special article

The resource allocation process in nutrition policy planning

John A. Quelch

Public policy makers are devoting increasing attention to nutrition programs. Most recently, for example, the Subcommittee on Domestic Marketing, Consumer Relations, and Nutrition of the House of Representatives Committee on Agriculture has held hearings on the role of the Federal government in nutrition education. Pressure from consumer groups, nutrition professionals, and others, to expand the resources allocated to nutrition programs has prompted an interest in the development of a national nutrition policy to coordinate these programs within the framework of a common set of objectives (1–4).

The increasing importance of nutrition programs is a result of the suggestive evidence of linkages between dietary behavior and disease, and of the rising costs of medical care. Although evidence regarding the effectiveness of preventive care programs is equivocal, they retain an appeal based upon the prospect of substantial savings in curative treatment expenses and the low capital investment which they require relative to curative programs. Furthermore, it is possible that a critical minimum level of resources must be committed to preventive programs before they yield substantial results— and that this level of commitment has not yet been reached. Some proponents of nutrition programs regard them as complementary to curative treatment, while others regard them as partial substitutes at lower cost. Either way, these programs are increasingly being justified in their own right in terms of preventive health care, rather than simply as vehicles for income maintenance or food surplus disposal.

At the same time, several factors may restrict the allocation of increased resources to nutrition programs. First, it is as difficult for legislators and policy makers as it is for consumers to identify the impact of investing time and money in good nutrition. Given the pressure on these groups to demonstrate effective usage of taxpayers’ money in the short term, there may be a temptation to invest funds in highly visible health care technology rather than in comparatively mundane nutrition programs which may have a broader reach, but the impact of which is less readily measurable and more long term. Second, providers of curative care may be unsupportive of any increase in the relative emphasis placed upon preventive programs on the assumption that, if successful, they may detract from the prestige and resources traditionally accorded to the curative sector. In fact, preventive programs with a broad reach may identify more consumers in need of curative care, and may also heighten consumer sensitivity to health and illness, such that pressure on the curative sector is increased rather than diminished. Third, the spiralling costs associated with the administration of existing nutrition-related programs, particularly the school lunch and food stamp programs, may have made some legislators wary of funding further nutrition programs. In fact, the burgeoning expense of these programs has been more a function of their social welfare objectives than of their nutrition-related objectives. Nevertheless, these expenses may suggest that nutrition programs can readily assume a costly social welfare overlay—a factor that may limit the enthusiasm of some legislators and policy makers.

Despite these limitations, increasing con-

1 From the School of Business Administration, The University of Western Ontario, London, Canada N6A 3K7.

2 Assistant Professor.
RESOURCE ALLOCATION PROCESS IN NUTRITION POLICY PLANNING

Consumer concern in the nutrition area is likely to result in growing allocations of resources to nutrition programs and in further discussion of the need for a national nutrition policy. While the details of such a policy are beyond the scope of this paper, the likely focus will be on food consumption behavior, as it impacts the nutritional status of the population. Criticisms may be made of the dietary goals prepared by the staff of the Senate Select Committee on Nutrition and Human Needs on the grounds of inadequate scientific evidence, lack of universal applicability, and lack of regard for the economic and political feasibility of implementation (5, 6). However, the publication of a set of specific and quantifiable dietary goals, however controversial, represents a significant advance over well-intentioned but general statements of objectives. Such statements are of little value to the policy maker faced with decisions regarding resource allocation among alternative programs because they lack precise operational definition. Since performance criteria are commonly a reflection of policy objectives, it should be clear that the precision with which resources are allocated is a function of the specificity of objectives.

Ideally, the allocation of resources to nutrition programs should involve three levels of decision-making. First, in the light of national nutrition policy objectives and the importance attached by legislators to these objectives versus objectives in other policy areas, the resources available for nutrition programs as a fraction of total resources should be determined. The interdependence of nutrition policy objectives with objectives in other policy areas including health, energy, agriculture, and overseas development would doubtless complicate this task. However, the approach might improve upon the current situation whereby several Federal agencies such as United States Departments of Agriculture and Health, Education and Welfare sponsor, fund, and manage nutrition programs to achieve agency objectives. The total resources allocated piecemeal to nutrition programs in this manner may not constitute the appropriate level.

Second, after the total resources available for nutrition programs are determined, strategic decision-making is necessary to allocate these resources among the alternative intervention strategies open to legislators and policy makers in order to achieve nutrition policy objectives. Four such strategies are currently used by government. First, the nutritional quality of the food supply can be sustained and improved through regulations and inspection systems. Second, subsidies, taxes, and export quotas can be adjusted to influence relative and absolute consumption of different foodstuffs through the price mechanism. Third, nutrition can be delivered directly to the consumer through nutrition welfare programs such as food stamps and school lunches. Fourth, government can aim to increase the importance of nutritional considerations in food purchase decision-making and in food storage and preparation by providing consumers with nutrition information.

Resources must be allocated among these intervention strategies with a view to maximizing the probability of achieving policy objectives. Since the nature and severity of nutritional problems vary across individuals, these objectives often have to be stated in terms of specific target segments of the population, defined according to nutritional status, demographics, or other variables. The appropriate intervention approach is likely to vary among these segments. For example, socially disadvantaged consumers may be less able to understand and to obtain "good nutrition". In these cases, the direct delivery of nutrition (for example, through food stamp and supplemental feeding programs) may be the most effective intervention strategy. Similarly, the direct intervention approach (through the school lunch program, for example) may be particularly appropriate to reach children whose current and future nutritional status is largely dependent upon uncertain parental supervision and instruction—even though a broader population than those nutritionally in need may, in fact, benefit from the program either because of the necessity of avoiding stigmatization of selected participants, or because the administrative costs of restricting program eligibility outweigh the savings of selectivity.

The third stage of the resource allocation process involves the distribution of resources assigned to each intervention strategy among specific nutrition programs. These programs represent the tactics used to implement each
strategy. For example, the delivery of nutrition information to consumers can be achieved through a multitude of programs from nutrition education to nutrition labeling. Programs, like strategies, may receive a greater or lesser resource emphasis according to their relative ability to meet strategic objectives and reach particular target segments.

In the remainder of this paper, the factors influencing the resource allocation process in the area of nutrition are discussed. First, the appropriateness of cost effectiveness as a resource allocation criterion is considered. Second, the actual and potential use of consumer research data as an input to allocation decision-making is examined. While the evidence of consumer research and cost effectiveness analyses may suggest appropriate patterns of resource allocation, political factors may influence the feasibility of implementation. These political factors are addressed in the last section of the paper.

Cost effectiveness

For several reasons, increasing attention is likely to be paid to applications of cost effectiveness approaches to resource allocation decision-making in the area of nutrition policy. First, the genesis of a national nutrition policy will probably involve a recognition among policy makers of the importance and value of preventing as well as correcting problems of nutritional status. Given that the total population thereby becomes the target of nutrition intervention programs, the total budget allocated to these programs is likely to increase.

A second implication of a national nutrition policy is that intervention programs which currently operate independently will be increasingly coordinated. As a result of budgetary increases and premiums for program coordination, comparisons of the cost effectiveness of alternative programs are likely to become both more feasible and more important. Policy makers in the nutrition area may also realize that proven cost effectiveness is an assurance of program continuation and expansion, especially in light of the current administration’s emphasis on zero base budgeting.

A second reason why cost effectiveness approaches may increasingly be used in the area of nutrition policy is the growing number of alternative programs and techniques available for implementation, which are all competing for allocation of resources. Controversies regarding the relative appropriateness of alternative techniques, not only within the academic community, but between industry and government, are also likely to prompt studies in comparative cost effectiveness.

Cost effectiveness analysis should not be confused with cost benefit analysis. Cost benefit analysis commonly requires that direct and indirect costs and benefits be calculated for each program alternative. Cost benefit ratios can then be computed to distinguish programs in terms of relative effectiveness. Cost effectiveness analysis requires that the costs of program alternatives be assessed against a common performance criterion related to the presumed benefits of program intervention.

In applying these approaches, both technical and ethical difficulties have been encountered in expressing all the cost and benefit variables necessary for analysis in common—presumably dollar—terms. Other problems have included determining the appropriate discount rate to be applied to future costs and benefits; incorporating variations in the probability of accurate forecasting of different variables; and deciding which costs and benefits should be admitted to analysis (7, 8).

Beyond these general problems, applications of cost effectiveness as a resource allocation criterion in the area of nutrition policy are likely to encounter several special difficulties. First, identifying the effects of nutrition-oriented interventions is particularly difficult since nutrition factors constitute only one of several groups of variables which impact upon overall health status. Second, disagreement continues regarding the nutritional standards against which the impact of individual programs should be evaluated. Third, segregating the impact on nutritional status of a particular program from the effects of other programs and non-controllable variables is especially difficult because of the extended time lag between program inception and program impact. A fourth difficulty involves the interpretation of changes in nutritional status in terms of additional productiv-
ity, psychic gratifications, and reduced health care costs resulting from the preventive impact of dietary modifications.

In addition, nutrition intervention programs frequently have objectives beyond improving the nutritional status of consumers. The food stamp program for example, has social welfare as well as nutritional objectives. The performance of such a program must be assessed against its nonnutritional as well as its nutritional objectives—though this increases the difficulty of comparing program effectiveness.

Program interdependencies also complicate cost effectiveness analysis. The cost effectiveness of program A may be greater than that for program B if program C is also accepted, but vice versa if C is not accepted. Similarly, new programs must be considered in relation to existing programs. The cost effectiveness of program A may be greater than that for program B if an existing program C is cancelled, but vice versa if C is retained. Or if program A is perceived as a substitute for program C, displacement costs must be considered. To respond to such dilemmas by searching for the single best intervention program is inappropriate. It is highly unlikely that, if all resources were channelled through a single program rather than through multiple programs, either reach to target populations or cost effectiveness would be maximized. The use of multiple programs enables the strengths of each to be emphasized and potentially synergistic interaction between programs can be exploited such that the total intervention is more effective than the sum of the parts. It should be noted that mere interactive effects are not always synergistic. The adoption of one program may limit the effectiveness of another program. For example, use of nutrition labeling may lead to consumption of more processed foods either because they are perceived to be legitimized in nutritional terms by virtue of carrying the nutrition label, or because labeling prompts nutrient fortification—what impact do these results have on the effectiveness of education campaigns to persuade consumers to eat more fresh fruits and vegetables?

Finally, it should be noted that cost effectiveness analysis is more applicable to tactical than to strategic decision-making. Because cost effectiveness analysis requires a common standard for comparison among program alternatives, it is not an appropriate tool for allocating the overall resources of the economy among defense programs, energy programs, nutrition programs, etc. There is no agreed-upon and operationally definable social welfare function against which the effectiveness of alternative resource allocation approaches can be evaluated. At a lower level of aggregation, multiple program objectives and program interdependencies limit the utility of cost effectiveness analysis in determining how the total resources assigned to nutrition programs should be allocated among the alternative intervention strategies—even though a common criterion such as a quantifiable set of dietary goals may be available. Cost effectiveness analyses are likely to be least complex and most accurate at the level of tactical rather than strategic decision-making. Within a particular intervention strategy for example, the delivery of nutrition information, it is most feasible to use cost effectiveness analysis to determine the specific programs to which resources should be allocated and the levels of resource allocation. Further research to assess the accuracy of decision-making based upon cost effectiveness analysis even at this level of nutrition policy planning is, however, required.

**Consumer research**

Consumer research can add precision to the measurement of nutrition program effectiveness. The results of such research can contribute to a determination of the absolute level of resources to be assigned to nutrition programs, and the allocation of these resources among individual programs. But like cost effectiveness techniques, the evidence of consumer research is more readily applicable at the tactical than at the strategic level of decision-making. In the resource allocation process in the area of nutrition, consumer research has three identifiable roles.

**Problem identification**

Ongoing surveys of nutritional status and food consumption habits provide data that permit overall dietary trends to be monitored and target population groups with differing
nutritional problems to be distinguished and prioritized. The value of such surveys to the decision-making process might be increased if acceptable standards of nutritional status could be agreed upon, and if the methodologies of data collection could be improved. In addition, such surveys should be regularly conducted in order that problems of nutritional status may be followed over time. Trends in the seriousness of such problems should influence the absolute level of resources allocated to nutrition programs.

Program pretesting

Consumer surveys can identify the relative attractiveness to the public of alternative nutrition programs. Controlled field experiments can ascertain the cost effectiveness of each program, its fit within the framework of existing programs, and the most appropriate implementation approach. Such research is particularly important to the public policy sector due to the universal applicability of legislation and the political and cost problems of abrogations or amendments. For example, insufficient research was undertaken to determine the single most effective format for presentation of nutrition label information. As a result, the Food and Drug Administration may have become locked into a suboptimal approach. The financial costs to manufacturers and the costs to consumers of relearning associated with introducing a new system now limit the feasibility of a change in the format. Program pretesting may also be of value in determining whether nutrition information can be more effectively delivered by nongovernment sources. Among the intervention strategies open to government, the delivery of nutrition information is somewhat unique in that the information can be delivered by sources other than government. Pretesting research can indicate which sources of nutrition information are perceived by consumers as most credible and, therefore, likely to have the highest impact.

Monitoring performance

The effectiveness of programs can be monitored to determine whether objectives are being achieved within prescribed budget and time constraints. Allocations of resources may be adjusted depending upon performance.

From 1974, the Food and Drug Administration sponsored an Advertising Council campaign "Food is more than something to eat." Consumers were invited to write for an explanatory publication. In the absence of similar previous studies, precise performance objectives were not set in advance. Nor were funds provided for follow-up research on respondents to establish whether they were principally drawn from among the most nutritionally concerned and knowledgeable segments of the population. In the absence of monitoring research, the effectiveness of resources allocated to this program could not be evaluated.

Government agencies concerned with nutritional problems have concentrated on scientific research rather than consumer research, and research of the second type has primarily involved nationwide surveys of nutritional status. Limited usage of consumer research is a result of it being expensive, time-consuming, and requiring specialized personnel. Both legislators and administrators, when pressured by consumer groups and constituents are frequently unable to delay action pending the findings of research. In addition, the legal training of most policy makers has emphasized conceptual arguments rather than field research with consumers as the principal basis for legislative decision-making. Thus, when public policy makers have conducted consumer research, it has frequently been a defensive response to consumer-research-based criticism of proposed legislation. The prime motive of such research is often the defense of predetermined positions rather than the testing of hypotheses.

The potential of consumer research in facilitating policy planning in the nutrition area has not yet been realized in terms of problem identification, program pretesting, or the monitoring of performance. In the absence of broadly-based consumer research, policy makers run the risk of being disproportionately influenced by the well-publicized views of consumer advocates who may not be representative of the public at large.

Political realities

While a resource allocation program based upon the evidence of consumer research and
RESOURCE ALLOCATION PROCESS IN NUTRITION POLICY PLANNING

cost effectiveness analysis may seem attractive on paper, political factors may limit the feasibility of its implementation. In setting policy priorities and allocating resources, federal legislators and policy makers must be responsive both to pressures from constituents and interest groups outside of government and to the constraints imposed by institutional structures and established procedures within government.

Legislators' perceptions regarding the degree of public concern on the nutrition issue influence the aggregate level of resources assigned to nutrition programs. The views of groups with a particular interest in nutrition policy are also considered when program design and resource allocation decisions are being made. These groups include farmers, processors, and distributors of food; professional nutritionists and nutrition educators; and representatives of consumer organizations. Consultation of these interest groups as part of the policy formation process diminishes the likelihood of resistance to programs at the implementation stage. Opposition to a particular program may be overcome by the allocation of increased resources, which also enhances the commitment of government to insuring its success, but the cost effectiveness of the program may diminish as implementation costs thereby become a larger percentage of total costs.

Two issues of importance to the resource allocation process stem from the existence of multiple constituencies interested in nutrition policy. First, as part of the policy making process, the evidence of objective analysis may have to be compromised in the interests of consensus. Moreover, the options open to legislators and feasibility of certain policy interventions may be limited, such that a less than perfect line of least resistance may have to be followed if any action is to be taken.

A critical issue, for example, is the degree to which government at any level can legislate or influence the dietary behavior of consumers. Clearly, the Federal government aims through its existing intervention strategies to manipulate the relative attractiveness of different food consumption behaviors. The degree to which such interventions should be used is not merely a matter of cost effectiveness, but also one of political philosophy and consumer preference. Should the Federal government, for example, aim to persuade consumers to buy certain foods which are classified as more nutritious, or should information interventions be restricted to the provision of objective nutrition information regarding the nutrient content of alternative food products? Similarly, should regulations governing the quality of the food supply be aimed at insuring the adherence of food processors to minimum performance standards so that the public health is not threatened—or should the scope of such regulations be extended to banning foods designated as non-nutritious from the marketplace? Although the nutritional status of the population might be enhanced by such measures, the associated reductions in dietary freedom might be resisted by consumers as well as by the food industry. Although they may in fact be more cost effective, interventions which are directive rather than suggestive in their approach to influencing food consumption behavior may not be allocated resources due to the resistance of interest groups outside of government and the consequent infeasibility of program implementation.

Second, in the case of some nutrition intervention approaches, external organizations as well as agencies of government are making a contribution. For example, food manufacturers, food retailers, and trade associations are involved in the dissemination of nutrition information of an educational nature. To the extent that such programs facilitate the achievement of government objectives in the area of nutrition, their existence reduces the level of resources that the Federal government might otherwise have to commit.

In considering the value of a particular nutrition intervention program, the Federal government must consider not only the fit of the proposed program with its own existing programs, but also the fit with related programs managed by external organizations. The Federal government's desired level of control over nutrition intervention strategies will determine the degree to which the programs of external organizations are encouraged and considered in policy making. For example, the Federal government may consider voluntary self-regulation by the food industry to be an effective and economical
alternative to legislation. On the other hand, if the Federal government regards the programs of external organizations as beyond its control, it may be reluctant to plan its own programs within a framework that incorporates these existing external programs.

Existing institutional structures and policy making processes within government also influence the selection and design of nutrition programs, the resources allocated to them and the effectiveness of their implementation. In the absence of national nutrition policy, resources are currently allocated to nutrition programs in a piecemeal manner rather than in accordance with the three stage resource allocation process outlined earlier in this paper. Three areas of potential conflict bear upon the political process that ultimately determines the resources allocated to nutrition programs.

**Inter-agency conflict**

Just as nutrition policies and programs are of interest to many groups outside of government, so they are of interest to many discrete institutions within government. Nutrition policies are of relevance to officials concerned with agriculture, health, education, welfare, energy, and international trade and development. Partly as a result, no single agency of the Federal government has sole responsibility for nutrition policy. Decisions in this area are fragmented among several agencies, each with its own set of objectives and programs. Consequently, contradictions may appear in overall government policy, as illustrated in the case of the United States Department of Agriculture tobacco subsidy continuing alongside the Department of Health, Education and Welfare antismoking campaign. The prospect of greater coordination, the elimination of program duplication and conflicts of objectives, and the minimizing of unproductive inter-agency competition for new program responsibilities and resources are the arguments cited in favor of placing all nutrition-related programs under the control of a single agency. However, an adversary process often enhances the quality of the policies and programs which ultimately emerge. In addition, since government agencies characteristically measure their relative importance by the size of their annual budgets, the United States Department of Agriculture would strenuously oppose the transfer of its nutrition-related programs to Health, Education and Welfare. Indeed, the effectiveness of the programs might be threatened by such a transfer. Assigning responsibility for all nutrition programs to a single Federal agency might therefore improve structure at the expense of process and, furthermore, fewer rather than more resources might be allocated to nutrition programs as a result.

An alternative to the single agency approach is the establishment of a Federal Food and Nutrition Office that would coordinate rather than manage existing programs and which would comment on the nutrition implications of policy proposals advanced by Federal agencies or Congress. The effectiveness of such an office lacking operational responsibilities would likely be dependent upon the degree of Presidential support received.

**Intra-agency conflict**

The multiple objectives of individual government agencies require that prospective and existing nutrition intervention programs be screened for potential conflicts with overall agency objectives. Programs that are in conflict with overall agency objectives are unlikely to receive priority in resource allocations or the commitment of agency personnel. Existing programs as well as existing objectives must be considered. Resources are allocated to new programs in the context of existing programs already on stream. Vested interests may attempt to limit the impact of new programs by starving them of resources or administrative support, even though they may on paper be more cost effective. Modification of an existing program rather than the introduction of a direct substitute is often a more effective short-term proposition.

**Federal-state conflict**

Resources and commitment must exist at the state and local level if programs formulated at the national level are to be successfully implemented. The degree to which the objectives of a program are clearly stated, sources of funding and responsibilities for program implementation clearly defined, and conflicts with existing programs clearly resolved, can all influence the potential effectiveness of a new program at the state and
local levels. Incremental resources must be provided to the extent that a new program requires incremental effort in order to be implemented, and performance measures related to implementation of the program must be integrated into the compensation and reward system for those officials charged with execution of the program.

If the objectives of federal and state governments are divergent, the states may be lax in the degree to which they implement a particular program. Or they may pressure for a block grant rather than a tied approach to Federal funding so that resources can be allocated among several alternative programs with greater flexibility.

Because political pressures at the national level and at the state level are frequently divergent, conflict is inevitable. In the sense that the Federal government can lead the state governments in policy and program development, or vice versa, such conflict can be viewed as being creative. However, economic costs may also be incurred. For example, when interstate marketers face regulations varying in substance and impact from one state to another, the costs of commerce may be increased. Inter-state food marketers may sometimes support Federal legislation to which they may be opposed, simply to avoid the cost and chaos associated with complying with regulations which differ from state to state.

Conclusion

If growing public interest in nutrition is reflected in the allocation of increasing resources to nutrition programs, as seems likely, the process by which the quantity of resources available is determined and distributed is likely to assume greater significance.

Application of the three stage allocation process described in this paper depends upon the existence of a set of specific national nutrition policy objectives. These objectives become the basis for the evaluative criteria against which alternative strategies and the performance of existing and prospective interventions must be assessed. At present, in the absence of a national nutrition policy, nutrition intervention programs are administered by several Federal agencies. As a result, they are not commonly regarded as representing strategic or tactical alternatives. A national nutrition policy with a clear set of objectives would foster a recognition among policy makers that delivery of nutrition information and farm subsidies, for example, are strategic options in the area of nutrition. As a result, legislators and policy makers might think more in terms of allocating resources among these approaches rather than to each program independently.

A second requirement for any resource allocation process to be effective is that the criteria used in the process be both clear and consistent. Although there is likely to be pressure for increased use of consumer research and cost effectiveness analysis in the area of nutrition policy, the limitations of the latter technique currently restrict its potential application to resource allocation decisions at the tactical rather than at the strategic level.

The more strategic the resource allocation decision, the greater the number of dollars involved. For this reason, and because of the weakness of cost effectiveness techniques, questions of political judgement and political philosophy tend to influence the resource allocation process more at the strategic and overall policy levels. Political realities will continue to significantly influence the resource allocation process in the area of nutrition, the selection of strategies and programs, and the degree to which they are successfully implemented.

References