consumption survey conducted by the U.S. Department of Agriculture has been postponed by at least 1 year. The moribund state of nutrition as a tool in social engineering encourages its neglect by economists and the filling of the gaps by amateurs and extremists.

Nutrition and Public Education

A recent essay on science literacy distinguishes three distinct but related forms: practical, cultural, and civic (*6*). This framework can also be used to determine the objectives of nutrition science orientation needed by various members of society.

The most obvious need of laymen is for practical nutrition advice given in ordinary language. Such knowledge can be coordinated with that given in formal educational settings. The bulk of the informational effort should be coordinated through the nonformal mass media. Nutrition scientists should be involved in the preparation of this message, but are they always qualified? Who are those nutritionists? Those falling under this umbrella term may include those having doctoral degrees in the biochemistry of nutrition, food science, or public health nutrition; physicians specializing in clinical nutrition; dietitians; home economists; food technologists; and educators with special expertise in food and nutrition. Unfortunately, the top of the pecking order belongs to the biochemists and clinicians, who, however deep their knowledge of intermediary metabolism or the treatment of acute conditions, are rarely prepared to dispense the necessary advice on menu planning, food buying, and food preparation. Their social concerns incline heavily toward support of research and academic institutions, and most of them have not bothered to inform themselves seriously about consumer problems. The situation is complicated by the fact that specialists are usually extremely timid at dispensing information about fields other than their own. Thus, a biochemical nutritionist will not be willing to publicly hazard an opinion on additives or food prices. For the general public, these are part of nutrition, and our expert is immediately classified as useless. The home economists are usually better prepared to give advice on a broader range of public concerns, but even they are usually afraid to venture in some fields, such as food toxicology or food assistance programs, and their prestige is low as compared with physicians and scientists.

Cultural nutritional literacy must be instilled in as large a part of our population as possible if nutrition considerations are going to be incorporated in the culture and broad academic programs. Nutritionists all too often fail there as well. Instead of making a serious effort at teaching the science of nutrition to the intelligent public, they have all too often insulted it by presenting it with quasi-scientific utterances about "good food habits," "balanced diets," or the "basic four," which tend to be vague, uninteresting, and, in the case of the last example, misleading. Fortunately, we are beginning to see some interesting and scholarly and at the same time readable approaches to nutrition as a cultural topic.

Our major concern here being with nutrition policy, it is the element of civic nutrition education that is crucial for our purpose. The aim of imparting civic nutritional literacy is to enable professionals, both those specialized in nutrition and those whose actions affect nutrition, to become more aware of the nutrition-related issues and to interpret those issues in policy-making. Such civic literacy involves some acquaintance with a broad range of issues, from agricultural policy to health to related social and economic issues. Civic literacy implies an interest in numerical, nationwide data on nutritional problems, an ability to evaluate advocacy, and to follow public actions likely to affect the nutritional well-being of large sections of the nation's population. In an increasingly interdependent world, civic literacy involves seeking information, forming quantitative opinions, and endorsing action on the international plane as well.

Misclassification of Nutrition Intervention

In the absence of qualitative baselines, yardsticks, and targets pegged to nutritional health, it is understandable that economists all too often neglect health as a major aim in considering policies affecting food and nutrition. However, they often also fail to realize that certain "nutrition" programs may have objectives that far exceed the narrow nutritional goal that dominates their classification. For example, the nutritional benefits derived from such popular programs as the community meals for the elderly or school lunch could be hard to justify on a cost-effectiveness basis: they both, at best, supply a fraction of the total number of meals consumed during a year; the same amount of money put, for example, into food stamps should guarantee more nutrition. On the other hand, if they are regarded as distributive measures with social welfare spin-off benefits, such as decreased isolation and increased opportunity for health surveillance and education of the elderly, socialization and nutrition education of children, and employment of neighborhood mothers as school lunch aides, the yardsticks applicable become quite different. Even though both the lay public and most nutritionists look at them as food and nutrition programs, the fact is that nutrition is not the only or even the main aim of these activities.

On the other hand, programs that are not thought of as nutrition programs by either nutritionists or economists may have a great deal to do with nutrition. These include actions that affect income and prices (particularly food prices). For example, the levels of family assistance allowances, social security, the coverage of minimum wage legislation, the broadening of the vesting of pension rights, unemployment insurance, and the price of the main staples are all of major significance to the nutritional status of much of the citizenry.

Nutrition and Planning of Economic Development

Economists are inclined to view nutrition as one of the unproductive personal and social expenditures that compete with reinvestment. Improvement in nutrition is thus seen as inimical to economic development. The case can be made, however, regarding nutritional expenditures as being, at least in part, an investment: it is becoming clearer that malnutrition during pregnancy, infancy, and early childhood may produce (*7*) serious consequences for physical and mental development. Large expenditures in health and education later may be necessary to partly reverse these defects, whereas good nutrition during the growth period may

contribute positively to productivity. Moreover, nutrition may also be thought of as an organizing principle for development of a sound, stable food industry and its ancillary activities such as packaging and for cutting down food waste, a major factor in all countries.

Neglect of nutrition considerations tends to lead economists to neglect small agricultural enterprises and subsistence agriculture, and thus to ignore the major part of the population in developing countries (*8*). The neglect of the importance of fruits, vegetables, small domestic animals, and small-scale production of animal products, which are the major sources of many nutrients in the diet, has led even rapidly developing countries to nutritional disasters at the same time as their gross national product was shooting upward. Ironically, lack of understanding of the role of foodstuffs other than those that are less perishable (cereals, legumes) or easily counted (large farm animals) leads to production figures which are usually underestimates and, hence, to costly mistakes in planning, particularly in import policies. In developing countries, this systematic bias, together with that voluntarily introduced by tax-shy farmers with regard to their production figures, means that consumption studies conducted by home economists often offer a better basis for the evaluation of production figures than do surveys directly attempting to obtain such figures.

Fortification and Other "Instant" Solutions

Economists are constantly on the lookout for cheap and relatively straightforward solutions to nutritional problems. This occasionally degenerates into unwarranted enthusiasm for unproven solutions, such as fortification of staple foods with imported synthetic amino acids. Certainly, there are some well-established examples of the benefits of certain types of fortification. The elimination of goiter through iodization of salt, of rickets and osteomalacia through the fortification of milk with vitamin D (or periodic administration of large doses of vitamin D), the decrease in dental caries through fluoridation of water supply, and the prevention of blindness related to vitamin A deficiency through periodic administration of large doses are well documented. The benefits of other types of enrichment are often more doubtful. Recent data suggesting the importance of fiber and the deleterious effects of high levels of saturated fat, cholesterol, and sugar in the diet add to the complexity of nutrition policy and make us wary of instant solutions. Nonetheless, nutritionists may sometimes be too leery about the possibilities of enrichment and fortification, and prefer instead to advocate foods rich in the missing micronutrients as supplements to the diet; generally, these foods are so expensive that their cost far exceeds that of the enrichment-fortification approach and thus limits the number of persons that can be reached.

Nutrition and the Limitations of Macroeconomics

Understandably, perhaps, in view of their training, economists take as gospel the dictum that the primary way to change demand is by income and price alteration. While they are willing to give lip service to education, they are unlikely to take it seriously as an effective intervention technique. Elasticity coefficients derived from income and price relationships in the past are taken as being predictive of what will obtain in the future. Unfortunately, as we have seen in the recent past, in both meat glut and meat scarcity situations, these coefficients do not tell the whole story, however useful they may be.

Furthermore, focusing on aggregate supply and demand may lead to overlooking the importance of certain intervention tactics on groups with low effective demand, such as the poor. Similarly, focusing on society as a whole may lead to ignoring the effects of interventions on young children and other nutritionally vulnerable groups, who are unable to vote with their purchasing power. Children's diets may be exposed to nutritional risk by the interplays of supply and demand at the macroeconomic level, but also at the microeconomic level of the family. Greater attention must be devoted to microeconomics, especially as it applies to individual family members, in the analytical studies of economists.

Essential as income is to nutrition, the problems of malnutrition cannot automatically be solved by income increments. Food beliefs, other health practices deleterious to nutritional status, and maldistribution of food within the family may still be a problem. Also overlooked are the pressures of other felt needs, such as the buying of consumer goods, which may take precedence over nutritional needs as perceived by the family purchasing unit. Income is spent in a variety of ways, only one of which is food. What is seen by the family as discretionary income may vary greatly from one household to the next. Also, even if discretionary income is spent on food, it may be spent on foods that in fact do little to improve nutritional status.

Beyond Food and Economics to Nutrition Policy

Physicians, nutritionists, and economists are not likely to solve the problems they must address within the realm of food policy simply by trading disciplines. Their disciplines are too narrow for this to accomplish much. What is necessary is beyond all of these disciplines, and involves policy-planning objectives based on broader considerations than dollars or health considerations alone. Other humane considerations based on other human values and views must be taken into account. Such policy-planning involves a fusion of disciplines, with different (for instance, health) objectives than would be usual for the discipline of economics and broader intervention strategies than the other professionals would normally employ.

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