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Policies for Expanding the Demand for Farm Food Products in the United States

PART II. PROGRAMS AND RESULTS

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FOREWORD

This is the second of two reports based on an interregional research project entitled "An Economic Analysis of Demand Expansion Programs and Policies in the United States." The project was first discussed and formulated in the technical committee of the North Central Regional Price Policy Project, NCM 11. The project was activated in 1955 under the above title as a North Central Regional Project, NCM 16. Because of its nationwide scope and interest the project was reconstituted in 1956 as a subproject of an interregional price policy project, IRM 1, "National Policies for Agricultural Prices and Incomes."

The research work of the project is centered at the University of Minnesota. Overall direction and leadership of the project at the University of Minnesota are in the hands of Willard W. Cochrane. The work on this part of the overall project was supervised by Martin E. Abel.

The Household Economics Research Division of the Agricultural Research Service, United States Department of Agriculture, generously supplied the basic data from the 1955 Survey of Food Consumption without which much of the analysis would have been impossible. Special thanks are due to Miss Faith Clark of that division who was most helpful in all phases of the study. Various members of the AMS and ARS of the USDA supplied helpful comments and unpublished data.

The members of the Interregional Committee on Agricultural Policy, whose names appear below, provided many helpful suggesions and criticisms throughout the study.

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Policies for

Expanding the Demand for Farm Food Products in the United States

PART II. PROGRAMS AND RESULTS

Martin E. Abel and Willard W. Cochrane[1]

THIS REPORT is the second part of an overall study entitled "An Economic Analysis of Demand Expansion Policies for Food in the United States." The first report, *Policies for Expanding the Demand for Farm Food Products in the United States; Part I. History and Potentials,* was published in 1959.[2] The objectives of the overall study are: (1) to measure the extent to which food consumption may be increased when certain restrictions to consumption are lifted; (2) to develop new demand expansion proposals and examine existing proposals with respect to their ability to increase food consumption; and (3) to estimate the impact of demand expansion programs on food consumption, farm resource use, and farm prices and incomes.

BASIC CONCEPTS

The concept of demand expansion has a special meaning in the current policy analysis. "It consists of three features:

1. An increase in the consumption of food by consumers in the United States above a given level, which
2. Results from purposive action by society to realize some food consumption goal (e.g., improved nutrition, a more varied diet), and which
3. Involves an increased employment of farm resources to meet the food consumption goal."[3]

[1] Martin E. Abel and Willard W. Cochrane are, respectively, research assistant and professor, Department of Agricultural Economics, University of Minnesota.

The authors gratefully acknowledge the assistance of all individuals and organizations that assisted the project in any way. The authors, of course, assume sole responsibility for all material presented.

[2] John M. Wetmore, Martin E. Abel, Elmer W. Learn, and Willard W. Cochrane, *Policies for Expanding the Demand for Farm Food Products in the United States; Part I. History and Potentials,* University of Minnesota Agricultural Experiment Station Technical Bulletin 231, April 1959.

[3] *Ibid.,* p. 4.

There are then two main reasons for expanding the demand for farm food products: (1) to attain some food consumption goal, and (2) to eliminate or reduce surplus resources in agriculture.

A surplus is "defined as an excess in the quantity supplied over that demanded at a given price. At a lower price there is no 'surplus,' in a quantity sense; the problem converts to one of low farm prices and incomes."[4] At times the surplus will be excess quantities of agricultural commodities at a given price. At other times it will be in the form of low prices and incomes. In either case, the surplus represents an excess of resources employed in the production of agricultural commodities.

Scope and Methods of the Study

The first report contains the history of demand expansion proposals in the United States and measures of the extent to which food consumption may be increased when certain restrictions (e.g., income or price) to consumption are lifted. The general approaches to demand expansion presented in the first report are: (1) subsidizing the income of low-income consumers **for food needs;** (2) reducing retail food prices while subsidizing farmers for the difference between the new, lower, retail price and some established price level for their products; and (3) enabling everyone to eat a nutritionally adequate diet.

The potential changes in food consumption and farm resource use obtained would result at different levels of achievement for each approach. The levels of achievement represent the degree to which consumption restrictions are lifted. The potentials represent the upper limits of increasing food consumption **at each level of achievement.** They are estimated increases in food consumption obtained when lags, leakages, and frictions are not considered.

Net increases in food consumption are obtained when program lags, leakages, and frictions are considered. Not all eligible persons would participate in any given program and some participants would not use the program fully. Therefore, increases in food consumption resulting from the operation of one or more demand expansion programs at a specified level of achievement would not be more than the potentials estimated in the first report. It is very likely that they would be less.

Objectives

The development of means (programs) to implement the three approaches and the measurement of the resulting net increases in food consumption, farm resource use, and farm prices and incomes are the principal objectives of this phase of the study.

The purpose of this report is:

1. To examine the social and political factors that are instrumental in the operation of demand expansion programs.
2. To construct several programs that are consistent with the specified income, price, and nutrition approaches to demand expansion.
3. To analyze these programs with respect to: (1) social and political acceptance; (2) the extent to which food consumption would be increased; (3) the cost of operation; (4) the extent to which farm resource requirements would be increased; and (5) the impact of program operations on farm prices and incomes.

Limitations

The data from which the food consumption potentials were estimated in the first report of the overall study are limited to domestic civilian consumption. Therefore, this analysis will also

[4] *Ibid.*

be limited to the domestic civilian scene.

Only those programs **directly** related to the expansion of demand for food will be examined. That is, the prime objective of the programs will be increased food consumption. However, national policies and programs have indirect effects other than those for which they are conceived (e.g., the income redistribution effects of demand expansion programs). A thorough analysis of all indirect effects is beyond the scope of this study, but those that **can** be analyzed within its framework will be examined.

In the first report consumption potentials were calculated for several levels of achievement under each approach to demand expansion. This phase of the study will limit itself to those levels of achievement that appear reasonable. Levels of achievement which, for example, would involve one-half of the nation's population at a cost in excess of the total budget of the United States Department of Agriculture are unreasonable and do not merit further examination.

This report is confined to the assumptions and data employed in the first report. The limitations imposed restrict the study to an area in which reliable estimates of the effects of demand expansion programs on increasing food consumption can be obtained.

Chapter I. Social, Political, and Administrative Considerations in Formulating Demand Expansion Programs

MANY SOCIAL and political factors must be considered in the development of demand expansion programs for farm food products in the United States. If these programs are to operate successfully, they must receive adequate public support and maximum participation of eligible persons. This is a basic principle for program construction. Therefore, social and political factors that affect program participation and support are examined.

The social and political dichotomy is not always clear. When our democratic process works well and our political system accurately reflects the views of the electorate, distinctions between social and political interests tend to disappear. However, this happens only when an issue carries the support (or disapproval) of an overwhelming majority. Such a clear cut majority viewpoint is the exception rather than the rule.

Public problems are usually resolved through compromise. Our political system represents a wide range of social values, knowledge of issues, and vested interests. These varied and diverse viewpoints are brought together in the political arena. Through informed discussion, pressure, and propaganda, political representatives attempt to effect a majority solution to the particular problem. When majority solutions of this kind result, social and political interests differ. No one social group can completely accord its values and desires with the results of the political solution. The solution appears as a separation of interests. Therefore, it will be fruitful to examine social and political factors separately in this analysis, even though it will be sometimes difficult to maintain the dichotomy.

However, an examination of social and political interests relating to demand expansion is not enough. These factors must be reconciled with the economic facts of life. The process of compromise again comes into play, and the dictates of economic principles can not always be realized. These dictates may run counter to prevailing value systems and established institutions. What is economically sound may be socially unpalatable. "Only if economists are modest in their claims and renounce all pretenses to postulate universal laws and norms can they promote effectively their practical objectives, viz., to keep political arguments rational, that is to say, to base them on as complete and as correct a knowledge of the facts as possible."[5] To achieve "realistic" policies, economic, social, and political interests must be integrated into a harmonious blend.

The next step after policy formulation is policy implementation. Programs have to be developed to carry out the dictates of a policy which defines the desired ends. The basic pattern of program formation is for the actor (say government) to pursue desired ends by selecting appropriate means compatible with existing conditions.[6] The desired ends are set forth in the formulation of the policy.

In this study there are two desired ends: (1) to increase food consumption to attain some food consumption goal (e.g., better nutrition); and (2) to eliminate agricultural surpluses and, thereby, improve farm prices and incomes. The means to be used are programs for expanding the consumer demand for food. However, these programs must work within our present social, political, and economic setting in order to maximize effectiveness in achieving the above goals.

The programs considered in this study are national in scope. Although some programs may deal with specific segments of the population, each segment will be looked at for the country as a whole.

In this study the term public acceptance is synonymous with national acceptance and is of two forms. First, society must favor the existence of the programs and contribute to their support. Second, eligible persons must be willing to participate in the programs. Both facets of public acceptance must be considered.

PROGRAM EXPERIENCE

A sizeable body of information exists on public programs operating in or near the area of demand expansion for farm food products. Some of these programs are no longer in existence; others are still operating today. Experience gained from the operation of these programs contributes significantly to the current discussion. The three programs that have probably received the most attention are the Food Stamp Plan, the School Lunch Program, and the School Milk Program. The Food Allotment Plan proposed in 1944 also deserves mention. Although it was never used, it contained some interesting features and can be classified as a demand expansion effort.

The Food Stamp Plan enabled low-income families "to purchase stamps which could be used in the purchase of food. They were given, without charge, an additional value in stamps of a different color. These could be used for purchase of certain foods declared to be in surplus. The government would then redeem these stamps for cash when turned in by the retail food merchant."[7] The Food Stamp Plan be-

[5] Gunnar Myrdal, *The Political Element in the Development of Economic Theory* (Cambridge: Harvard University Press, 1954), p. 206.

[6] Rainer Schickele, *Agricultural Policy* (New York: McGraw-Hill, 1954), p. 60.

[7] Murray R. Benedict, *Farm Policies of the United States, 1790-1950* (New York, Twentieth Century Fund, 1953), p. 385.

gan in 1939 and was discontinued in 1943. World War II had created a situation of food shortages and the agricultural surplus problem of the 1930's temporarily vanished.

The Food Stamp Plan was well received during its period of operation.

> On the whole, it appears to be quite clear that there has been an astonishing extent of agreement on the merit of the program. The Food Stamp Plan has evidently attracted as much public attention as any program launched in recent years. Moreover, the weight of opinion, where the plan is understood, appears to be extremely favorable. This attitude does not seem to be confined to any particular group. The program is apparently one phase of direct action that has substantial support from every large group in the community.[8]

The School Lunch Program was started in 1932-33. Originally, the program provided for the feeding of one meal a day to children of relief families who, after examination, were found to be suffering from underfeeding and malnutrition.[9] The program was then expanded to include children from non-relief families who also suffered from malnutrition.[10] In 1935 a permanent program for school lunches was set up with a permanent source of funds. However, the program still had to rely on surplus foods. In 1946 the School Lunch Program was freed from this restriction.

> The National School Lunch Act, which became effective June 4, 1946, placed the program on a permanent basis. The basic purpose of the program, as spelled out in the legislation, is to safeguard the health and well-being of the Nation's children by encouraging them to eat more nutritious foods. Federal funds are provided to assist in the operation of non-profit school lunch programs. The Department of Agriculture carries out the provisions of the act with the cooperation of the State Departments of education.
>
> Public and non-profit private schools of high school grade or under may participate in the program and apply for Federal assistance. Stipulations for participation by schools in the program is that nutritious meals must be served on a non-profit basis and must be available to all children regardless of their ability to pay and without discrimination.[11]

The School Lunch Program has been very popular. In recent years, about 60 percent of our Nation's schools attended by 80 percent of the total pupil population had a feeding service program.[12] The number of meals served increased 165 percent from 1947 to 1957.[13] For the same period, Federal contributions to the program increased 187 percent while contributions from sources within the States rose 292 percent.

The School Milk Program started in the late 1930's. It provided for school children to receive low-cost milk. In 1954 the United States Department of Agriculture announced the Special School Milk Program which was designed to "move more milk directly into consumption channels by assisting State and local communities to increase the service of milk in schools."[14] This program has experienced a degree of success similar to the School Lunch Program.

If the proposed Food Allotment Plan had been put into operation, families with very low incomes could have increased their food consumption by exchanging 40 percent of their incomes for enough food stamps to buy an adequate diet. Families spending over 40 percent would benefit from the program

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[8] Norman L. Gold, A. C. Hoffman, and Frederick V. Waugh, *Economic Analysis of the Food Stamp Plan* (Washington: U. S. Government Printing Office, 1940), p. 85.

[9] Doris Carothers, *Chronology of the Federal Emergency Relief Administration, May 12, 1933 to December 31, 1935*, WPA Research Monograph VI, 1937, p. 21.

[10] Ellen S. Woodward, "The Works Progress Administration School Lunch Project," *Journal of Home Economics*, XXVIII, No. 9, November 1936, p. 593.

[11] Kenneth E. Anderson, *Participation of School and Pupils in School Lunch Programs in Elementary and Secondary Schools of the United States*, Market Report No. 262, Marketing Research Division, AMS, USDA, August 1958, pp. 4-5.

[12] *Ibid.*, p. 18.

[13] *Ibid.*, p. 5.

[14] *Food Distribution: Research, Educational, and Service Work of the U. S. Department of Agriculture*, AMS, USDA, May 1955, p. 17.

since they could purchase more and better foods at less cost. There would be no advantage to families spending less than 40 percent of their income on food to participate in the program.

In April 1959 a group of Senators presented a bill[15] which, although it stressed the use of surplus agricultural commodities for foreign aid and development, reiterated the need for demand expansion measures for food at home. The act provided for changes in title III of Public Law 480. It would provide grants to public and private agencies for use in nonprofit school lunch programs, nonprofit summer camps for children, charitable institutions (including hospitals), and assistance to needy people.[16]

Senator Hubert Humphrey stated:

> There are today more than 6 million Americans who are dependent on public funds for the food they eat. Certainly these demands must be met. And we here in Congress should respond to these calls for help by passing a realistic food stamp plan that would improve the diets and the lives of millions of undernourished at a very small cost—and do this through the regular channels of trade in a way that would bolster the economy. This would indeed be bread cast upon waters from which we would see an immediate return.[17]

This statement supports one of the basic assumptions of this study—current interest in and support of demand expansion proposals are strong in many quarters. Society must be willing to support and participate in programs designed to increase food consumption. Further, society must be willing to support such a program on a long term basis. Demand expansion policies and programs should be considered as an accepted permanent institutional form of action designed to achieve some national food consumption goal.

SOCIAL CONSIDERATIONS

The factors that influence the amount of added food consumed through programs will vary with the type of program and the institutions involved. For example, a Food Stamp Plan that operates for the general public might be influenced by different factors than the School Lunch Program. These differences must be recognized.

In the case of the Food Stamp Plan of 1939-43, the following factors resulted in nonparticipation:

"1) Inability to purchase minimum amounts of orange stamps.
2) Lack of understanding of the program.
3) Physical inability to buy stamps and ignorance of the fact that an agent could be sent.
4) No cooking for self.
5) Embarrassment.
6) Back bills to pay.
7) Loss or lack of identification card."[18]

H. M. Southworth and M. I. Klayman[19] presented some of the main objections to the School Lunch Program as of 1941. Many persons objected to the program on broad social grounds. They felt the program was: (1) part of a social trend to which they objected; (2) a system of relief that would demoralize a large part of our adult population; and (3) a trend toward centralism and away from local autonomy. There were also criticisms directed at the operation of the Program. These were concerned mainly with the limited choice of foods and distribution difficulties. Most of the latter criticisms have been dealt with. Since the School Lunch Program was put on a permanent basis in 1946 participants have a wide selection of foods

[15] Senate Bill 1711, 86th Congress, 1st Session, April 16, 1959, sponsored by Senators Hubert Humphrey, John Carroll, Philip Hart, John Kennedy, Eugene McCarthy, Gale McGee, A. S. Mike Monroney, Wayne Morse, James Murray, John Williams, Frank Church, Richard Neuberger, Joseph Clark, Mike Mansfield, Thomas Hennings, and Stuart Symington.

[16] *Ibid.*

[17] *Food for Peace*, a statement prepared for delivery by Senator Hubert H. Humphrey on "Introduction of International Food for Peace Act of 1959," United States Senate, April 16, 1959.

[18] Norman L. Gold, A. C. Hoffman, and Frederick V. Waugh, *op. cit.*, p. 36.

[19] H. M. Southworth and M. I. Klayman, *The School Lunch Program and Agricultural Surplus Disposal*, Misc. Pub. No. 467, USDA, October 1941, pp. 58-59.

and many distribution problems have been solved. The former objections that centered around pubic action, *per se*, were, even in 1941, presented by a minority of the people. "Most of the people with whom the authors talked during their field work—the great majority—were in sympathy with the aims of the School Lunch Program."[20] The growth of the program over the years also attests to its popularity. Nonetheless, many social barriers had to be removed or reduced before the program reached the stage of its present success.

The factors that would affect participation in demand expansion programs will now be presented. A major requirement for the successful operation of a public program is that people understand the objectives and operation of the program. Effective educational activity is necessary if the public is to have a basis for appraisal. In addition, the mechanics of the program must be well known so that persons can determine their eligibility for participation.

Participation requirements should allow all deserving individuals to make use of the program. Once a person is deemed eligible there should be no further barriers to participation. For example, in the operating experience of the Food Stamp Plan, a substantial number of eligible persons did not participate because of their inability to purchase the minimum amount of orange stamps required to get additional free blue stamps. Provisions should be made in a program to avoid such barriers, athough the minimum participation provision could still be enforced once participation was established.

The ease of participation for eligible persons is another factor to be considered. This particular problem concerns the convenience of food distribution methods and outlets to eligible participants. The closer programs operate to accustomed channels of distribution the easier it will be for persons to participate. Adhering to established trade channels reduces inconvenience to participants and the amount of reorientation required. In general, this will mean program operation at the retail level—the level of distribution most familiar to the consumer. Where feasible, it might be desirable to operate programs at the wholesale level since the product cost will be less by the amount of the wholesale-retail marketing margin. However, in the final analysis, the cost savings will have to be balanced against the greater participation at the retail level.

Another point related to the method of food distribution is the reaction of food merchants to the level at which distribution programs operate and the mechanics involved. The full cooperation of food merchants would be needed where food is distributed through normal trade channels. In this respect the programs employed must be geared, to some extent, to meet merchants' desires. If the efforts and costs of the merchants involved far exceeded their returns from participation, they would not want to take part. On the other hand, if programs are attractive to merchant as well as consumer, some degree of success is insured. Successful operation would mean increased food consumption and a larger volume of sales for food merchants. Where the larger volume of sales results in lower unit costs of distribution, merchants would welcome demand expansion programs as a means of increasing profits. And, unit cost savings as a result of increased volume exist in the retail food trade.[21]

If the cooperation of food merchants is to be established and maintained, the conflict between program mechanics and established trade practices should

[20] *Ibid.*

[21] *Do Trading Stamps Affect Food Costs?* Market Research Report No. 147, Marketing Research Division, AMS, USDA, January 1957, pp. 3-4.

be kept to a minimum. For example, the use of trading stamps and coupons is a popular means of advertising today. A demand expansion program that requires the use of stamps or coupons could conceivably create a conflict. The efforts of food merchants to keep program stamps separate from trading stamps may outweigh the benefits derived from program participation. This is a problem for both consumer and retailer. An advantage, however, is that consumers are "stamp minded" and the use of stamps is not an unfamiliar process. Consumer orientation to a stamp-type program might be easy.

Not all demand expansion programs would operate on an individual participation basis. Some would operate through public and private nonprofit institutions. The School Lunch Program and the Special Milk Program are two such programs in operation today. Other institutions that might come under a demand expansion program are penal, charitable, and mental institutions; children's camps; etc.

Currently, many public and nonprofit institutions are receiving surplus agricultural commodities. However, this is not demand expansion in the sense that the aid does not go primarily for the achievement of some food consumption goal; it is strongly surplus disposal. Institutions participating in a demand expansion program should receive the amounts and varieties of foods that are consistent with adequate dietary needs. They should be able to plan on receiving this aid on a permanent basis. Of course, a nutritionally adequate diet can be constructed from many different combinations of food and at many different cost levels. The cost level selected would, to a large degree, dictate the quantities of the different foods used in the diet plans. The cost level of institutional food diets is determined by society through the allocations made for the maintenance of these institutions. This study does not propose to set these levels of allocations; they must be taken as given. However, within the current pattern of expenditures in this area, measures of potential increases in food consumption may be obtained.

The last factor to be considered that affects public participation in demand expansion programs is the existence of a wide variety of tastes and preferences for food among consumers. These differences exist between regions of the country, between farm and nonfarm people, and between ethnic groups. If program participants are unable to satisfy their pattern of food desires while meeting dietary needs, they may not participate. But, there are a multitude of food combinations that will satisfy both nutritional needs and variations in tastes and preferences. Where demand expansion programs are flexible in the variety of foods that consumers can purchase this problem would be circumvented.

POLITICAL CONSIDERATIONS

Since the 1930's, Congress has shown considerable interest in demand expansion. As illustrated above, it has enacted some enabling legislation for the establishment of such programs. The agricultural surplus problem of the 1930's was considered transitory, and major emphasis was placed upon surplus disposal. Since the surplus problem was considered a direct outgrowth of the Depression that would be eliminated in time, little emphasis was placed on establishing permanent programs to increase food consumption. Programs such as the Food Stamp Plan, the School Lunch Program, the School Milk Program, and the Relief Milk Program were oriented strongly toward the disposal of temporary surpluses.

World War II brought an end to the surplus problem and the war years were characterized by food shortages. Interest centered around increasing agricultural production in an effort to meet the high level wartime demand. Toward the end of World War II and

shortly after the War, interest in agricultural surpluses was renewed. Agriculture would be faced with decreasing production in the postwar period from the high level war needs to "normal" domestic needs. Agricultural leaders envisioned the necessity for public assistance in agriculture to achieve this adjustment. Again, surpluses were considered only a temporary phenomenon. As time passed, however, surpluses did not disappear and the needed adjustment did not take place. Nearly 10 years of agricultural surpluses in the post World War II period has convinced many people that the surplus problem is not a transitory one—it is a chronic problem. Thinking on how to increase and sustain food consumption at a high level has begun to displace thinking in terms of temporary disposal.

Political interest in demand expansion for food is evident today. Although great emphasis is placed on the use of United States agricultural surpluses abroad, there still remains considerable interest in increasing domestic food consumption. For example, the "Food for Peace Act" was presented to the United States Senate in April 1959.[22] Although it dealt primarily with disposal of agricultural surpluses abroad, it supported efforts to increase domestic food consumption.

Programs, national in scope, would require the support of Congress—political and budgetary. Besides approving a program, Congress must also decide the amount of mcney allocated. This would determine the level of program operation and, thus, its success in increasing food consumption. Therefore, in developing demand expansion programs, one must keep in mind their political feasibility. In most cases, political "reasonableness" will depend as much on the scope of program operation (i.e., cost of the program) as on its general character.

There are some economic aspects or consequences of demand expansion programs which might meet with considerable political resistance. For example, the methods for expanding the demand for food that can be implemented via the political process will be in conflict with the views of welfare economists. Welfare economists argue that subsidizing only food consumption does not yield maximum consumer satisfaction. A more effective way would be to grant general income or price concessions to consumers so they could satisfy all tastes and preferences and not be forced to allocate the subsidy for just one group of commodities.[23] However, a redistribution of income within the economy resulting from a general income subsidy to increase food consumption could not be justified politically.

Demand expansion programs may also gain political support because of their secondary effects as well as their role in increasing food consumption. Subsidized food consumption of low-income consumers would reduce the burden of public assistance borne by State and local governments. Public welfare agencies could do a better job because the funds freed by the food subsidy could be used for other needed welfare services.

Political support for demand expansion programs might also come from persons interested in public health and the improvement of national nutrition standards. In general, a higher proportion of low-income families experience nutritional shortages than high-income families. However, sizeable percentages of the higher-income families experience shortages of some nutrients.[24] Good health standards of our Nation's people are widely accepted. It is difficult to envision lack of political support

[22] *Ibid.*

[23] For a more detailed discussion of this point as it relates to demand expansion in particular, see Tibor Scitovsky, *Welfare and Competition* (Homewood: Richard D. Irwin, Inc., 1951), pp. 65-68.

[24] Wetmore, Abel, Learn, and Cochrane, *op. cit.*, p. 76.

for a program which would improve the level of nutritional well-being at a reasonable cost.

Demand expansion programs may have a desirable fiscal policy effect. If the programs contain features for automatic expansion as unemployment increases and consumers' income falls, public funds could be readily channeled into food consumption and would contribute to maintaining overall consumption. Although the contribution to maintaining a high overall level of consumption may not be great, the programs are at least consistent with fiscal policy objectives.

Within the limits of reasonable operating costs, demand expansion programs should receive fairly strong political support. Reducing agricultural surpluses, improving nutrition, providing for a high level of food consumption, and aiding welfare and public assistance programs at the State and local levels are features of demand expansion programs that are difficult to oppose.

ADMINISTRATIVE CONSIDERATIONS

There are many administrative problems which, if not solved, would thwart efforts to expand the demand for farm food products. These problems now will be looked at in a general way. Since one of the objectives in program formulation is to get maximum participation (both the number of persons and the degree to which they participate), program administration must recognize the possible sources of leakages. Maximum participation of eligible persons will, of course, lead to maximum increases in food consumption and farm resource use at any given level of program expenditures. Where leakages are not guarded against (e.g., program monies are used for nonfood expenditures), maximum participation is not achieved.

Some of the most important administrative problems are:

1. The substitution of program funds for normal food expenditures.
2. The use of program funds for nonfood purchases.
3. The shifting of eligibility from one person to another by either sale or barter of the type of eligibility certification used.
4. The sale by food distributors of food that should be free to eligible program participants.
5. Resistance on the part of food distributors to participate in the program because of methods of reimbursement, cumbersome record keeping, etc.

If program expenditures are substituted for normal food purchases to any large degree, efficiency in increasing food consumption will be very low. The substitution of program funds for regular food expenditures frees money for the purchase of nonfood items. To the extent that this happens, the program results in a general income subsidy. A program justified on the grounds of increasing the demand for food, but which resulted in a general income subsidy, might meet with considerable social and political disfavor.

A similar problem arises where program funds can be used to buy nonfood items directly. Modern food stores carry many items other than food. The program design must insure that expenditures for nonfood items can be checked and kept to a minimum.

A program must also guard against individuals selling or bartering their eligibility certification to noneligible members. For example, in a food stamp program, some eligible members might want to sell their stamps and use the income for nonfood goods and services, even though they may receive less than the food value of the stamps.

The administrative structure of a program must attract the support of food merchandisers involved. However, there must be ways of checking on their activities. The benefits derived by food merchandisers through participation should be direct rather than from

abuse of the program. The direct benefits must offset inconveniences and costs involved in added bookkeeping and reimbursement problems.

The above are some of the specific administrative problems that might be encountered. There are many others, but these few give some idea of the importance of minimizing such problems. They bear upon acceptability of the programs involved. If such problems cannot be overcome or minimized, serious objections to the programs may arise because the programs will not accomplish their objectives. Instead, the actual results may be counter to the basic aims upon which political and social approval were obtained.

A more detailed investigation of program administration will be presented in a later chapter.

CONCLUSIONS

The social, political, and administrative factors that affect demand expansion programs cannot be ignored if the desired objectives are to be achieved. Programs must be designed so that they are socially and politically acceptable. Acceptability involves both public approval and monetary support. Moreover, programs must receive maximum participation by eligible members at a given level of operation if maximum increases in food consumption and farm resource use are to be obtained. The level of operation can be controlled through eligibility requirements—by specifying who shall be eligible, the total number of possible program participants can be controlled.

Maximum participation requires a harmonious blend of social, political, and economic interests. This harmony of interests can often be achieved only through compromise. Yet, compromise may result in programs that are not as economically, socially, or politically desirable as the theories of the respective disciplines might dictate. Since the development of workable demand expansion programs is of prime concern here, a blending of the diverse interests is accepted as necessary in this study.

A set of assumptions are made which form the constraints within which demand expansion programs are developed. They form the boundaries in which the varied interests and ideas are sorted, assembled, and formed into workable programs. These are:

1. Demand expansion for farm food products is a popular idea and has sufficient public support to become established policy.
2. The programs will be constructed subject to the constraints imposed by known social and political factors and will be designed to work within current social and political institutions.
3. The programs will operate on a permanent basis; i.e., the programs are considered to be permanent institutions.

With these basic assumptions in mind, we now turn to the discussion of specific programs for expanding the demand for farm food products.

Chapter II. Demand Expansion Programs

THIS CHAPTER deals with the development of several demand expansion programs for farm food products in the United States. The programs are classified by their approaches to demand expansion—income, price, and nutrition. Although some programs contain elements of more than one approach (e.g., a combination of the income and the nutrition approaches), they will be classi-

fied according to the most dominant one. One general program is presented for the income approach. Several are presented under the price and nutrition approaches, because no single program either effectively encompasses all of the desired population or accomplishes all the objectives of these approaches. Neither time nor resources permit a detailed analysis of all possible programs. Therefore, only those that fit into the framework of this analysis will be considered. In this way, a reasonable degree of accuracy can be maintained.

THE INCOME APPROACH

The income approach to demand expansion involves the subsidization of low-income consumers **for food needs.** The assumption is that if low-income consumers are given the **food** purchasing power of higher-income groups, they will adjust their food consumption to the level and pattern of the higher-income groups. The result would be an increase in total food consumption measured in farm resource terms (i.e., the amount of farm resources required to produce the increased quantity of food consumed). This result would come through an increased consumption of food poundage and a shift from the consumption of lower-resource-using foods to higher-resource-using foods (e.g., from grain products to livestock products). In addition to increasing the demand for farm resources, the increased proportion of protective foods in the diet would help eliminate nutritional shortages among low-income consumers. Protective foods (high - resource - using foods) contain larger amounts of essential nutrients than low-resource-using foods.

Several programs have been proposed or employed that fall under the income approach to demand expansion. Two of them are the Food Stamp Plan which operated from 1939-43 and the Food Allotment Plan which was proposed in 1944-45 but never put into operation. The Food Stamp Plan required "participating families . . . to exchange an amount of money representing estimated normal food expenditures for orange stamps of the same monetary value. With these orange stamps, participants were provided—without cost—additional blue stamps which could be used to buy designated surplus foods. In this manner, the Plan attempted to concentrate the additional food purchasing power on surplus foods, i.e., foods that were experiencing marketing difficulties."[25] Only families who were eligible for public assistance in the area in which they lived could participate in the Food Stamp Plan.[26]

This program was basically an agricultural surplus disposal operation. It could not be considered a demand expansion program, according to the definition employed in this report, since it did not have a food consumption goal as a major aim. Surplus disposal, *per se,* is not a food consumption goal. Although the operation of the Plan did, to some extent, help to improve nutrition, it was a secondary aim. The surplus disposal aspects of the program prevented it from directly attacking nutrient shortages. Frequently, the foods in surplus were not the ones that were needed in consumer diets to supply nutrients.

The Food Allotment Plan, on the other hand, was a full fledged demand

[25] *An Analysis of Food Stamp Plans,* a supplemental report developed in the USDA pursuant to Public Law 540, 84th Congress, USDA, January 1957, p. 11.

[26] *Ibid.*

expansion program. The food consumption goal was improved nutrition among low-income consumers; and, by expanding the demand for farm food products it would also increase farm resource use. The National Food Allotment Plan was introduced by Senators George Aiken and Robert La Follette, Jr. as Senate Bill 1331 on July 8, 1943 and was defeated early in 1944. The bill was then revised and introduced by the same Senators in June 1945.[27] This second bill was also defeated.

"The program had two broad aims: (1) to improve nutrition by making it possible for low income families to purchase an adequate diet, and (2) to assist in maintaining fair farm prices and incomes by expanding and stabilizing the effective demand for food." [28] In the words of the sponsors of the bill, the National Food Allotment Plan was proposed for the purpose of "obtaining sufficient food for an adequate dietary standard . . . and to maintain consumption of agricultural products . . . at a high level as a means of preventing potential economic dislocations resulting from an accumulation of agricultural products." [29]

Near the end of W. W. II, interest centered around maintaining a high level of domestic food consumption after the war to prevent agricultural surpluses from accumulating as a result of slackening postwar demand. In addition, the importance of good nutrition on national health and efficiency was recognized. Senator La Follette, Jr., in his testimony on the National Food Allotment Bill, stated that:

> The war has revealed a shocking condition in so far as the physical well-being of our people is concerned. In this Nation, the richest on earth, a great Nation of agriculture and industry and capacity to produce wealth, we have had the shocking result of from 40-45 percent of the men called for induction into our armed forces being rejected as unfit for service.
>
> No less an authority than the Surgeon General of the Public Health Service of the United States had indicated that a substantial proportion of these rejected, in his opinion, are due to the result of malnutrition and lack of proper medical and dental care.
>
> We also, Mr. Chairman, in my opinion, have a stake at all times, in peace or in war, in attempting to meet the problems of those who are ill-clad, ill-fed, and ill-housed. They present a problem not only so far as they themselves are concerned, but because of their handicaps and susceptibility to disease they are a drag upon the productive efficiency and a threat to the physical welfare of our society as a whole.[30]

The twin goals of the proposed National Food Allotment Plan, improved nutrition and increased demand for farm food products, are consistent with the concept of demand expansion employed in this study.

The National Food Allotment Plan would have enabled low-income families to exchange a certain portion of their income, say 40 percent, for a value of food coupons that would enable them to purchase an adequate diet. There would be less incentive for families spending less than 40 percent of their income on food to participate in the program. Such families—higher-income families—would have to pay more into the program than they would receive in benefits. Families spending more than 40 percent would receive more and better food at a lower cost by participating in the program.

The proposed program included a basic food allotment that provides for sufficient quantities of various foods to constitute a nutritionally adequate diet. The income subsidy for food to program participants would represent the difference between the normal food expenditures and the value of the spe-

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[27] Rainer Schickele, "The National Food Allotmet Program," *Jour. Farm Econ.*, Vol. XXVIII, No. 2, May 1946, p. 516.

[28] *Ibid.*, p. 517.

[29] *National Food Allotment Plan, Hearings Before a Subcommittee of the Committee on Agriculture and Forestry*, 78th Cogress, 2nd Session, January 14-26, 1944, p. 1.

[30] *Ibid.*, p. 19.

cified food allotment. The quantities of the different foods would represent a nutritionally adequate diet consistent with the food consumption pattern of some income level (e.g., the income group which spent 40 percent of its income on food).

The Food Stamp Plan and the Food Allotment Plan appear to differ widely in their aims and method of operation. However, an extension of the Food Stamp Plan to all consumers whose income falls below a specified level (not just those on relief) and to all farm food products (not just foods in surplus) reduces the differences between the programs. The one difference that would exist is that the value of the food allotment in the Food Allotment Plan is based upon the value of a specific nutritionally adequate diet. The Food Stamp Plan, as generalized, would not base its income subsidy on the cost of any specified diet. However, the Food Allotment Plan does not insure that program participants would buy a nutritionally adequate diet with their given purchasing power. The two programs, therefore, do not really differ on the point of nutrition since the same level of purchasing power can be granted to participants under both.

Another source of possible difference between the two programs is the way in which the food subsidy is granted to participants. The Food Stamp Plan employed a two color stamp system; one color representing normal food expenditures and the other color representing the subsidy. In the Food Allotment Plan, 40 percent of the participant's income would be exchanged for a given value of stamps that could be used for the purchase of any foods. The Food Stamp Plan required the use of a two color stamp system because the subsidy was directed at surplus foods and was to be distinguished from normal food expenditures. But, when the Food Stamp Plan is freed from its reliance on surplus foods as the source of the subsidy and the subsidy can be used to purchase any foods, a two color stamp system would **not** be required. The two programs would then be similar (i.e., a uniform color or type of stamp could be used).

Since the Food Stamp Plan (as extended here to low-income consumers in general and freed from surplus disposal orientation) and the Food Allotment Plan differ so little in program design and method of operation, a separate discussion of each program is not warranted. One overall program, combining the features of both, will be presented to represent the income approach to demand expansion. **This is called a Food Allotment Program.**

A Food Allotment Program

The program operates for the benefit of low-income consumers. These consumers can, by participating in the program, exchange an established amount of money for food coupons. The food coupons received represent a larger dollar value of food purchasing power than the amount of money paid. Thus, participants are able to buy more and better food. The criteria for determining eligibility to participate in the program is consumer income. Therefore, the relationship between food consumption and income is crucial to an understanding of the program.

It is well established that as income increases food expenditures also increase. However, the relative increase in food expenditures is less than the increase in income. That is, the proportion of income spent on food declines as income rises. This fundamental income-consumption relationship, Engel's Law, has been verified in many consumption studies and is illustrated in tables 1 and 2. Money value measures the value of total food consumption (i.e., both purchased and home-produced foods). Expense measures the value of just purchased foods.

Most studies demonstrate further that at low-income levels the physical quantity of food consumed, measured in pounds, also increases with income.

Table 1. Per capita money value of food consumed and expense of food purchased by per capita income groups, regions, and urbanizations in the United States, 1955

Per capita income class	Per capita money value			
	North nonfarm	North farm	South nonfarm	South farm
	dollars			
Under $250	286.80	350.58	180.59	231.84
$250-$499	346.39	345.93	243.79	307.60
$500-$749	299.36	352.48	294.32	329.39
$750-$999	344.72	376.25	335.40	332.79
$1,000-$1,499	382.40	394.10	368.81	421.71
$1,500 and over	465.31	448.30	434.81	417.23

Per capita income class	Per capita expense			
	North nonfarm	North farm	South nonfarm	South farm
	dollars			
Under $250	238.67	190.96	137.36	106.94
$250-$499	309.82	179.59	203.89	161.67
$500-$749	278.34	197.82	253.12	172.10
$750-$999	324.61	237.00	310.41	190.19
$1,000-$1,499	363.41	251.68	343.08	235.90
$1,500 and over	448.69	325.12	411.87	259.23

Table 2. Per capita money value of food consumed and expense of food purchased as a percent of per capita income by region and urbanizations in the United States, 1955

Per capita income class	Per capita money value as a percent of per capita income			
	North nonfarm	North farm	South nonfarm	South farm
	percent			
Under $250	229.4	280.5	144.5	185.5
$250-$499	92.4	92.2	65.0	82.0
$500-$749	47.9	56.4	47.1	52.7
$750-$999	39.4	43.0	38.3	38.0
$1,000-$1,499	34.0	35.0	32.8	37.5
$1,500 and over	28.6	27.6	26.8	25.7

Per capita income class	Per capita expense as a percent of per capita income			
	North nonfarm	North farm	South nonfarm	South farm
	percent			
Under $250	190.9	152.8	109.9	85.6
$250-$499	82.6	47.9	54.4	43.1
$500-$749	44.5	31.7	40.5	27.5
$750-$999	37.1	27.1	35.5	21.7
$1,000-$1,499	29.1	20.1	27.4	18.9
$1,500 and over	27.6	20.0	25.3	16.0

However, at higher-income levels the quantity consumed tends to remain constant. At higher-income levels increased expenditures are devoted primarily to more services associated with food and to increased consumption of high - resource - using foods (higher-priced foods).[31] Where food consumption is measured by a value-weighted index, such as the USDA index of per capita food consumption, the index continues to increase with higher incomes. This measure accounts for not only quantity of food *per se*, but also the resources, both farm and nonfarm, embodied in that quantity.

Two quantity measures of food consumption are available. They are **quantity of food used** and **quantity of food purchased. Quantity used** includes both the amounts of food purchased and produced for home consumption. It measures the level of food consumption for individuals and, therefore, is the best measure for comparing levels of food consumption between individuals or groups of individuals. **Quantity purchased** measures only the amount of food purchased. It does not accurately reflect the level of food consumption, but is a measure of the quantity of food moving through commercial marketing channels. Therefore, it is the measure of most interest to farmers.

Both measures of food consumption are employed in the Food Allotment Program. Since quantity of food used is the best available measure of food consumption, it is the measure used in this report.

The two corresponding value measures of food consumption are **money value of quantity used** and **expense of quantity purchased.** As shown in table 1, for all region-urbanizations, per capita expense of quantity purchased is less than per capita money value of quantity used at any given income level. The difference between the two measures represents the value of home-produced food. As might be expected, these differences are greatest between farm and nonfarm urbanizations. Farm people produce a much larger part of their total food consumption than nonfarm people.

Money value, as expressed earlier, represents the value of total food consumption while expense is the value of purchased food only. The two measures are employed in the Food Allotment Program as follows: From food consumption data such as the 1955 Household Food Consumption Survey, per capita quantity used, money value of quantity used, quantity purchased, and expense of quantity purchased can be computed on a region-urbanization basis. In addition, per capita money value and expense can be expressed as a percent of per capita income. The latter data are presented in table 2. Both per capita money value and expense as a percent of income decline as incomes increase. The lower the percentage figure, the higher the corresponding income group.

Eligibility

All persons whose income falls below the per capita income level for which the average per capita value of total food consumption is a given percent of income (e.g., 40 percent) are eligible to participate in the program. The level of per capita income below which average per capita money value is 40 percent or more of per capita income can be determined for region-urbanizations from food consumption survey data. This level will be referred to as a **level of achievement.** It is difficult if not impossible, however, to measure individuals' food consumption. Most individuals or families do not keep records of either the quantity of food used or the quantity purchased and their corresponding value measures. Therefore,

[31] S. J. Prais, "Non-Linear Estimates of Engel's Curves," *Review of Economic Studies*, Vol. XX, No. 2, 1952-53, pp. 87-104 and J. Aitchison and J. A. C. Brown, "A Synthesis of Engel Curve Theory," *Review of Economic Studies*, Vol. XXII, No. 1, 1954-55, pp. 35-46.

use must be made of survey data, such as the 1955 Household Food Consumption Survey, which compel the use of average consumption and income measures.

On the basis of available consumption data, average money value of and expenditures on food are determined for each income class. Persons whose income falls below the income level that represents the selected money value as a percent of income, say 40 percent, are eligible to participate. However, eligible persons are not paid the difference between average money value of their income class and average money value of the income class to which their level of food consumption is to be raised. If this were done, the subsidy would go for both purchased and home-produced foods and the program is only interested in subsidizing out-of-pocket food costs or expenditures. Eligible persons would receive the difference between **average expenditures** on food for their income class and the level of average expenditures of the income class to which their level of food consumption is to be raised.

There are obvious disadvantages to using average consumption figures for a given region-urbanization-income group. There will be individuals whose money values of and expenditures on food are above or below the group average.

There will be a strong incentive for individuals whose current money value is above the group average to participate in the program because they will pay less into the program than the current value of food purchased and will get a greater value back in food coupons. Therefore, not only are participants able to buy more food at lower expenditures, they can spend some of the money formerly used for food for nonfood expenditures. For this group, participation in the Food Allotment Program would also subsidize, to some degree, nonfood expenditures.[32] Eligible persons who spend less than the average for the group would have to pay in more than their current expenditures to get the value of the allotment (they will have to pay a dollar amount into the program in excess of current food expenditures). Although they will receive more food purchasing power than the amount paid into the program, they also must reduce their consumption of nonfood items because of the increased food expenditures. On economic grounds, these people will participate in the Food Allotment Program only if the added utility derived from increased food purchasing power exceeds the disutility of reducing their level of nonfood consumption. Certainly, not all persons will find increasing food consumption sufficiently appealing to forego some nonfood expenditures.

There will also be persons whose income is above the level set for eligibility but whose money value of food consumption is a greater percent of their income than that selected for program operation. Such persons will not be eligible to participate in the program.

The scope of program operation—the number of persons participating—can be controlled by regulating the number of eligible persons. Since eligibility is based on income criteria, the scope of the program is also based on income criteria.

The National Food Allotment Act of 1944-45 provided that if sufficient funds were not available to meet the full amount of the difference between normal food expenditures and the cost of the basic food allotment for all eligible households participating in the plan, a percentage of the reasonable cost of the basic food allotment which could be attained for all participants out of the funds available would be established. All participants were to be paid the difference between normal food ex-

[32] Geoffrey S. Shepherd, *Agricultural Price and Income Policy* (Ames: The Iowa State College Press, 1952), pp. 175-76.

penditures and the established percentage of the value of the allotment.[33] This method of adjusting the scope of program operation to available program funds is an alternative to regulating participation through the percent of income spent for food. A basic question has to be answered here. Given the amounts of funds available for program operation, should the number of participants be limited so that all receive an income subsidy adequate to purchase the established food allotment? Or, should the subsidy be only a part of the money needed to purchase the allotment and, thereby, make more persons eligible for participation?

Since **adequate** nutrition is a goal of the Food Allotment Program, the purchasing power needed to attain the established nutrition standard would be provided when the full value of the subsidy was guaranteed to participants. The number of participants would be adjusted to bring program expenditures in line with funds available. When the amount of the subsidy is reduced to balance program funds with program expenditures (assuming the funds available are inadequate to provide the full amount of the subsidy to all participants), the nutrition goal is not achieved. Thus, in the proposed Food Allotment Program, the variable used to balance available funds with expenditures would be the number of participants and **not** the amount of subsidy. The program would thereby operate more effectively in lifting the income constraint to good nutrition for **those** participating.

Value of the Food Allotment

The method of establishing the food allotment must be specified in a manner that is consistent with the economic approach to demand expansion. Many different foods and combinations of foods will satisfy a given set of nutritional requirements.[34] A nutritionally adequate diet could range from a low-cost diet consisting of wheat flour, lard, cheese, cabbage, and carrots to the most costly diet containing expensive cuts of meat, fruits, and vegetables.[35]

How then is the specific food allotment employed in the program to be determined? The income approach to demand expansion assumes that if low-income consumers are given the food purchasing power of some higher-income group, the low-income consumers will adjust their food consumption pattern to that of the higher-income group. An increase in total food consumption is then effected.[36] The changes in consumers' food purchases as the income constraint is lifted reflect an expression of consumers' food desires (the quantities and types of food they would like to buy if they could). If the food allotment represents the pattern of food consumption at the income level to which the consumption of low-income consumers is to be raised, the food allotment would be consistent with consumers' food consumption aspirations. **The food allotment would provide the purchasing power for a nutritionally adequate diet consisting of the quantities of the various foods consumed by the income group decided upon to represent the food consumption goal of low-income consumers.** Although food expenditures, expressed as a percent of income, decline as income increases, the dollar value of food expenditures increases with income. The higher the income level selected, the higher the dollar value of the allotment entailed.

For any specific food allotment used in the program, adjustments for changes in food prices will have to be made in the subsidy granted. An increase in

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[33] *National Food Allotment Plan, Hearings Before a Subcommittee of the Committee on Agriculture and Forestry*, 78th Congress, 2nd Session, January 14-26, 1944, p. 3.

[34] Wetmore, et al., *op. cit.*, p. 38.

[35] M. K. Bennett, *The World's Food* (New York: Harper and Brothers, 1954), p. 131.

[36] Wetmore, et al., *op. cit.*, pp. 56-64.

the value of the allotment due to rising food prices will increase the value of the subsidy given to persons whose incomes did not change. Periodic revisions of the value of the allotment will be necessary.

Income Measure and Certification

What measure of income should be employed in the program to determine the percent of income spent on food? Should it be a family or per capita income measure? If family income is used, differences in family size are not taken into account. For a given level of family income, a family of six may spend a much higher percent of its income on food than a family of two. If the allotment value represents the average food expenditures of an average size family within some particular income group, then no adjustment is made for families of sizes different from the average. An alternative would be to have a food allotment for each family size within a specific income group. However, the administration of a program with many allotments would be cumbersome.

The problem of family size can be avoided somewhat by using a per capita income measure. This is obtained by dividing family income by family size. Family size means the number of members of the **economic family.** "Those persons who live together and draw from a common fund for their major items of expense."[37] Although the effect of family size is eliminated by the use of per capita data, the per capita data refer to an average individual. It does not eliminate the effect of family composition—the age distribution within a family. For example, a family of four that consists of all adults will likely have a different food consumption pattern than a family of two adults and two small children. This problem could be eliminated if a food allotment were constructed for different age-sex groups. But this, again, would involve using a large number of food allotments and complicate the administration of the program. Therefore, **average per capita income will be used to facilitate program operation.**

Even after adjusting for the effects of family size by using a per capita income measure, differences in the percent of income spent on food for a given per capita income level may exist between regions and urbanizations, (e.g., between North nonfarm and North farm or between North nonfarm and South nonfarm). Data are available on food consumption patterns by different regions and urbanizations, such as the 1955 Household Food Consumption Survey. Within each region-urbanization, all persons spending more than a certain percent of their income on food would be eligible for participation in the Food Allotment Program. The "percent of income spent on food" figure may correspond to different levels of per capita income in different region-urbanizations. **For each region-urbanization, the food allotment would correspond to the average food consumption pattern of the per capita income group whose percent of income spent on food corresponded to that determined in the Food Allotment Program.**

Some problems of income declaration will now be discussed. The Food Allotment Program operates on the basis of income. An accurate income declaration is important for effective program operation. If an annual income declaration is required, the use of income tax returns might be one method of certification. However, if income certifications are required more often than once a year, then other means would have to be employed. Income from salaries could be reported on a weekly or monthly basis and certified through statements of payroll receipts or withholding statements. Nonsalaried income, however, presents somewhat of a problem. An annual check through income

[37] *Ibid.*, p. 49.

tax returns might exist for nonsalaried income, but some difficulty may be experienced in getting accurate statements more frequently. However, periodic income declarations of an individual can be checked against the annual income declared on tax returns and adjustments can then be made for discrepancies that arose during the year.

There is also the problem of those persons who earn so little income that they are not required to file a tax return. Since the program operates for the benefit of low-income consumers, this group may compose a sizeable proportion of the total number of participants. For such individuals, statements of salaried or nonsalaried income received would be required. The income declaration problems of this group must be recognized.

The number of times per year that an income declaration is required must be stipulated in the program. An annual income certification should be required, but a more frequent certification might be made optional. This would make the program more sensitive to changes in consumers' incomes and eligibility. If, for example, persons could optionally certify their income on a monthly basis and if they became unemployed, the lag from the time they became unemployed to the time they became eligible to participate in the program would be very short (assuming their income position was such that they could become eligible to participate in the program).

Another problem in estimating income is the computation of nonmoney income. For many rural residents the value of home-produced foods and the rental value of farm dwellings represent sizeable sources of nonmoney income. An equitable measure of incomes between urban and rural persons should include a method for assessing nonmoney income. As yet, no satisfactory methods have been worked out.

There are several problems involved in measuring the value of home-produced foods. First, there is the problem of determining the prices of the home-produced foods. One way would be to value the home-produced products at the price farmers would receive for them if they were sold. Another method, as used in the 1955 Household Food Consumption Survey, is to value the food at prices paid by people in the same region-urbanization who purchased the commodities. Second, the quantity of home-produced food must also be determined. This is difficult to check, and the tendency will be for program participants to underreport the amount. Underreporting will, in turn result in a larger income subsidy than they should receive. It is very likely that average values of home-produced food for a group will have to be used. Using the data at hand (e.g., the 1955 Household Food Consumption Survey), the average value of home-produced food for a family of given size and income in a given region-urbanization could be used to adjust the value of the food allotment for home-produced food.

Falsification of income information given to program agencies might carry penalties of fines or imprisonment. Penalties, along with spot checking in income declarations, would discourage persons from using fraudulent practices to obtain program benefits.

Certification of Food Merchants

All wholesale and retail food merchants who desire to participate in the Food Allotment Program should be eligible, provided they abide by program rules and regulations applicable to food distribution. The operation of the program may receive active support from food merchants because an expanded demand for food could mean larger total sales and possible lower unit costs of distribution. Where increased volume of sales results in lower average unit costs, food merchandisers' profits may be increased.

Redemption of Coupons

The coupons used in the operation of a food allotment program represent program monies. These coupons must be redeemable by food merchants (i.e., exchange the coupons for their cash value) through the Treasury Department from budget allocations of the Food Allotment Program. The intermediaries between the Treasury and the food merchant must be specified. The banking system represents a logical choice since this is the established institution handling money circulations. Retail merchants would deposit the coupons in their local bank. The bank would honor these coupons as money by the amount of their established value. The Treasury Department would then purchase the coupons from the banks.

Objections to using the food allotment coupons as monies may arise if it is difficult for the banks to determine their value. However, if the value appears on the coupon, this objection can be overcome. Coupons might be issued in several denominations. Adjustments in the value of the allotment would take place by the dollar value of the coupon issued and not by the process of inflating or deflating the value of a fixed number of coupons which do not bear any value on them.

Barriers to Participation

Once an individual or a household is determined eligible, on the basis of income, to participate in the program, no other barriers to participation should exist. The National Food Allotment Plan proposed in 1944-45, provided that:

> there shall be no discrimination against any household with respect to eligibility, classification, participation, or issuance, or utilization of food allotment coupons . . . by reason of race, religious creed, national origin, citizenship, political affiliations, or beliefs, occupation, employment, or other tests, except as provided in this Act, and as necessary to insure general families an equity in the application of this Act.[38]

These same nondiscrimination provisions will apply to this program. However, this does not include all the barriers to participation.

One of the greatest barriers to participation in the program would be a lack of understanding of the benefits to be derived by eligible persons. To reduce this barrier an extensive public information program would have to be carried out prior to and during the operation of the program. The information disseminated should include criteria for eligibility, how eligible persons participate, the benefits derived from the program, etc. Public information about program operation should be provided on a continuing basis. This would inform potential participants about the program. New participation will arise from the formation of new economic family units whose incomes are low, rising unemployment, or any number of other causes. For these individuals, information about the program would be available through a public information service.

Another barrier to participation may arise if the program is operated through distribution agencies unfamiliar to consumers. The retail level of distribution is the one most familiar to consumers. Therefore, by operating the program at the retail level, no great changes in the shopping habits of consumers would be involved.

Still another barrier to participation is the inability of some low-income families to purchase the initial food allotment as they would not have the cash income to purchase the coupons. However, once they became accustomed to the operation of the program, they could adjust their expenditure pattern to program requirements. It may be feasible to give the initial al-

[38] *National Food Allotment Plan, Hearings Before a Subcommittee of the Committee on Agriculture and Forestry*, 78th Congress, 2nd Session, January 14-26, 1944, p. 3.

lotment free or on a deferred payment basis to such participants. Thereafter, these persons would have to turn in the required portion of their income for the food allotment. The food allotment would, of course, be free to persons with no source of income.

There may be several other barriers to program participation. Where they exist steps should be taken to remove or reduce them. By establishing some degree of flexibility in program operation, the program can be adjusted to regional or even local needs. Many barriers to participation, both those known to exist from past experience and those discovered through the operation of the program, could then be eliminated.

Program Evasion

Most participants in the program would receive a greater monetary value in food coupons than they would pay for them.[39] Therefore, there may be an attempt on the part of some people to convert their added food purchasing power into cash and leave their food consumption level unchanged. In this way the food subsidy would be used, in part, for the purchase of nonfood items. Those persons illegally buying the coupons may have the advantage of buying them at less than their food value. This practice reduces the effectiveness of a demand expansion program. An attempt can be made to regulate this through fines and imprisonment. However, some method of establishing proof is needed. This could be done by having the individual's name on the coupons and proof of the individual's identity requested when the coupons are used. Many ingenious devices could be constructed for preventing such illegal transfer of coupons.

Another problem is that of food merchants selling nonfood items for allotment coupons or cashing the coupons (presumably at a discount). These practices may be desirable to the merchant where the profit margin on nonfood items is higher than that on food items or when windfall gains can be made from redeeming coupons with no corresponding sale of food items. Again, through the use of inspection and fines, this malpractice may be guarded against.

In general, the enforcement problems should not be too costly or lessen the attractiveness of the Food Allotment Program for expanding the demand for farm food products and improving nutrition. Experience with many other national governmental programs has shown that they can be effectively administered.

Agency Cooperation

Local program administrative agencies may find it useful to obtain the cooperation of State and local agencies. The benefits derived from such cooperation may save time and cost to the overall program administration. For example, State and local relief agencies can help to determine income levels of eligibles. State and local agencies may also help in the actual administration of the Food Allotment Program at their respective levels of operation. However, it would not be desirable to have these agencies substitute food allotment funds for their normal expenditures. This would result in food allotment funds replacing part of the general public assistance funds and this is not an aim of the program. However, to the extent that State and local agencies can be relieved of their **food** relief burden and the funds thus released are spent for other relief purposes, the scope of State and local programs can be expanded. In this context, the opera-

[39] There will be persons whose income is low enough to enable them to participate in the program and who spend less of their income on food than the average for the income class. These persons would have to pay into the program an amount equal to average expenditures in the income class (i.e., an amount of money in excess of their current expenditures on food). These same persons would, however, receive a greater monetary value than they would have to pay out for the coupons.

tion of a food allotment program could be attractive to State and local agencies.

Summary

In summary, the Food Allotment Program would include the following provisions:

1. Eligibility of program participants is established on the basis of income. All persons with income below a selected income level are eligible to participate in the program. The maximum income level that persons can have and still be eligible is selected on the basis of a chosen percentage level that the value of food consumption is of income. All persons whose money value of food consumption exceeds an established percent of their income are eligible and all participants will receive the full amount of the subsidy.
2. The value of the food allotment will represent the value of a nutritionally adequate diet. It will be consistent with the pattern of food consumption of the selected income group whose food expenditures represent the percent of income used in determining eligibility. If all persons who spend 40 percent or more of their income on food are termed eligible, the value of the allotment is based on the food consumption pattern of the per capita income group that spends 40 percent of its income on food. Adjustments in the value of the food allotment are made for changes in food prices so that the allotment has constant food purchasing power.
3. Income is measured on a per capita basis. A per capita income measure takes into account the effect of family size on consumption. Family size is defined in terms of the economic family—all persons living together and drawing from a common fund for their items of expense.
4. Methods of income declaration are specified in the program and participants are free to choose the method of income declaration that most nearly fits their needs.
5. All food merchants who desire to participate in the program are eligible, provided they abide by the rules and regulations of the program applicable to food distribution.
6. Food allotment coupons are considered as money and can be redeemed through regular banking channels. The United States Treasury will redeem the coupons from the banks at their established value.
7. All barriers to participation other than eligibility requirements are to be eliminated or minimized. There will be no discrimination on the basis of race, religion, creed, citizenship, political affiliation, occupation, etc. An educational program for orientating persons to the details of program operation is to be carried on to promote program understanding.
8. Illegal participation is subject to fines and/or imprisonment. Penalties for program evasion apply to both consumer and food merchant participants.
9. The Food Allotment Program will use State and local government agency facilities whenever possible. State and local agencies cannot, however, substitute program funds for their own operating funds. Where the program enables agencies to eliminate food subsidy or relief programs, the freed funds must be spent on other areas of the agencies' overall program.

The above nine points form the basic structure of the Food Allotment Program. Although there are many more details of the program that could be discussed, this would not add significantly to the needs of this study. However, if a program were put into operation, these details would have to be considered.

THE PRICE APPROACH

The price approach to demand expansion implies a reduction in food

prices paid by consumers. A price reduction, as such, is not strictly demand expansion in that it represents a movement along a given demand curve rather than a shifting of the demand curve to the right. If, however, a subsidy is paid to producers—the subsidy representing the difference between the market price farmers receive and some higher established price—then to the producers, the net result is the same as an increase in the demand for their products.

The reduction of food prices to consumers may be for all foods or for a selected group of foods (e.g., all livestock and livestock products or meats, fruits, and vegetables). Benefits of lower prices may be granted to all or only a part of the population. Where food prices are reduced by a given amount just for low-income consumers, the price approach resembles the income approach. Under the income approach consumers' incomes are subsidized for **food purchases.** Therefore, by participating in an income program (e.g., the Food Allotment Program) consumers can buy more food at their same level of expenditures. In a sense, this subsidy represents a reduction in food prices since more food can be purchased for the same level of expenditures. Because a demand expansion program which grants food price reductions to low-income consumers does not differ significantly from the income approach, this form of a price program will not be considered in this analysis. The price programs presented here are concerned with a reduction in the price of all foods or selected food groups to **all** consumers. The programs deal with methods for bringing about the desired price reduction.

The General Approach

A program which subsidizes farmers for the difference between market prices and a fair price has been referred to, in its various forms, as a compensatory payments program. T. W. Schultz[40] presented a compensatory payments scheme that would operate during periods of business depression. "The requirement that compensatory payments be undertaken only during a business depression rests on two basic ideas, namely, that business depressions are the main cause for the periodic drop in the general level of prices of farm products and in the income from farming, and that the maintenance of farm income is important, not only to check the deflation associated with a business depression, but to bring about recovery."[41] The 1950's, however, showed that falling agricultural prices and rising nonfarm prices are not inconsistent and that this relationship can exist for several years. The validity of the assumption of farm and nonfarm prices always moving in the same direction can be questioned.

In the late 1940's Secretary of Agriculture Charles Brannan proposed a compensatory payments program that would operate on a continuing basis. The Brannan Plan, as it is known, subdivided commodities for support into two groups. Group I which included the "basic commodities"[42]—eggs, chickens, milk, hogs, beef cattle, and lamb—was subject to mandatory support. Group II commodities, all those not included in Group I, could be supported if the Secretary of Agriculture felt it was necessary. The level of support would be determined by: (1) supply and demand conditions; (2) availability of funds; (3) perishability of the commodity; (4) importance to agriculture; (5) ability to dispose of stocks acquired through price support activities; (6)

[40] Theodore W. Schultz, *Agriculture in an Unstable Economy* (New York: McGraw-Hill Book Company, Inc., 1945), pp. 221-235.

[41] *Ibid.*, pp. 222-223.

[42] Corn, cotton, wheat, and tobacco (excluding peanuts and rice).

the need for offsetting temporary losses of export markets; and (7) the ability and willingness of producers to keep supplies in line with demand.[43]

Perishable commodities would be supported by direct payments to farmers rather than maintaining prices in the markets. A government storage program would operate for nonperishables in an effort to maintain market prices although direct payments also could be used. The support price level for different commodities would be based on the purchasing power of farm income. That is, prices would be set to give farmers a level of income consistent with some determined minimum income level. A maximum would be set on the amount of compensatory payment going to any one farmer.[44]

A modified form of the Brannan Plan was proposed by Professor G. E. Brandow.[45] Brandow proposed that marketing allotments be established for producers on an historical production base. The total producer allotment for each commodity would be about 75 percent of total marketings in a base period. No supports would be placed on market prices, nor would production be controlled. If market prices fell below some established fair price, producers would receive compensatory payments on marketings equal to their quota (i.e., 75 percent of their base-period marketings). Compensatory payments would not be made for marketings in excess of the producers allotments—these marketings would receive the going market price.

Whereas the Brannan Plan would make compensatory payments on all marketings up to some maximum amount, the Brandow Proposal would introduce some element of marginal pricing. Producers would determine their level of output on the basis of returns from quantities produced in excess of their allotment. If the market price was low relative to the support price, there would be less incentive to increase production much beyond the allotments than if compensatory payments were received on all marketings. It would also be possible for producers to build up an historical production base in commodities not previously produced by them. While producers were building up a production base their marketings would sell at the going market price. Once a production base was established they would become eligible for compensatory payments. In this way farm resources would be shifted from the production of one commodity to another. If the difference between the support price and the market price was very small for a particular commodity, there would be an incentive to shift resources into the production of this commodity and out of the production of a commodity whose price was far below the support price.

Two price programs are presented in this report. The first, a Proposed Compensatory Payments Program, embodies provisions for achieving and maintaining the desired price declines at retail. It guarantees the assumptions for maximum increases in food consumption under the price approach (i.e., the desired price relationships are assured). However, this guarantee results in a program that is extremely complex, if not impossible, to administer. According to the criteria of administrative feasibility presented in Chapter 1, the Proposed Compensatory Payments Program is not acceptable. It is presented because it points out the measures needed to maximize increases in food consumption through the price approach.

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[43] Murray R. Benedict, *Farm Policies of the United States, 1790-1950* (New York: The Twentieth Century Fund, 1953), pp. 484-485.

[44] Wesley McCune, "The Secretary's Program," *The Agricultural Situation*, Vol. XXXII, No. 5, May 1949, pp. 5-9.

[45] G. E. Brandow, "A Modified Compensatory Price Program for Agriculture," *Jour. Farm Econ.*, Vol. XXXVII, No. 4, November 1955, pp. 716-730.

The second price program, an Indemnity Price Program, is administratively feasible. It is proposed as a **workable** alternative to the Compensatory Payments Program. Although maximum increases in total food consumption may not be attained under the Indemnity Price Program, the increases that are achieved are realistic in light of our criteria of program acceptability.

A Proposed Compensatory Payments Program

The three compensatory payments programs presented above do not contain features for adequately managing food supplies (i.e., putting on the market those quantities of commodities designed to yield specified retail price changes). Therefore, they would not be effective in obtaining **maximum** increases in total food consumption under specified price changes. When the price of one food group is reduced while the prices of all other food groups remain unchanged, a marked substitution occurs between the food group whose price has been reduced and the other food groups. Consumers respond to the price decline by increasing their consumption of that food group and, at the same time, reducing their consumption of the food groups whose prices remain unchanged. Therefore, the supplies of the latter food groups must be reduced by an amount comparable to the decline in their demand. When this is not done, prices of these food groups would fall, the price reduction of the original food group relative to the prices of the other food groups would not be as large, and the resulting increases in total food consumption would be less than when relative prices were maintained.

Increasing supplies presents no great problem. Producers respond to an increase in product prices over time and, subsidizing prices received by farmers will generally result in greater output. But, we are dealing particularly with a sector of the economy that has surplus production. The desired increases in supply may be available; the surplus may be present in those commodities for which consumers will increase their consumption. However, the supplies of some commodities will have to be decreased. This does present a problem, particularly when the prices of these commodity groups are to remain unchanged. If the supplies of particular commodity groups are to be reduced in order to maintain their prices, producers must restrict supply. Individual producers, who are maximizing profits at the given price, will not **voluntarily** reduce their output as they would then earn less than maximum profits. Therefore, some method for bringing about the reduction in supplies must be found.

It is not the purpose of this study to analyze the effectiveness of supply control measures. Suffice it to say that if the price approach to demand expansion is to be employed and this approach required supply reductions in some commodity groups, effective means will have to be employed for controlling these supplies. Otherwise increases in food consumption and farm resource use would not be maximized.

This study is concerned only with domestic civilian consumption and, therefore, only with food supplies moving through domestic marketing channels for civilian use. Statements about the food needs of other disposal channels cannot be made here. Only a control over the supplies going into domestic civilian consumption is implied and not over total supplies of the commodities. Total supplies of a commodity would also include the amounts of private exports, government shipments to other countries, military needs, nonfood needs, and inventory needs.

The price program presented here is a compensatory payments program with several modifications from either the Brannan Plan or the Brandow Proposal. The basis for determining the

compensatory payment to farmers is the level of the established fair price in conjunction with output and market prices. The fair price may be formulated in several ways. It may be a parity price which would give farmers returns per unit with a purchasing power comparable to that in some historical base period. The base period may be fixed or it may be changing to adjust prices to changes in costs and productivity. Or, the fair price may be based on some income formulation. For this a level of agricultural prices would be selected to insure farmers a rate of return on their labor and capital comparable to rates of return to skilled labor and capital in nonagricultural pursuits.[46]

Whatever the basis selected, the fair price will have to be determined by Congress.

> It would be the responsibility of Congress to determine and set forth fair, or parity prices for agriculture, as it does now. On the determination of parity prices for agriculture, the Congress would in fact be determining fair prices for both consumers and producers, and the needs and interests of both groups would have to be considered. Whenever legislative bodies in the past have granted a firm, or group of firms, the exclusive, monopoly right to provide a **vital service**, they have either retained the authority, or delegated the authority to some public agency, to regulate the . . . rates or prices. And food is a vital goods; consumers have as vital a stake in an adequate food supply as producers have in the income received from its production. Thus, if and when producers seek the assistance of government in cartelizing, and government grants that assistance, farmer-producers must expect Congress to withhold to itself, or grant to some public agency, the authority to determine the fair, or equitable prices . . .[47]

But will the support price set by Congress bring to market the desired amounts of the different commodities to achieve the desired retail prices? They may or may not be the right prices. Yet, the price received by farmers is crucial to the successful operation of the program. Therefore, the Congress will also have to grant program administrators the authority to adjust support price levels, within specified limits designated by Congress, above or below the support price. In this way, the needed flexibility in setting the level of the support price is achieved.

Price, however, is only one factor that determines farm output. Although prices received by farmers may be administratively controlled, this may not be true of the other factors affecting output. These other factors may be natural, such as fluctuations in weather conditions. But more important are the factors which affect costs of production. This group includes not only prices paid for production factors but technological change which affects technical output possibilities. Certainly, the impact of various technologies on agricultural efficiency and output cannot be ignored.

To establish control other than price over the quantities of different foods coming to market, some direct control will have to be had. This can be done in the following way. An historical production base is established for each farmer. For each food commodity or commodity group the desired level of marketings are expressed as a percent of the production base. This is the quantity that farmers can market under the support price. They will be penalized for production over and above their allotment. The penalty assessment will be an increasing function of the amount of overproduction. Slight overproduction due to miscalculations on the part of farmers will only incur a mild penalty. However, planned overproduction will tend to be discouraged

[46] W. W. Cochrane, "Some Further Reflections on Supply Control," *Jour. Farm Econ.*, Vol. XLI, No. 4, November 1959, pp. 701-702.

[47] *Ibid.*, pp. 699 and 701.

—the more severe the penalty the less incentive to overproduce.

The penalty assessment scheme is an alternative to allowing production over and above the quota to receive the market price. If there is a wide spread between the support price and the market price and the market price is considered very low, there might be little overproduction. However, if the market price is only a little below the support price, farmers may be willing to market quantities considerably beyond their allotment. It would then be difficult to achieve the desired market price. The penalty assessment scheme is a means of insuring that quantities in excess of the desired amounts do not come to market.

The penalty assessment on overproduction is just one of many means of controlling market supplies. If other means are equally as effective and have additional desirable features (e.g., allowing for more effective resource adjustments), they may be preferred.

In summary, the Compensatory Payments Program, as presented, would establish an historical production base on each farm. Farmers could market a prescribed percentage of their production base in any one year—the set percentage being announced in advance of the production period. Congress would establish a fair price. The difference between market prices and the fair price would then be paid to farmers for the amount of their allotment. Program administrators would be free to adjust the level of the fair price, within established limits. This should bring to market the quantities of the various foods that would be consistent with levels of demand in producing the desired retail prices. Penalties would be imposed on marketings above the individual allotments and the penalties levied would be an increasing function of the amount of overproduction.

However, this Compensatory Payments Program would be an almost impossible administrative task. Determining the desired quantities of the various food groups coming to market would, in itself, be a major task. In addition, program administrators would have to adequately control commodity supplies—a task not yet perfected. This is piling one major administrative job upon another. Therefore, the Proposed Compensatory Payments Program cannot be considered an operationally realistic program. Nevertheless, it illustrates the administrative complexities involved in an attempt to rigorously control the prices of agricultural commodities and thereby increase food consumption.

An Indemnity Price Program

A more workable program than the Compensatory Payments Program must be administratively feasible. One way to accomplish administrative simplification is to remove the need for rigorous supply control measures. The Indemnity Price Program does this. The program would operate at the wholesale level of food distribution. In order to attain the desired price declines at retail, wholesalers would be required to reduce the prices of foods they sell. The amount that the wholesale price of any commodity is reduced depends on the size of marketing margin between the wholesale and retail level. For example, if the wholesale price is 50 cents per unit and the retail price is $1 per unit, the wholesale price would have to be reduced by 10 cents to 40 cents to achieve a retail price of 90 cents. In this example the wholesale price must be reduced by 20 percent to effect a 10-percent decline in retail price. Wholesalers would receive an indemnity payment for the loss in revenue as a result of the price decline. The value of the indemnity payment equals the volume of sales of the product times the amount by which price has been reduced.

Information about the size of marketing margins for different commodi-

ties is readily available,[48] and it would be possible to determine the wholesale price reduction needed to accomplish the desired retail price reduction. It is assumed that competition in the food distribution and processing trade would pass on to the retail level all of the price decline in the wholesale price. At the same level of prices paid to farmers, wholesalers' demand for farm food products would increase by the amount of the increased sales at retail. To the farmer, the demand for food would have increased.

The wholesale level of distribution is selected to receive the indemnity payment because there are far fewer wholesalers than retailers. However, operation of the Program at the wholesale level is not free of problems. For example, differences in commodity grades, varying degrees of processing, and the general problem of deciding what is the wholesale level of distribution for each commodity must be considered. These may not be easy problems to solve.

No attempt is made to support farm prices at any specified level. The retail price decline is independent of the level of food prices. Whether food prices are high or low, retail prices will be lower by a specified amount as a result of Program operation. Thus, no reductions in the supplies of any food groups are needed. The desired relative levels of food group prices are achieved, but the level of food prices is not pegged.

In summary, the Indemnity Payments Program would operate at the wholesale level of food distribution. Wholesale prices of foods would be reduced by an amount consistent with the desired declines in retail food prices. Wholesalers would receive a subsidy payment based on the price reduction. The Program appears administratively feasible and, thus, preferable to the Compensatory Payments Program.

THE NUTRITION APPROACH

The nutrition approach to demand expansion, in terms of specific programs, is more elusive than either the price or the income approach. There are several reasons for this. First, in either the income or price approach there is one major constraint to increasing food consumption—income or food prices. In the nutrition approach there are several constraints besides income or purchasing power. These are: (1) the level of nutrition education among consumers; (2) the variety of tastes and preference patterns for food; and (3) the lack of knowledge about what are the optimum levels of nutrient intake and, therefore, the extent of nutritional shortages. It is very difficult, if not impossible, to conceive a single nutrition program that would encompass all, or even a major part, of the many dimensions of good nutrition.

The nutrition approach can be divided into two parts—educational and institutional. The educational approach involves research on food and nutrition and consumer education on good nutrition. The institutional approach involves service programs to insure nutritional adequacy in consumer diets. The establishment of quality standards and enrichment of foods and feeding programs are institutional measures directed at improving human nutrition.

Education Approach

Continued research on food and nutrition is needed to determine the role that nutrients play in human growth and development, the quantities needed by individuals, and the foods from which they can be obtained. Great strides have been made toward discov-

[48] See *Special Studies of Marketing Costs and Practices*, Market Research Report No. 240, AMS, USDA, October 1958; *The Marketing Bill for Farm Food Products*, AMS, USDA, August 1959; and *Special Margins and Costs Studies*, Market Research Report No. 167, AMS, USDA, April 1957.

ering what constitutes a good diet. Nevertheless, nutrition is a relatively young discipline and nutritionists have, by no means, uncovered all the unknowns. The role of many nutrients in human growth and development is well understood but, there is much less agreement on the quantities of the various nutrients required in a nutritionally adequate diet.[49]

Consumer education is another branch of the educational approach. There are some individuals who desire a nutritionally adequate diet but do not know what food combinations should be eaten. Educational efforts that deal with the nutrient content of different foods and menu construction consistent with tastes, preferences, and costs would help to eliminate nutritional shortages within this group. There is another group, however, which is not aware of the importance of good nutrition. For these people the educational approach has to be different. First, the desire for good nutrition must be created. People have to be made aware of the importance of good nutrition as well as the means by which these diets can be obtained.

People change their patterns of food consumption slowly. The influence of established food tastes and preferences works strongly against changes in the composition of family diets. Therefore, a nutrition-education program must be on a long run, continuing basis. Educational efforts in our public schools can be continued and even increased. The use of mass media advertising and promotion is another method. Close cooperation between nutritionists and doctors affords a good means, particularly for getting adequate diets for children. And extension activities by colleges, universities, and other public agencies should also be continued.

But a point must be made here. Nutrition education does not necessarily constitute a demand expansion measure. People can eat nutritionally adequate diets without increasing their expenditures on food or their level of food consumption (measured in terms of farm resources). Within the budget constraint there are numerous food combinations that could satisfy dietary requirements and consumer tastes and preferences. The education approach to good nutrition will have to be justified on nutrition grounds, not by demand expansion. Since the nutrition education approach, *per se,* does not necessarily increase food consumption, and since the effects of such programs on consumption cannot be measured with any degree of accuracy, a nutrition-education program will not be analyzed in this study. However, it is assumed that some meaningful level of educacational activities will exist and that any expansion of these activities is consistent with the goal of improved consumer diets.

There is in the United States a situation of abundant food, not food shortages. This study is concerned with attaining food diets through increased food consumption. If the situation were one of food shortages, our goal would be to achieve adequate dietary standards at the present level or a lower level of food consumption. Programs which improve nutrition without increasing food consumption, no matter how desirable and necessary they are, do not fall within the analytical framework of this report.

Institution Approach

Another approach to good nutrition is through institutional programs. One such group of programs is public and private standards for food. There are many foods (e.g., bread, milk) which are presently fortified with essential nutrients, insuring consumers some minimum nutritional content. This practice of food enrichment might be expanded to cover a greater number and variety

[49] M. K. Bennett, *The World's Food* (New York: Harper and Brothers, 1954), pp. 94-113.

of foods, thereby artificially fortifying the diet with essential nutrients.

Quality control also leads to improved nutrition. Improved quality retains the inherent nutrients in a particular food. And, to the extent that improved quality makes certain foods more appealing to consumers, this could result in a greater variety and better nutrient content in diets. However, programs of food enrichment and quality improvement probably have very little impact on increasing food consumption. Consumers can, without eating more food, improve their diets with enriched and high quality foods. Therefore, programs that establish food standards also fall outside the area of this report.

An effective nutrition service program of long standing is the School Lunch Program. The expressed aim of the program "is to safeguard the health and well-being of the Nation's children by encouraging them to eat more nutritious foods."[50] The nutrition objectives of the School Lunch Program are twofold: (1) to provide children with meals in school which establish some minimum nutrient standard in their diets, and (2) to make children aware of the importance of good nutrition so that as adults they will attempt to obtain adequate nutrient standards for themselves and their children. These objectives have, to a large extent, been achieved. This constant exposure succeeds in molding new and nutritionally better tastes and preference patterns for food.

> From the viewpoint of child welfare, the program has helped arouse public interest in the serious problem of child malnutrition in the United States, has been a vehicle of widespread effort to deal with it, and has made large quantities of food available to needy and undernourished children. Even more significant, it has stimulated thousands of communities to local action and has helped to bring together a wide range of organizations and agencies, local, State, and national for coordinated effort toward solving the problem.[51]

There are several ways in which special nutrition foods can be incorporated in a service program. Probably the most outstanding of these is the School Milk Program or the Special Milk Program as it is now known. School children daily receive free, or at nominal cost, fresh milk in their schools. The nutritive importance of milk in the diet, particularly for children, is well founded.

Three specific nutrition programs are analyzed in this report. They are: (1) the School Lunch Program, (2) the Special Milk Program, and (3) Public and Nonprofit Institutional Feeding Programs. These three programs are selected because they either are now in operation or would be operated in areas eligible for public assistance.

It is assumed that the School Lunch Program will continue to operate on its present basis. Under the program, participating schools receive money subsidies with which to purchase the foods needed for constructing nutritionally adequate menus. States must match Federal government grants. However, special provisions are made for states with low per capita incomes so that Federal contributions might exceed State contributions in such cases. Provision is also made for the use of surplus foods in the School Lunch Program where the surplus foods result from temporary marketing gluts.

It is also assumed that the Special Milk Program will continue to operate on its present basis. Funds are made available to participating schools which enable these schools to offer milk to students at prices considerably below cost.

Food subsidies granted to the feeding programs of public and nonprofit

[50] Kenneth E. Anderson, *Participation of Schools and Pupils in School Luch Programs in Elementary and Secondary Schools of the United States*, Market Report No. 262, Marketing Research Division, AMS, USDA, August 1958, p. 4.

[51] H. M. Southworth and M. I. Klayman, *The School Lunch Program and Agriculture Surplus Disposal*, Misc. Pub. No. 467, USDA, October 1941, p. 61.

institutions (Federal, State, or local) other than schools should not exceed the amount contributed by the institutions. The aims of a Federal program of food subsidies to public and nonprofit private institutions is not to bear the entire cost of the feeding programs. The Federal subsidy should represent increases in food consumption (both quantitative and qualitative) over current nonsupported levels of consumption. Institutions should not be able to substitute Federal funds received for current food expenditures if the Federal expenditures are to achieve improvements in the diets.

Public and private nonprofit institutions covered by the Programs would include mental institutions, hospitals, prisons and other penal institutions, nonprofit summer camps, and all nonprofit charitable organizations (e.g., community centers, old age homes).

Conclusions

Methods for improving nutrition do not necessarily increase the demand for farm food products, and because of the lack of data, the educational approach does not fall within the scope of this report. Nutrition programs such as the School Lunch Program, the Special Milk Program, and Public and Nonprofit Institutional Feeding Programs contain demand expansion potentials and data are available for obtaining quanitative estimates of increasing food consumption through expanded program activities.

SUMMARY

The demand expansion programs presented in this chapter are: (1) consistant with the goals of demand expansion, and (2) lend themselves to quantitative analysis. Programs not containing the above characteristics are excluded because they do not fall within the analytical framework of the study.

The demand expansion programs presented are either similar to programs that have been proposed or operated in the past or are currently being operated. The objectives and methods of operation are consistent with the program acceptability criteria. Both past and current interest in these programs attest to their public appeal. Levels of program operation have not yet been discussed—this is deferred to Chapter IV. Program expenditures are also part of the acceptability criteria. Final selection of acceptable programs and their level of operation is made in Chapter VI. First the programs must be quantitatively analyzed for cost of operation and effect on increasing food consumption and farm resource use.

Chapter III. Analysis of Programs

THE PROGRAMS presented in the previous chapter are examined here for three features. These are: (1) their impact on nutritional shortages; (2) their effect on farm prices and incomes; and (3) the consistency of program operation with fiscal policy goals. The first two features relate directly to demand expansion objectives. Therefore, one standard for program evaluation is the degree to which it achieves the desired objectives. Program consistency with fiscal policy goals is of considerable political as well as economic importance. The more compatible the programs are

with broad economic and political aims for the economy as a whole, the more acceptable they are.

FOOD ALLOTMENT PROGRAM

Effect on Nutrition

The income subsidy granted to low-income consumers supplements normal food expenditures in order to provide a diet consistent with the consumption pattern of a selected, higher-income group. To the extent that this occurs, nutritional shortages should decrease. There is no guarantee, however, that participants will purchase a nutritionally adequate diet as the result of the subsidy. The operation of the program should make people more aware of the existence and problems of nutritional shortages. Over time, the program may serve as an educational means of disseminating nutrition information to consumers.

Effect on Farm Prices and Incomes

The Food Allotment Program separates consumers into two groups—participants and nonparticipants. Participants would be low-income consumers; nonparticipants would be mainly higher-income consumers and some low-income consumers. Participants would be guaranteed a certain level of food purchasing power. This guarantee would not vary with food price changes (the value of the food allotment would be adjusted for food price changes). Nonparticipants, of course, would receive no purchasing power guarantee, and their food consumption would still be responsive to price changes. With a given supply of food available, nonparticipants will have to bid for food against participants. In the short run (where supplies are fixed), the expand-

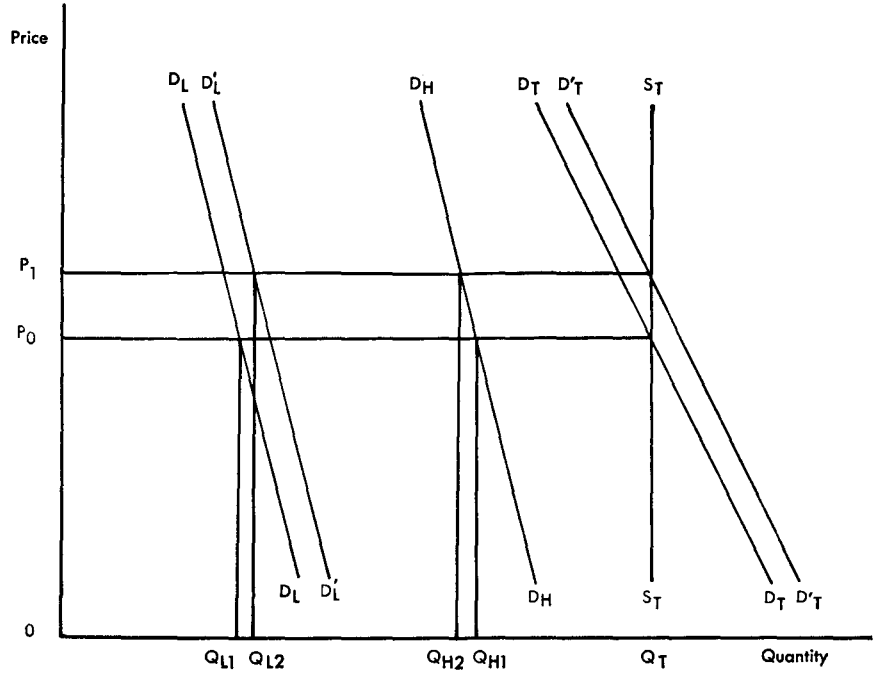


FIG. 1.

ed demand for farm food products, resulting from the operation of the Program, would increase prices received by farmers and farm incomes. Where the surpluses of farm commodities are in the form of low-farm prices and incomes, a shift in the demand for these products would increase prices and incomes for given levels of supplies. Where the surpluses of farm commodities are of the form of accumulated physical stocks, two things could happen. Either the physical surpluses will decrease by the amount of their increased consumptions, or stocks will not be disposed of and producers will receive the benefit of the expanded demand through higher prices.

Therefore, in the short run, the expanded demand for food due to Program operation will result in higher food prices. And, a higher level of food expenditures will result. The effects of the Food Allotment Program on food prices and expenditures are illustrated in figure 1. Total supply is assumed fixed and represented by the vertical supply function S_TS_T. Low-income consumers' demand is represented by the function D_LD_L and high-income consumers' demand for food by D_HD_H. Initial equilibrium price is P_0. Low-income consumers are consuming Q_{L1} and high-income consumers Q_{H1}. An income subsidy to low-income consumers for food would result in a shift in their demand from D_LD_L to $D'_LD'_L$. Consequently, there would be a shift in the total demand for food from D_TD_T to $D'_TD'_T$. It is assumed that this subsidy would come, in large measure, from high-income consumers but this would not reduce demand on their part. This is based on the assumption that a Food Allotment Program would not operate at a level which would appreciably reduce the income and hence the demand for food by nonparticipants. The new price is now P_1. As a result of the higher price, high-income consumers will reduce the quantity of food consumed from Q_{H1} to Q_{H2}. Due to the shift in demand, the quantity of food consumed by participants will increase from Q_{L1} to Q_{L2}.

The effects of the Food Allotment Program on food prices and expenditures are similar when either the price elasticity of demand for food is the same for low- and high-income consumers, or where, as some economists believe,[52] the price elasticity of demand is more inelastic for high-income consumers than for low-income consumers.

The foregoing analysis is pertinent to a short-run situation where supplies of products can be assumed fixed. In the longer run, however, the assumption of fixed supplies does not necessarily hold. Improved product prices will result in increased production if there are no production controls. This increase would come about for two reasons. First, the elasticity of supply is greater in the long run than in the short run.[53] The elasticity of supply is a measure of the ease with which an industry may be expanded.[54] The longer the time period, the more production adjustments that can be made in response to a given price change. It is easier for the industry to alter production in the longer run and, therefore, the reason for a greater elasticity of supply. Second, in the longer run, output increasing technologies may be adopted by the industry and result in a shifting of the supply curve to the right.

In the long run, industry output would increase in response to higher prices and prices would fall. If the average market price fell to its original level, more farm food products

[52] Norman Leon Gold, A. C. Hoffman, and Frederick V. Waugh, *Economic Analysis of the Food Stamp Plan* (Washington: U. S. Government Printing Office, 1940), p. 1.

[53] George J. Stigler, *The Theory of Price* (New York: The MacMillan Company, 1952), pp. 172-175 and Kenneth E. Boulding, *Economic Analysis* (New York: Harper and Brothers, 1955), pp. 568-570.

[54] Kenneth E. Boulding, *op. cit.*, p. 568.

could be sold at the original price due to the expanded demand. Total expenditures, therefore, would be greater than before. What happens to the level of supplies will, in large measure, determine the price and income effect of the program.

The income redistribution effects of a Food Allotment Program are not considered in the foregoing analysis. If the Program is financed from income tax revenues, the burden of payment will fall most heavily on higher-income consumers because of the progressive nature of the income tax. The demand of higher-income consumers may then shift to the left and the price increase effect would be less. The higher the level of Program operation, the larger will be the revenue needs and the greater will be the reduction of demand for food of high-income consumers. However, the financing of a Food Allotment Program need not add to present Government expenditures. The Program can be financed out of funds currently used for other programs. This would have no income redistribution effects.

Fiscal Policy Implications

Although the effects of a Food Allotment Program on the overall level of employment and national income might not be large,[55] it is compatible with fiscal policy objectives.[56] During periods of full employment and rising levels of real income, Program expenditures would decline. The number of people whose food expenditures are above a certain proportion of their income would decrease as incomes rose. On the other hand, in periods of substantial unemployment and falling levels of real income, program expenditures would increase. The Program would operate to maintain a continual high level of demand for farm food products.

Therefore, government expenditures on a Food Allotment Program are strongly anticyclical—the expenditures decrease in periods of high employment and national income and increase in periods of high unemployment and low national income. Adjustments in the level of operation to fluctuations in employment and national income could be rapid. If persons could make income declarations on a monthly basis, there could be a monthly adjustment.

PRICE PROGRAMS

Effect on Nutrition

The direct effects of a retail food price decline on improving nutrition are not as clear as under the Food Allotment Program. With the price approach, changes in food consumption will depend on: (1) which food prices are reduced, and (2) the amount of the reductions. The improvement in the nutrient content of consumers' diets can be determined via the measured increases or decreases in consumption of different food groups. Compared with the analysis of the Food Allotment Program, this is painting with a broad brush. Reductions in nutritional shortages cannot be measured by regions, urbanizations, and income groups under price programs. Changes in food consumption are assumed to be distributed evenly over all income groups. This is not entirely realistic. If different income groups have different price elasticities for food, a given price change will result in varying consumption increases or decreases between income levels. However, the detailed consumption data available for this study are related to income and not price. Therefore, the

[55] For a discussion of the interrelationships between agriculture and the business cycle see Dale E. Hathaway, "Agriculture and the Business Cycle," *Policy for Commercial Agriculture: Its Relation to Economic Growth and Stability*, Joint Economic Committee, 85th Congress, 1st Session, November 22, 1957, pp. 51-56.

[56] Rainer Schickele, "The National Food Allotment Program," *Jour. Farm Econ.*, Vol. XXVII, No. 2, May 1946, p. 520.

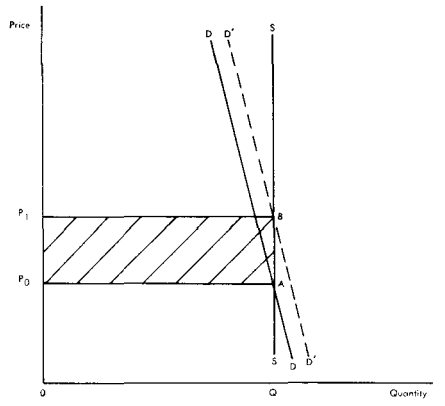


FIG. 2.

price approach must necessarily deal with the population aggregate or the total population.

Effect on Farm Prices and Incomes

Both in the short and long run, the farm price and income effects that result from price programs are almost the same as those presented for the Food Allotment Program. In the short run, assuming fixed supplies, the price subsidies would result in higher prices received by farmers. This is illustrated in figure 2. Let DD be the market demand curve at the farm level and SS be the fixed supply curve. In market equilibrium farmers would receive price P_0 for the quantity Q. However, if farmers received a price subsidy for the same quantity sold, P_1 would be the new price, O_{P1}-O_{P0} the price subsidy, and farmers would still be selling Q. Therefore, to farmers it would appear that demand has shifted from DD to D'D'. The rectangle P_0P_1BA represents the subsidy paid to farmers.

In the long run, as supplies increased in response to the higher prices received by farmers, prices would fall. However, farmers could still sell more at the original price as a result of the expanded demand.

Fiscal Policy Implications

To the extent that farm prices and nonfarm prices move in the same direction and by about the same amounts, the Compensatory Payments Program is compatible with fiscal policy objectives. As farm and nonfarm prices rise or fall, the difference between the support price and the market price would increase or decrease respectively as would compensatory payments to farmers. Dale E. Hathaway[57] stated that:

1. Vigorous expansions and contractions in the nonfarm economy affect the well-being of agriculture and farm people. Regardless of the measure used, the income of farmers has moved in the same direction as the income in the nonfarm economy during major business cycles.
2. During periods of mild expansion and contraction in the nonfarm economy the income of farmers is likely to be subject to other influences which override the effects of changes in nonfarm business activity.

Therefore, the Compensatory Payments Program fits into the scheme of fiscal policy objectives. Given extreme fluctuations in the general levels of business activity a compensatory price program could be anticyclical. The same cannot be said when fluctuations are mild.

An Indemnity Price Program is not consistent with fiscal policy objectives. The dollar value of indemnity payments depends on the total quantity of food consumed and the desired decline in retail food prices. The value of compensation is independent of the level of food prices except insofar as total food consumption changes in response to changes in the price of all foods. However, the aggregate demand for food is inelastic—about —.20 to —.25.[58] Since the level of food consumption tends to be unresponsive to price changes, so would the value of the indemnity payment. In general, the effect of major swings in the level of non-

[57] *Ibid.*, pp. 75-76.
[58] Wetmore *et al.*, *op. cit.*, p. 67.

farm and farm prices would not influence the level of indemnity payments. Therefore, the program would not be consistent with fiscal policy objectives.

NUTRITION PROGRAMS

Effect on Nutrition

The institutional approach will have a direct effect on eliminating nutritional shortages. Meals eaten in institutional feeding programs will, of course, be nutritionally adequate. A minimum nutrition standard is effected by the amount that institutional food consumption is of total food consumption.

In addition, institutional feeding programs are avenues for making people aware of good nutrition and exposing them to wholesome, balanced diets. The effect of nutrition education that results from feeding programs takes place over time. It may be impossible to measure, but it should be recognized.

Effect on Farm Prices and Incomes

The effect on farm prices and incomes of institutional nutrition programs is similar to that of the Food Allotment Program. The subsidy received by institutions will enable them to buy more food at the same price. For any given total supply of food, institutions would bid against nonsubsidized consumers. The results are similar to those presented in figure 1.

Fiscal Policy Implications

Nutrition programs are not, in general, consistent with fiscal policy. Levels of program operation would not vary with fluctuations in business activity. The education approach—consumer education and research—is a continuing process and cannot be interrupted without the whole program suffering. School Lunch Programs, School Milk Programs, and Institutional Feeding Programs are to be operated on a continuing basis. In short, the constraints to good nutrition—nutrition education and tastes and preferences—are not related to economic forces that affect the general level of business activity. Therefore, levels of program activity could not be adjusted to changing levels of economic prosperity.

RELATION BETWEEN PROGRAMS

The three approaches to demand expansion—income, price, and nutrition—are not mutually exclusive. They overlap to varying degrees. Nutritional shortages tend to decrease as consumers' incomes rise.[59] Therefore, an income program would reduce some nutritional shortages without a direct consideration of the nutrition problem. This same interrelationship may also exist between the price and the nutrition approach. However, the effect of a price reduction for food on nutritional shortages is not as obvious. If the consumption of foods that supply needed nutrients increases as a result of a price reduction, the price approach also decreases nutritional shortages.

Unfortunately, the overlap between programs is not complete. There are still many areas of nutritional shortages that neither the income nor the price approach attack. Many high-income consumers, although they have sufficient income, do not have nutritionally adequate diets.[60] Educational and institutional programs are required for some consumers at **all** income levels.

CONCLUSIONS

All three approaches to demand expansion work toward reducing nutritional shortages. The effect on nutrition

[59] Wetmore *et al., op. cit.*, pp. 77-78.
[60] *Ibid.*

of the Food Allotment Program and nutrition programs is fairly evident. The groups that participate in these programs are identifiable and the impact of program operation on increasing their food consumption is ascertainable. The effect of an Indemnity Price Program is less clear because the impact on different income groups cannot be determined from available data. In addition, programs under all three approaches will increase the demand for farm food products and tend to increase farm prices and incomes. Only the Food Allotment Program is consistent with fiscal policy objectives. The price and nutrition programs do not contain the necessary anticyclical features.

Chapter IV. Estimates of Program Costs

THE DEMAND expansion programs presented in Chapter II are analyzed here with respect to: (1) increasing food consumption, and (2) resulting costs of program operations. In the analysis of the Food Allotment Program changes in food consumption are presented for region-urbanizations as well as for the total United States. Price and nutrition programs are analyzed only at the total United States level because of the lack of data. Estimates of both direct and administrative costs are presented. Direct costs are incurred in either the procurement and distribution of foods or in cash payments to program participants. Administrative costs consist of necessary program expenditures on personnel, offices and office equipment, travel, supplies, etc.

FOOD ALLOTMENT PROGRAM

The Data

The data used in estimating food consumption changes and costs at several levels of Program operation are from the 1955 Household Food Consumption Survey as processed in *Policies for Expanding the Demand for Farm Food Products in the United States; Part I. History and Potentials.* A detailed description of source, methods of estimation, and limitations of data is in the above report. The following is a brief summary of the data.

Per capita consumption data for various foods are available for per capita income groups and region-urbanizations. The various foods are classified into 31 food groups and subgroups as presented in table 3.

The data are summarized by four alternative food consumption measures: (1) **quantity used;** (2) **quantity purchased;** (3) **money value of quantity used;** and (4) **expense of quantity purchased.** Primary emphasis is placed on **quantity purchased** and **expense of quantity purchased.** They represent the quantity and value of food moving through commercial marketing channels and are of most interest to the commercial sector of agriculture (i.e., farmers producing food for off-farm sale). **Quantity used** and **money value of quantity used** are measures of the level and value, respectively, of total food consumption. Total food consumption includes both purchased and home-produced foods.

In addition, the food consumption data are summarized by region-urbanizations. They are: North nonfarm, North farm, South nonfarm, and South farm.

Table 3. Classification of foods used in estimating income consumption potentials

Milk and milk products (calcium equivalent)
Milk (fluid equivalent)
Cream and ice cream
Cheese
Meat, fish, poultry (excluding bacon and salt pork)
Bacon, salt pork
Beef, pork, fish, poultry (including bacon and salt pork)
Beef
Pork (including bacon and salt pork)
Fish
Total poultry
Other meat
Eggs
Dry beans, peas, lentils (dry equivalent)
Nuts and peanut butter (shelled weight)
Vegetables
Potatoes, including chips and salad
Sweet potatoes
Dark green and yellow
Other green
Tomatoes
Other vegetables
Citrus fruits (single-strength juice equivalent)
Dried fruit
Other fruit
Grain products (flour equivalent)
Fats and oils (excluding bacon and salt pork)
Butter
Margarine
Other fats and oils (including salad dressing)
Sugar and sweets (including puddings, soft drinks, etc.)

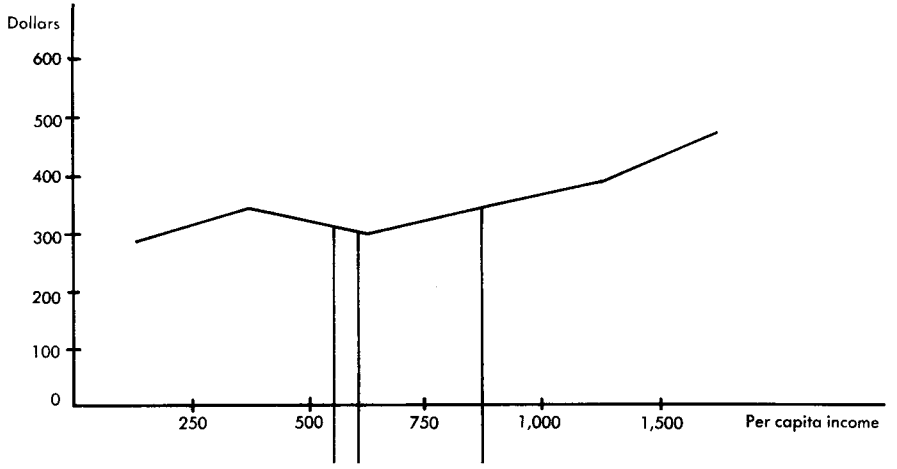
Method of Analysis

As stated in Chapter II, money value is the value measure used in comparing levels of consumption between region-urbanizations. It measures the **value of total food consumption.** Generally, as incomes increase, the money value of food consumed also increases. However, this increase in money value becomes a smaller proportion of the increased income. Consequently, money value of food consumed, expressed as a percent of income, decreases.

In figures 3-6, average per capita money value for each per capita income group (upper portion of figures) and average per capita money value expressed as a percent of per capita income (lower portion of figures) are presented by region-urbanization. The per capita income classes consistent with assumed percentages that money values of food are of income are determined for the 60-percent, 50-percent, and 40-percent levels. These income levels are also indicated in figures 3-6. For example, in the North nonfarm region-urbanization, average per capita money value expressed as a percent of per capita income exceeds 40 percent in the per capita income classes below the $750-$999 income level (figure 3).

The distributions of total food consumption and money value of total food consumption within income groups are not known. Within any income group individuals have levels of food consumption above and below the average. Consequently, the money value of their consumption expressed as a percent of income is above or below the average for the income group. In addition, it is impossible to get accurate measures of total food consumption of **individuals** for purposes of the Food Allotment Program operation. Therefore, the Program cannot operate on the basis that all persons whose value of food consumption is greater than a given percent of income are eligible to participate. The alternative used in this report is to use average per capita consumption data for given per capita income groups.

Eligibility for participation in the Food Allotment Program is determined in the following way: The income groups in which average money value of food consumption exceeds a predetermined percent of per capita incomes are estimated. All persons whose incomes fall within these groups (i.e., fall above the predetermined percentage point) are eligible. Within these groups there will be individuals whose value of food consumption is a lower percent of their income than the selected percentage level. There also will be persons with higher incomes, not eligible to participate, but whose value of food consumption is a higher percent than the level selected. Due to lack of data, the above mentioned problems cannot be adequately handled either in the



Per capita money value of food consumed by per capita income groups, North nonfarm, United States, 1955

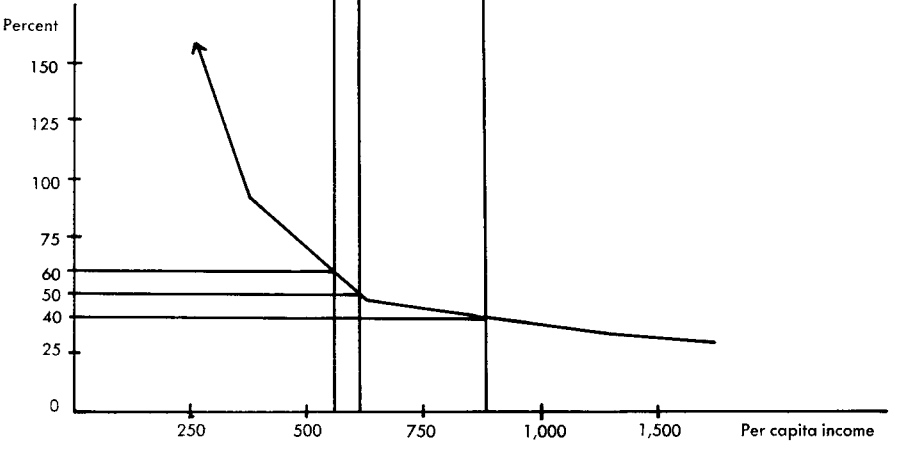


FIG. 3. Per capita money value of food consumed as a percent of per capita incomes, North nonfarm, United States, 1955

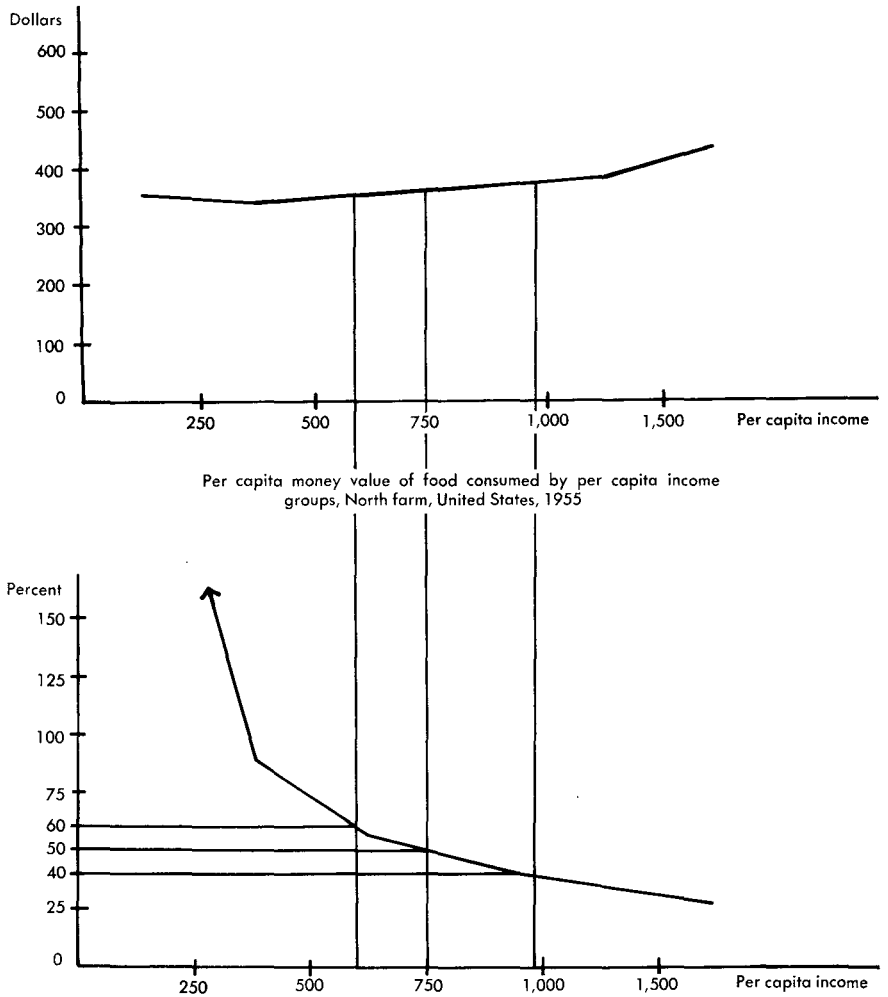


FIG. 4. Per capita money value of food consumed as a percent of per capita incomes, North farm, United States, 1955

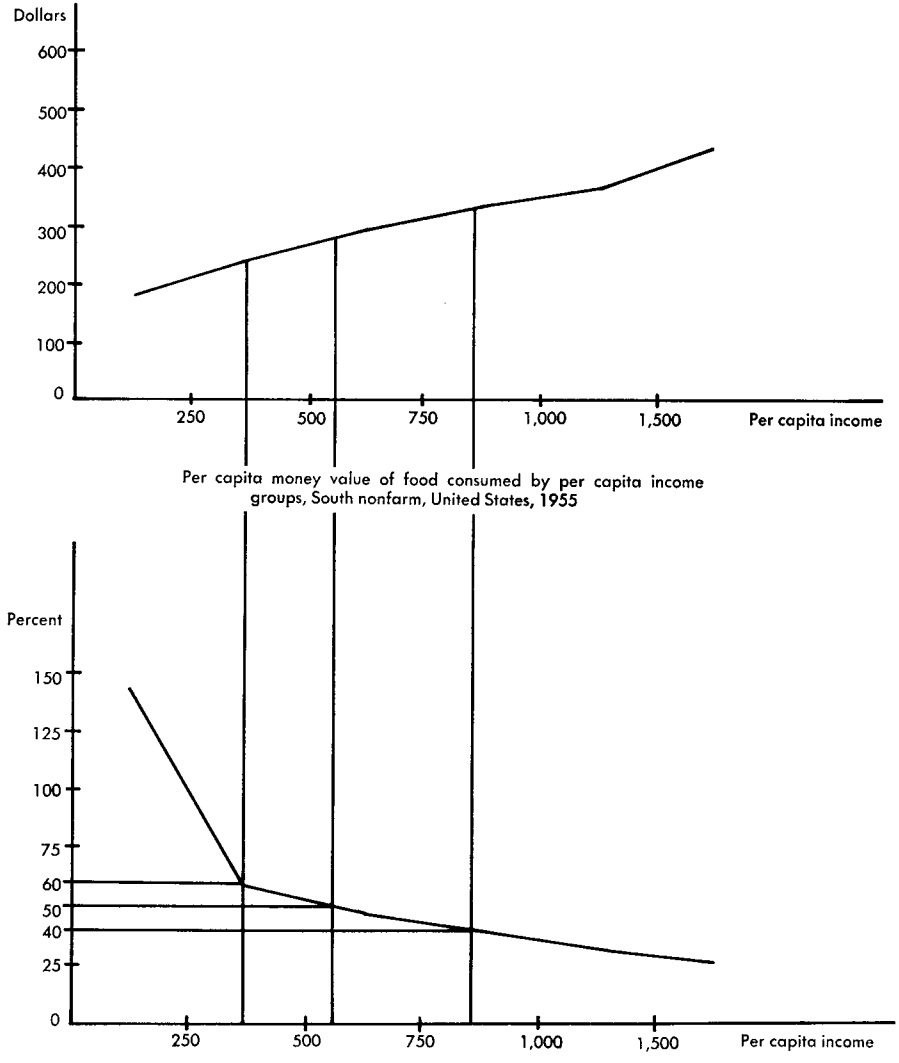


FIG. 5. Per capita money value of food consumed as a percent of per capita incomes, South nonfarm, United States, 1955

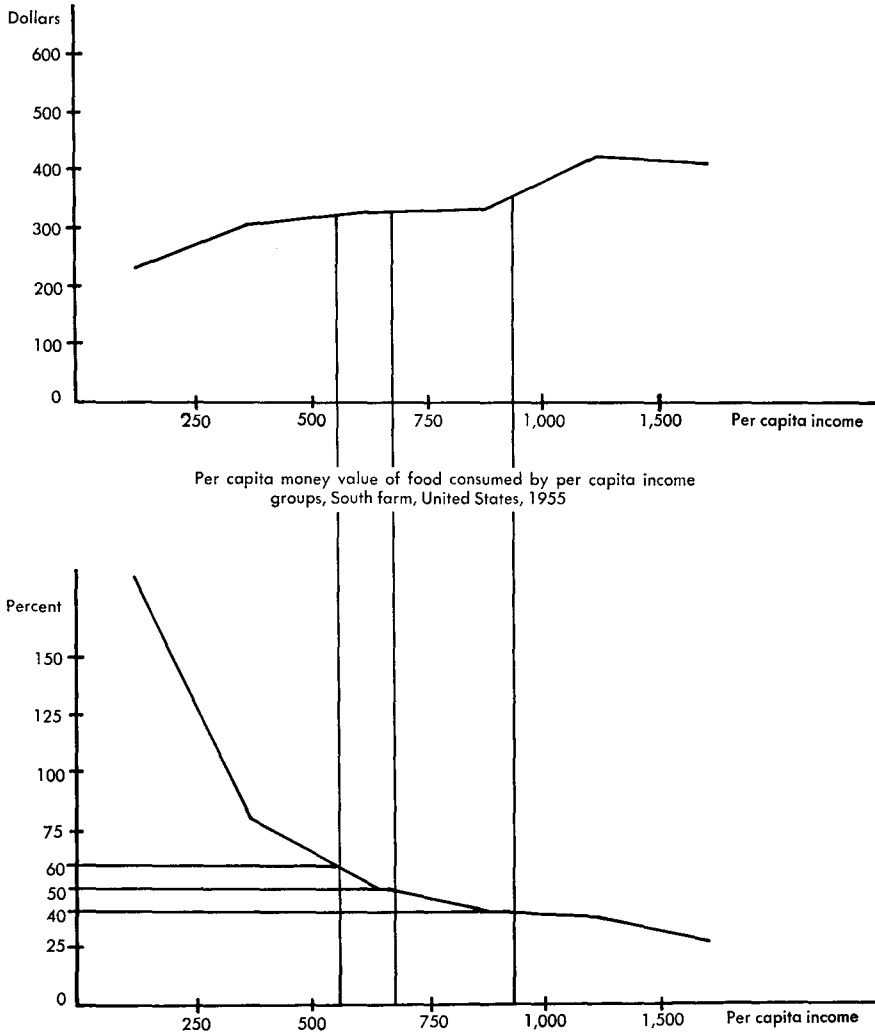


FIG. 6. Per capita money value of food consumed as a percent of per capita incomes, South farm, United States, 1955

Table 4. Distribution of United States population by region-urbanizations eligible for participation at different levels of operation of the Food Allotment Program, 1955

Per capita money income after taxes	North nonfarm		North farm		South nonfarm		South farm		United States	
	Number of persons (thousands)	Percent of U.S. population	Number of persons (thousands)	Percent of U.S. population	Number of persons (thousands)	Percent of U.S. population	Number of persons (thousands)	Percent of U.S. population	Number of persons (thousands)	Percent of U.S. population
High level of operation										
Under $250	2,851	1.8	1,769	1.1	4,469	2.8	5,063	3.2	14,152	8.9
$250-$499	3,507	2.2	1,954	1.2	6,512	4.1	2,674	1.7	14,647	9.2
$500-$749	12,728	8.0	2,688	1.7	12,315	7.7	1,231	.8	28,962	18.2
Total	19,086	12.0	6,411	4.0	23,296	14.6	8,968	5.7	57,761	36.3
Moderate level of operation										
Under $250	2,851	1.8	1,769	1.1	4,469	2.8	5,063	3.2	14,152	8.9
$250-$499	3,507	2.2	1,954	1.2	6,512	4.1	2,674	1.7	14,647	9.2
$500-$749			2,688	1.7					2,688	1.7
Total	6,358	4.0	6,411	4.0	10,981	6.9	7,737	4.9	31,487	19.8
Low level of operation										
Under $250	2,851	1.8	1,769	1.1	4,469	2.8	5,063	3.2	14,152	8.9
$250-$499	3,507	2.2	1,954	1.2			2,674	1.7	8,135	5.1
$500-$749										
Total	6,358	4.0	3,723	2.3	4,469	2.8	7,737	4.9	22,287	14.0

Table 5. Percentage change in *total United States quantity purchased* of various foods and food groups under the Food Allotment Program at the *high level of operation* for assumed levels of participation, United States, 1955

Food group	Assumed percentage levels of participation		
	90	75	50
	percent		
All food	5.2	4.4	2.9
Milk and milk products	7.0	5.8	3.9
Milk	6.4	5.3	3.6
Cream and ice cream	14.9	12.4	8.3
Cheese	4.4	3.7	2.4
Meat, fish, poultry	7.8	6.5	4.4
Bacon, salt pork	.2	.2	.1
Major meats	7.6	6.3	4.2
Beef	7.3	6.1	4.0
Pork	5.9	5.0	3.3
Fish	8.9	7.4	5.0
Total poultry	10.8	9.0	6.0
Other meat	3.2	2.6	1.8
Eggs	7.0	5.8	3.9
Dry beans	−15.8	−13.1	−8.8
Nuts	6.7	5.6	3.7
Vegetables	5.2	4.4	2.9
Potatoes	1.5	1.3	.9
Sweet potatoes	10.4	8.7	5.8
Dark green and yellow	4.0	3.4	2.3
Other green	6.3	5.2	3.5
Tomatoes	8.0	6.7	4.4
Other vegetables	8.6	7.2	4.8
Citrus fruits	8.4	7.0	4.6
Dried fruit	6.6	5.5	3.6
Other fruit	6.9	5.8	3.8
Grain products	−4.3	−3.6	−2.4
Fats and oils	3.7	3.1	2.0
Butter	5.9	5.0	3.3
Margarine	2.4	2.0	1.4
Other fats and oils	2.8	2.3	1.6
Sugar and sweets	2.2	1.9	1.2

analysis of the Program or in its operation.

It was also pointed out in Chapter II that the amount of the subsidy per participant is based on food expenditures and not total food consumption. Participants will receive the difference between the average value of **food expenditures** of their income group and the average level of **food expenditures** of the income group to which their level of food consumption is to be raised. Per capita expenditures on food and per capita expenditures expressed as a percent of income by per capita income groups and region-urbanizations are presented in figures 1-4 in the Appendix.

Program participants are not compelled to purchase a nutritionally adequate diet. However, nutrition education efforts should be incorporated in the Program. Moreover, information should be made available to participants about what quantities of various foods constitute a nutritionally adequate diet at cost levels consistent with the value of food consumed at the income levels to which their level of food consumption is to be raised. Participants desiring to improve the nutrient content of their diets would then

Table 6. Percentage change in *total United States quantity purchased* of various foods and food groups under the Food Allotment Program at the *moderate level of operation* for assumed levels of participation, United States, 1955

Food group	Assumed percentage levels of participation		
	90	75	50
	percent		
All food	2.2	1.9	1.2
Milk and milk products	4.0	3.4	2.2
Milk	3.4	2.8	1.9
Cream and ice cream	6.1	5.1	3.4
Cheese	2.8	2.3	1.6
Meat, fish, poultry	2.2	1.9	1.2
Bacon, salt pork	1.2	1.0	.6
Major meats	2.2	1.8	1.2
Beef	1.8	1.5	1.0
Pork	2.1	1.7	1.2
Fish	3.1	2.6	1.7
Total poultry	3.2	2.7	1.8
Other meat	1.3	1.0	.7
Eggs	2.7	2.2	1.5
Dry beans	−7.1	−5.9	−4.0
Nuts	5.0	4.1	2.8
Vegetables	2.9	2.4	1.6
Potatoes	1.4	1.1	.8
Sweet potatoes	4.0	3.3	2.2
Dark green and yellow	3.1	2.6	1.7
Other green	3.2	2.6	1.8
Tomatoes	4.9	4.0	2.7
Other vegetables	3.7	3.1	2.0
Citrus fruits	2.1	1.7	1.2
Dried fruit	2.5	2.1	1.4
Other fruit	2.4	2.0	1.4
Grain products	−2.1	−1.7	−1.2
Fats and oils	1.4	1.1	.8
Butter	....	....	....
Margarine	3.9	3.2	2.2
Other fats and oils	.6	.5	.4
Sugar and sweets	3.3	2.8	1.9

have some guidelines for doing so. However, specific food allotments are not included in this analysis because a substantial number of allotments is required and the task of constructing them is complex. In terms of a long-run situation in which the impact of consumer nutrition education may affect levels of food consumption, specification of food allotments becomes important. This is particularly true when patterns of food consumption are altered in response to a better understanding of good nutrition.

For reasons discussed earlier, some nonparticipation is to be expected. In addition, leakages will occur. Part of the food subsidy may go unused due to loss of coupons or miscalculations of food expenditures. Some participants may sell coupons to nonparticipants at discount prices, thereby converting part or all the food subsidy into cash income. A portion of the subsidy may also be used for the purchase of nonfood items. Provisions are made in the program to guard against these practices. However, some evasion will go undetected.

There is little information available on which to base estimated rates of nonparticipation. (In the remainder of this

Table 7. Percentage change in *total United States quantity purchased* of various foods and food groups under the Food Allotment Program at the *low level of operation* for assumed levels of participation, United States, 1955

Food group	Assumed percentage levels of participation		
	90	75	50
	percent		
All food	1.2	1.0	.6
Milk and milk products	2.2	1.9	1.2
Milk	1.8	1.5	1.0
Cream and ice cream	3.0	2.5	1.6
Cheese	1.8	1.5	1.0
Meat, fish, poultry	1.3	1.0	.7
Bacon, salt pork	....	....	....
Major meats	.6	.5	.4
Beef	.7	.6	.4
Pork	.9	.8	.5
Fish	—.3	—.2	—.2
Total poultry	1.4	1.2	.8
Other meat	1.6	1.4	.9
Eggs	.8	.7	.4
Dry beans	—3.2	—2.6	—1.8
Nuts	4.1	3.4	2.3
Vegetables	1.7	1.4	1.0
Potatoes	1.4	1.1	.8
Sweet potatoes	2.8	2.3	1.6
Dark green and yellow	1.2	1.0	.6
Other green	1.3	1.0	.7
Tomatoes	2.5	2.1	1.4
Other vegetables	2.7	2.2	1.5
Citrus fruits	1.2	1.0	.6
Dried fruit	3.0	2.5	1.6
Other fruit	1.8	1.5	1.0
Grain products	—1.2	—1.0	—.6
Fats and oils	.4	.4	.2
Butter	....	....	....
Margarine	2.5	2.1	1.4
Other fats and oils	....	....	....
Sugar and sweets	1.5	1.3	.8

Table 8. Percentage change in *total United States expense* of various foods and food groups under the Food Allotment Program at the *high level of operation* for assumed levels of participation, United States, 1955

Food group	Assumed percentage levels of participation		
	90	75	50
	percent		
All food	7.5	6.2	4.2
Milk and milk products	8.4	7.0	4.6
Milk	8.2	6.8	4.6
Cream and ice cream	12.9	10.7	7.2
Cheese	4.3	3.6	2.4
Meat, fish, poultry	8.5	7.0	4.7
Bacon, salt pork	2.3	2.0	1.3
Major meats	8.3	6.9	4.6
Beef	8.2	6.8	4.6
Pork	8.2	6.8	4.6
Fish	7.0	5.8	3.9
Total poultry	10.5	8.8	5.8
Other meat	12.0	10.0	6.6
Eggs	8.2	6.8	4.6
Dry beans	—11.7	—9.8	—6.5
Nuts	8.6	7.2	4.8
Vegetables	6.3	5.2	3.5
Potatoes	4.4	3.7	2.4
Sweet potatoes	....	....	....
Dark green and yellow	5.6	4.6	3.1
Other green	6.8	5.7	3.8
Tomatoes	7.7	6.4	4.3
Other vegetables	7.9	6.6	4.4
Citrus fruits	7.1	5.9	4.0
Dried fruit	3.4	2.8	1.9
Other fruit	9.4	7.9	5.2
Grain products	2.4	2.0	1.4
Fats and oils	4.4	3.7	2.4
Butter	5.0	4.2	2.8
Margarine	4.9	4.0	2.7
Other fats and oils	4.8	4.0	2.6
Sugar and sweets	7.4	6.2	4.1

Table 9. Percentage change in *total United States expense* of various foods and food groups under the Food Allotment Program at the *moderate level of operation* for assumed levels of participation, United States, 1955

Food group	Assumed percentage levels of participation		
	90	75	50
	percent		
All food	3.4	2.8	1.9
Milk and milk products	7.4	6.2	4.1
Milk	3.6	3.0	2.0
Cream and ice cream	4.6	3.8	2.6
Cheese	2.5	2.1	1.4
Meat, fish, poultry	1.9	1.6	1.0
Bacon, salt pork	2.6	2.2	1.4
Major meats	2.1	1.7	1.2
Beef	1.6	1.4	.9
Pork	2.5	2.1	1.4
Fish	1.6	1.4	.9
Total poultry	3.0	2.5	1.6
Other meat	.8	.7	.4
Eggs	5.3	4.4	3.0
Dry beans	−4.1	−3.4	−2.3
Nuts	5.1	4.3	2.8
Vegetables	3.4	2.8	1.9
Potatoes	2.7	2.2	1.5
Sweet potatoes	5.4	4.5	3.0
Dark green and yellow	3.4	2.8	1.9
Other green	2.8	2.3	1.6
Tomatoes	4.3	3.6	2.4
Other vegetables	3.4	2.8	1.9
Citrus fruits	2.0	1.6	1.1
Dried fruit	1.7	1.4	1.0
Other fruit	2.2	1.9	1.2
Grain products	1.7	1.4	1.0
Fats and oils	1.4	1.1	.8
Butter	.3	.2	.2
Margarine	4.0	3.3	2.2
Other fats and oils	1.5	1.3	.8
Sugar and sweets	3.8	3.2	2.1

chapter, nonparticipation will refer to both nonparticipation of eligible persons and leakages in program operation.) Consequently, alternative levels of participation of 90 percent, 75 percent, and 50 percent are assumed in the following analysis. It is the authors' judgment that the above levels represent high, moderate, and low rates of participation. From the information available, the 75-percent level appears to be the most reasonable.[61]

Results of Analysis

The analyzed levels of operation of the Food Allotment Program, based on the income groups where average money value of food consumed exceeds a selected percent of income, are the 60-, 50-, and 40-percent levels of achievement. **In the remainder of the study these levels of achievement are referred to as low, moderate, and high, respectively.** The distribution of the United States population by region-ur-

Table 10. Percentage change in *total United States expense* of various foods and food groups under the Food Allotment Program at the *low level of operation* for assumed levels of participation, United States, 1955

Food group	Assumed percentage levels of participation		
	90	75	50
	percent		
All food	1.2	1.0	.6
Milk and milk products	1.8	1.5	1.0
Milk	1.7	1.4	1.0
Cream and ice cream	2.0	1.6	1.1
Cheese	1.7	1.4	1.0
Meat, fish, poultry	.7	.6	.4
Bacon, salt pork	1.4	1.1	.8
Major meats	.8	.7	.4
Beef	.4	.4	.2
Pork	1.1	.9	.6
Fish	1.1	.9	.6
Total poultry	1.0	.8	.6
Other meat	.9	.8	.5
Eggs	.9	.8	.5
Dry beans	−1.6	−1.4	−.9
Nuts	3.5	2.9	2.0
Vegetables	1.6	1.4	.9
Potatoes	1.9	1.6	1.0
Sweet potatoes	4.9	4.0	2.7
Dark green and yellow	2.3	2.0	1.3
Other green	1.0	.8	.6
Tomatoes	2.2	1.8	1.2
Other vegetables	2.0	1.6	1.1
Citrus fruits	1.2	1.0	.6
Dried fruit	....	....	....
Other fruit	1.4	1.1	.8
Grain products	.7	.6	.4
Fats and oils	.6	.5	.4
Butter	....	....	....
Margarine	1.7	1.4	1.0
Other fats and oils	.6	.5	.4
Sugar and sweets	1.8	1.5	1.0

[61] Norman Leon Gold, A. C. Hoffman, and Frederick V. Waugh, *Economic Analysis of the Food Stamp Plan*, USDA (Washington: U. S. Government Printing Office, 1940), p. 4.

Table 11. Costs of operation of selected government programs in agriculture, United States, 1957-59

Program	Costs of operation			Administrative costs as a percent of direct costs		
	1957	1958	1959	1957	1958	1959
	millions of dollars			percent		
School Lunch Program						
Direct costs	98.6	98.6	98.6			
Administrative costs	1.2	1.4	1.4			
Total	99.8	100.0	100.0	1.2	1.4	1.4
Removal of Surplus Agricultural Commodities						
Direct costs	140.8	147.2	147.2			
Administrative costs	2.2	2.8	2.8			
Total	143.0	150.0	150.0	1.6	1.9	1.9
Conservation Reserve Program						
Direct costs	25.5	145.5	332.6			
Administrative costs	12.2	17.4	17.4			
Total	37.7	162.9	350.0	47.8	12.0	6.2
Acreage Reserve Program						
Direct costs	477.2	565.5	317.0			
Administrative costs	*	34.5	12.1			
Total	477.2	600.0	329.1	†	6.1	3.8
Commodity Credit Corporation Fund						
Direct costs	6,398.7	6,193.3	6,426.9			
Administrative costs	30.5	36.0	34.9			
Total	6,429.2	6,229.3	6,461.8	0.5	0.6	0.5

* Less than $150,000.

† Less than one-tenth of 1 percent.

Source: *The Budget of the United States Government for the Fiscal Year Ending June 30, 1959* (Washington: United States Government Printing Office, 1958), pp. 324-339.

banization eligible to participate in the Program is presented in table 4 for the three levels. At the **high** level of operation, 36.3 percent of the Nation's population would be eligible to participate; 19.8 percent at the **moderate** level; and 14.0 percent at the **low** level.

The number of participants in the Program, after assuming for nonparticipation, is not computed for each region-urbanization. Participation rates probably would not be uniform for all areas. For example, a higher rate of participation might be expected among urban residents than rural residents because urban people have locational advantages to administrative offices and food distribution centers. However, there is no basis for converting this locational advantage into differential rates of participation.

Estimated percentage changes in total United States quantity purchased and expense of quantity purchased for various foods and food groups at alternative levels of Program operation and participation are shown in tables 5-10. The changes in consumption presented assume that sufficient time has elapsed to permit supplies to increase. For those commodities whose supplies are fixed in the short run, expanding their demand will increase prices but not change consumption. As these higher prices result in expanded production, quantities consumed will increase and prices will fall toward their preprogram levels.

The largest change in quantity purchased occurs at the high level of operation. Assuming a 75-percent level of Program participation, 27.2 percent of the Nation's population would participate. Total food purchases would increase by only 4.4 percent.

Estimated percentage changes in quantity purchased and expense of quantity purchased for various foods and food groups are presented in tables 1-6 in the Appendix. These are by region-urbanizations at alternative levels of operation and participation. The changes in expense of quantity purchased for the United States and for each region-urbanization under assumed levels of Program operation, expressed in value terms, are given in tables 11-14 and 18-20 in the Appendix. These data represent the direct cost of Program operation—the value of the food subsidies paid to program participants—at the 1955 level of food prices. For example, assuming the 75-percent level of Program participation, direct costs would range from $500 million to about $3 billion for the low and high levels of operation, respectively (Appendix, table 13). Changes in quantity of food purchased, expressed in mil-

Table 12. Cost of the Food Allotment Program for several levels of operation under assumed levels of participation, United States, 1955

Level of operation	Direct cost	Administrative cost I	Administrative cost II	Total cost I	Total cost II
	million dollars				
	90-percent level of participation				
High	3,488	70	174	3,558	3,662
Moderate	1,663	33	83	1,696	1,746
Low	632	13	32	645	664
	75-percent level of participation				
High	2,906	58	145	2,964	3,051
Moderate	1,386	28	69	1,414	1,455
Low	526	11	26	537	552
	50-percent level of participation				
High	1,938	39	97	1,977	2,035
Moderate	924	18	46	942	970
Low	351	7	18	358	369

lions of pounds, are presented in tables 7-10 and 15-17 in the Appendix.

Total costs consist of direct and administrative costs. Estimates of administrative costs are based on experiences with other government agricultural programs (table 11). An analysis of these programs indicates that a reasonable range of administrative cost is from 2 to 5 percent of direct costs. Levels of administrative costs will vary between and within programs for different levels of operation—unit administrative costs may be lower at higher levels than at lower levels of operation.

Both direct and administrative costs of the Food Allotment Program are presented in table 12. Two levels of administrative costs are estimated along with corresponding total costs. Costs I sets administrative costs at 2 percent of direct costs and costs II sets administrative costs at 5 percent of direct costs. The higher administrative costs, the 5-percent level, would probably be relevant at low levels of Program operation. The lower administrative costs, the 2-percent level, would be the relevant cost figure at high levels of operation.

At the 75-percent level of participation, assuming a low level of administrative cost, estimated total costs would range from $537 million at the low level of Program operation to $2,964 million at the high level. Assuming a higher level of administrative costs, estimated total costs would range from $552 million to $3,051 million.

Summary

Assuming an average rate of participation in the Food Allotment Program of 75 percent of all eligible persons, the high level of Program operation would involve about 43 million persons, approximately 27 percent of the total United States population. This would result in a 4.4-percent increase in total quantity of all food purchased at a total cost of $3,051 million. At the low level of operation, about 17 million persons would participate, approximately 10 percent of the total United States population. This would result in a 1.0-percent increase in total quantity of food purchased at a total cost of $552 million. The analysis indicates that the cost of attaining a moderate increase in food consumption through the Food Allotment Program involves large food subsidy expenditures and a substantial part of the Nation's population.

INDEMNITY PRICE PROGRAM

The Indemnity Price Program operates at the wholesale level of food distribution. Price subsidies are granted to wholesalers in amounts consistent with desired retail price reductions. Changes in total food consumption that result from price declines of various foods and food groups are presented in Chapter IV of *Policies for Expanding the Demand for Farm Food Products in the United States; Part I. History and Potentials* and reprinted in table 13.

The wholesale prices used in the analysis are computed in the following way. First, the 1954-56 average retail food prices are reduced by 10 and 20 percent, respectively. The **reductions** in retail prices are then subtracted from the wholesale prices usually in wholesale prices consistent with desired retail prices. It is assumed that food marketing margins remain constant with respect to changes in price and volume marketed. This assumption does not seem to bias the analysis greatly in view of currently available information. Rueben C. Buse and G. E. Brandow pointed out that for a variety of foods "85 percent or more of the total variation of annual margins was accounted for by changes in the average margin on all foods. Costs of processing and distribution apparently were the principal determinants of the overall margin. Probably in a period of greater price stability, other variables would be relatively more important than in this period; but from the 1920's

Table 13. Estimated percentage change in consumption of selected food groups and all food under assumed food price changes, United States

Commodity	Percent change in consumption for a price decline of **10 percent** for: All food	Meats, fruits, vegetables	Meat	All livestock and livestock products	All food except "other"
Meat	3.1	4.8	6.5	4.8	3.4
Dairy products	1.9	—2.8	—2.2	2.9	2.2
Eggs	1.7	—3.0	—3.0	2.3	2.2
Fruits	4.7	5.3	—3.4	—3.4	5.1
Vegetables	1.9	3.2	—2.3	—3.3	2.1
"Other"	0.0	—0.7	—0.5	—0.8	—1.0
All foods	2.1	1.7	1.1	1.5	2.1

Commodity	Percent change in consumption for a price decline of **20 percent** for: All food	Meats, fruits, vegetables	Meat	All livestock and livestock products	All food except "other"
Meat	6.7	10.8	14.3	10.8	7.4
Dairy products	4.1	—5.8	—4.6	6.2	4.8
Eggs	3.6	—6.3	—6.3	4.8	4.8
Fruits	10.3	11.1	—7.1	—7.1	11.1
Vegetables	4.1	6.9	—4.8	—6.9	4.6
"Other"	0.0	—1.6	—1.1	—1.8	—2.2
All foods	4.6	3.7	2.4	3.3	4.5

Source: John M. Wetmore, Martin E. Abel, Elmer W. Learn, and Willard W. Cochrane, *Policies for Expanding the Demand for Farm Food Products in the United States: Part I, History and Potentials*, Technical Bulletin 231, University of Minnesota Agricultural Experiment Station, April 1959, pp. 71-72.

to 1957, volume, adjusted retail price, and change in price accounted for only about 10 percent of the variation in individual margins."[62] Individual prices of component foods of each food group are weighted by their relative importance in the all food index[63] to obtain food group prices.

The value of the subsidy granted to achieve the desired retail price declines is computed by taking the difference between the original level of food consumption valued at the original wholesale price and the new level of food consumption valued at the new wholesale price. In other words, the subsidy equals the original value of the food groups whose prices are to be reduced less the new value at the lower price.

The immediate effect of a subsidy granted under the Indemnity Price Program will be an increase in prices paid to farmers for those commodities whose prices are reduced at retail. In the very short run supplies of most agricultural commodities are fixed. Therefore, an expanded demand for any or all farm food products at the farm level would raise prices. In the longer run farmers would increase output in response to the higher prices and prices would fall. However, farmers could still sell more of their food products at the pre-Program level of prices due to the expanded demand. The length of time required to increase supplies will vary from commodity to commodity. It may take several years to expand the supply of beef, yet the supply of wheat going for food uses could be expanded almost immediately by drawing upon existing stocks.

[62] Reuben C. Buse and G. E. Brandow, "The Relationship of Volume, Prices, and Costs to Marketing Margins for Farm Foods," *Jour. Farm Econ.*, Vol. XLII, No. 2, May 1960, p. 369.

[63] *Supplement for 1956 to Consumption of Food in the United States, 1909-1952*, USDA, AMS, September 1957, pp. 46-47.

Table 14. Estimated total costs of the Indemnity Price Program for selected price declines at retail, United States, 1955

Commodity	Estimated total Program cost for price decline of:									
	All food		Meat, fruits, vegetables		Meat		All livestock		All food (except "other")	
	10%	20%	10%	20%	10%	20%	10%	20%	10%	20%
	million dollars									
	where administrative costs are *2 percent* of direct costs									
Meat	1,248.48	2,550.00	1,080.18	2,209.32	911.88	1,917.60	1,080.18	2,209.32	1,218.90	2,492.88
Dairy products	690.54	1,319.88					630.36	1,209.72	672.18	1,558.56
Eggs	192.78	290.66					183.60	375.36	185.64	375.36
Fruits	384.54	770.10	371.28	755.82					376.38	755.82
Vegetables	477.36	969.00	446.76	919.02					472.26	959.82
"Other"	1,243.38	2,485.74								
Total	4,237.08	8,485.38	1,898.22	3,884.16	911.88	1,917.60	1,894.14	3,794.40	2,925.36	6,142.44
	where administrative costs are *5 percent* of direct costs									
Meat	1,285.20	2,625.00	1,111.95	2,274.30	938.70	1,974.00	1,111.95	2,274.30	1,254.75	2,566.20
Dairy products	710.85	1,358.70					648.90	1,245.30	691.95	1,604.40
Eggs	198.45	402.15					189.00	386.40	191.10	386.40
Fruits	395.85	792.75	382.20	778.05					387.45	778.05
Vegetables	491.40	997.50	459.90	946.05					486.15	988.05
"Other"	1,279.95	2,558.85								
Total	4,361.70	8,734.95	1,954.05	3,998.40	938.70	1,974.00	1,949.85	3,906.00	3,011.40	6,323.10

The analysis of the Indemnity Price Program presented below assumes that the Program has been in operation for a sufficiently long period of time to allow for the needed supply adjustments. Since supplies have adjusted to the expanded demand conditions, the continued subsidization of specified price declines will maintain the desired relative food prices. No attempt is made to support any or all food group prices at a specified level. They are subject to fluctuations that result from changes in production.

Changes in consumption of selected food groups and all food that result from price declines of 10 and 20 percent have already been presented in table 13. The total costs of Program operation for price declines of 10 and 20 percent for selected food groups and all food are presented in table 14. As in the analysis of the Food Allotment Program, low and high levels of administrative costs of 2 and 5 percent, respectively, of direct costs are employed. Reducing the price of all food by a given amount results in the largest total cost. On the other hand, reducing the price of meat by a given amount results in the smallest total cost. The range in costs is considerable. At the low level of administrative costs, it goes from about $912 million for a 10-percent decline in the price of meat to about $8,485 million for a 20-percent decline in the price of all food. At the high level of administrative costs, it ranges from about $939 million to about $8,735 million for the same price declines.

Our ultimate interest is not how much a given price decline for selected food groups increases food consumption, but how a given price decline increases total farm resource use. Therefore, before one of the various price declines can be adjudged the most efficient with respect to increasing total farm resource use per dollar of program expenditure, the changes in food consumption must be converted into changes in farm resource use. This is done in Chapter V.

Summary

The Indemnity Price Program appears to be a very expensive route to demand expansion. This is particularly true if a good part of agricultural surpluses are not eliminated by the approach. In Chapter V it will be seen which set of price declines results in the largest increases in total farm resource use per dollar of program expenditure.

NUTRITION PROGRAMS

The nutrition programs presented for analysis in Chapter II are the School Lunch and Special Milk Programs and Public and Nonprofit Private Institutional Feeding Programs. These three nutrition programs are now analyzed for their effects on expanding food consumption and cost of operation.

The School Lunch and School Milk Program

The Agricultural Marketing Service of the United States Department of Agriculture conducted a survey of public schools having a food service.[64] The survey covered the period July 1957 to June 1958. The study "attempts to chart the current and potential size of the market for food in public elementary and high schools for food manufacturers and distributors as well as Department, State and local officials responsible for school feeding programs."[65] The report found that potentials exist for expanding the school market for food. It concluded that:

> Further expansion is likely to occur in the school market as enrollments con-

[64] *The Market for Food in Public Schools*, Marketing Research Report No. 377, Marketing Research Division, AMS, USDA, January 1960.

[65] *Ibid.*, p. ii.

Table 15. Number and percentage of schools serving lunch by region and type of lunch service, March 1957

Region	Schools by type of lunch service									
	Complete plate lunch under National School Lunch Program		Other plate lunches		A la carte only		None		Total	
	number	percent	number	percent	number	percent	number	percent	number	percent
United States total	52,522	49.6	6,798	6.4	1,169	1.1	45,477	42.9	105,966	100.0
Region:*										
Northeast	10,114	47.9	926	4.4	316	1.5	9,749	46.2	21,105	100.0
Southeast	13,868	68.6	1,364	6.8	219	1.1	4,753	23.5	20,204	100.0
Midwest	12,674	33.7	2,168	5.8	170	.5	22,544	60.0	37,556	100.0
Southwest	9,188	59.6	1,585	10.3	244	1.6	4,386	28.5	15,403	100.0
West	6,678	57.1	755	6.4	220	1.9	4,045	34.6	11,698	100.0

* Northeast: Maine, Delaware, New Hampshire, Vermont, Massachusetts, West Virginia, District of Columbia, Rhode Island, Connecticut, Maryland, Pennsylvania, New Jersey, New York.
Southeast: Florida, Tennessee, Mississippi, North Carolina, South Carolina, Alabama, Virginia, Georgia, Kentucky.
Midwest: Illinois, Ohio, Indiana, Iowa, North Dakota, South Dakota, Michigan, Missouri, Minnesota, Nebraska, Wisconsin.
Southwest: Kansas, Arkansas, Colorado, Oklahoma, Louisiana, New Mexico, Texas.
West: Montana, California, Utah, Wyoming, Washington, Nevada, Oregon, Arizona, Idaho.

Source: Kenneth E. Anderson, *Participation of Schools and Pupils in School Lunch Programs in Elementary and Secondary Schools of the United States*, Marketing Research Report No. 262, Marketing Research Division, AMS, USDA, August 1958, p. 25.

Table 16. Number and percentage of pupils enrolled in schools serving lunch by region and type of lunch service, March 1957

Region	Pupils in schools offering									
	Complete plate lunch under National School Lunch Program		Other plate lunches		A la carte only		None		Total	
	number	percent	number	percent	number	percent	number	percent	number	percent
United States total	22,151,503	67.8	3,109,381	9.5	1,030,991	3.1	6,401,676	19.6	32,693,551	100.0
Region:*										
Northeast	5,057,646	60.8	512,036	6.1	345,671	4.2	2,407,462	28.9	8,322,815	100.0
Southeast	5,930,122	81.0	752,443	10.3	144,234	2.0	492,099	6.7	7,318,898	100.0
Midwest	4,522,554	59.9	653,882	8.7	91,566	1.2	2,277,582	30.2	7,545,584	100.0
Southwest	3,144,014	69.2	681,959	15.0	215,279	4.7	505,188	11.1	4,546,440	100.0
West	3,497,167	70.5	509,061	10.3	234,241	4.7	719,345	14.5	4,959,814	100.0

* See table 15.

Source: Kenneth E. Anderson, *Participation of Schools and Pupils in School Lunch Programs in Elementary and Secondary Schools of the United States*, Marketing Research Report No. 262, Marketing Research Division, AMS, USDA, August 1958, p. 26.

tinue to rise and as new schools are constructed with modern cooking and cafeteria facilities. During the 1958-59 school year, enrollment in public schools with and without a lunch service total 34.6 million pupils. The Department of Health, Education and Welfare estimates that public school enrollments in the United States will reach 41.5 million pupils by 1965. By 1970 such enrollments are expected to climb to 44.5 million pupils, approximately 25 percent more than current enrollments.

Increased pupil participation in schools having a lunch program also will influence the future market for food in schools. From this study it was found that in the schools under the National School Lunch Program the daily average number of lunches served was equal to about a half of the total average daily attendance. Part of the remaining 48 percent probably constitutes a potential demand for school lunches and, thereby, for farm products.

Still another possibility for increasing the consumption of food in schools lies in those schools without a food service. According to a 1957 study, there were over 26,000 public schools serving milk only. It would seem reasonable to expect that some of these schools will have a lunch service in the years ahead and provide an additional means of increasing the use of food in this segment of the away-from-home eating market.[66]

The present report does not deal with the impact of increasing population upon the demand for food. Therefore, in the analysis of potential increases in food consumption under the National School Lunch Program, interest is centered around increased pupil and school participation in the Program.

Data for 1957 on the number of schools serving school lunches, serving no lunches, and student enrollment in these schools are presented in tables 15 and 16. "Approximately two-thirds of the 33 million pupils in the public elementary schools of the United States were enrolled in schools participating in the National School Lunch Program in March 1957; one-tenth were in schools having other plate lunch service; less than one twenty-fifth were in schools offering only a la carte service; and one-fifth were in schools having no lunch service."[67] Of the schools serving lunches, not all students enrolled participated. It would be unreasonable to expect otherwise.

Table 17. Average daily participation (number of lunches served daily) in school feeding programs and ratio of average daily participation to pupils enrolled by region, March 1957

Region	Schools serving complete plate lunch under National School Lunch Program		Schools serving other plate lunches	
	Average daily participation	Average daily participation as percentage of pupils enrolled	Average daily participation	Average daily participation as percentage of pupils enrolled
	number	percent	number	percent
United States total	9,900,963	45	1,027,654	33
Region:*				
Northeast	1,836,470	36	134,924	26
Southeast	3,157,126	53	302,240	40
Midwest	2,025,817	45	260,417	40
Southwest	1,577,734	50	209,723	31
West	1,291,800	37	120,667	24

* See table 15.

Source: Kenneth E. Anderson, *Participation of Schools and Pupils in School Lunch Programs in Elementary and Secondary Schools of the United States*, Marketing Research Report No. 262, Marketing Research Division, AMS, USDA, August 1958, p. 27.

[66] *Ibid.*, p. 6.

[67] Kenneth E. Anderson, *Participation of Schools and Pupils in School Lunch Programs in Elementary and Secondary Schools of the United States*, Marketing Research Report No. 262, Marketing Research Division, AMS, USDA, August 1958, p. 3.

About 45 percent, or 10 million, of the pupils in the participating schools daily ate lunches provided under the National School Lunch Program. About 1 million of the pupils in schools serving plate lunches not provided for under the National School Lunch Program ate, on a daily basis, the plate lunches provided, thus about one-third of the pupils enrolled in public schools below the college level participated daily in School feeding services offering plate lunches. (See table 17.)

Undoubtedly many of the pupils in the schools offering only a la carte service ate a balanced meal. However, the number of such pupils is not known, nor is it possible to know how many children ate a part of their lunch in school.[68]

One measure of the potential increase in food consumption is the increase which results from raising the food consumption level of pupils not eating under the National School Lunch Program to the level of participants. This assumes the same rate of participation found in the National School Lunch Program. This adjustment should represent nutritional adequacy since the Program stresses good nutrition. The resulting changes in quantity of food used and value of food used are presented in tables 18 and 19. Percentage changes in quantity of food used and value of food used

Table 18. Change in quantity of food used in public schools when per pupil consumption in schools not participating in the National School Lunch Program is raised to the consumption level of pupils participating in the National School Lunch Program

Food group	Change in quantity used in schools		
	Serving meals	Serving no meals	Total
	million pounds		
Milk and milk products	198.3	727.2	925.6
Milk	157.7	560.1	716.3
Cream and ice cream	−3.8	17.3	13.5
Cheese	5.0	12.8	17.8
Meat, fish, poultry	12.0	73.0	85.0
Bacon, salt pork			
Major meats	9.1	58.9	68.0
Beef	3.3	33.3	36.6
Pork	0	7.7	7.7
Fish	2.1	8.3	10.4
Total poultry	3.7	9.6	13.3
Other meats	3.3	14.7	18.1
Eggs	.4	11.5	11.9
Dry beans	3.7	9.0	12.7
Nuts	.8	3.2	4.0
Vegetables	56.4	195.9	252.4
Potatoes	8.3	58.3	66.6
Sweet potatoes	2.1	3.8	5.9
Dark green and yellow	2.9	8.9	11.9
Other greens	40.6	110.8	151.4
Tomatoes	.8	4.5	5.3
Other vegetables	1.7	9.6	11.3
Citrus fruits	−1.6	7.6	6.0
Dried fruit	.4	1.3	1.7
Other fruit	32.7	73.6	106.4
Grain products	18.2	85.7	104.0
Fats and oils	8.7	30.1	38.8
Butter and margarine	−.4	20.4	.2
Butter	7.5	19.8	27.3
Margarine	−.4	.6	.2
Other fats and oils	1.6	9.6	11.3
Sugars and sweets	2.1	18.6	20.6

[68] *Ibid.*

Table 19. Change in value of food used in public schools when per pupil consumption in schools not participating in the National School Lunch Program is raised to the consumption level of pupils participating in the National School Lunch Program

Food group	Change in value used in schools		
	Serving meals	Serving no meals	Total
		million dollars	
Milk and milk products	17.8	71.3	89.1
Milk	16.7	60.9	77.6
Cream and ice cream	—.9	5.3	4.4
Cheese	2.0	4.9	7.0
Meat, fish, poultry	5.2	32.8	38.0
Bacon, salt pork			
Major meats	3.2	26.3	29.5
Beef	.9	14.7	15.6
Pork	—.1	4.0	3.9
Fish	1.0	4.0	5.0
Total poultry	1.4	3.6	5.0
Other meats	2.0	6.3	8.2
Eggs	.6	3.1	3.7
Dry beans	.3	.8	1.2
Nuts	.....	.8	.7
Vegetables	5.6	20.3	26.1
Potatoes	—.2	3.7	3.5
Sweet potatoes	.2	.4	.6
Dark green and yellow	.5	1.2	1.7
Other green	4.9	13.4	18.4
Tomatoes	.....	.5	.6
Other vegetables	.2	1.1	1.3
Citrus fruits	—.1	.6	.5
Dried fruit	.1	.3	.4
Other fruit	4.5	10.5	15.1
Grain products	1.6	18.3	19.9
Fats and oils	4.5	13.6	18.1
Butter and margarine	4.2	11.5	15.7
Butter	4.3	11.3	15.6
Margarine	—.1	.2	.1
Other fats and oils	.2	2.1	2.3
Sugar and sweets	—1.1	2.3	1.2
Total	39.0	174.7	214.0

are presented in tables 20 and 21. The increased total food costs would amount to $214 million (table 19), but this does not represent the cost of Program operation.

The school lunch program in the individual school is supported largely through cash payments made for plate lunches by pupils participating. It is estimated that in 1957 slightly over 53 percent of the funds expended in operating the National School Lunch Program came from cash payments made by pupils. In the same year, Federal contributions amounted to 28 percent, and the remaining funds were provided through State and local contributions.[69]

On the basis of contributions in 1957, the Federal contribution to the increased cost of foods presented in table 19 would amount to $60 million. The remaining costs would be financed by lunch sales and State and local contributions.

The increases in food consumption obtained from expanding the operation of the National School Lunch Program do not represent net increases in total food consumption. This is impossible to estimate. Many new participants in the Program would substitute school lunches for food formerly brought from

[69] Kenneth E. Anderson, *op. cit.*, p. 11.

home or eaten outside of school. Food consumption data are not available on lunches other than those served in school.

Most of the schools participating in this Program along with many other schools participated in the Special Milk Program. Of the schools participating in the National School Lunch Program, 83.8 percent also participated in the Special Milk Program. Of the schools not participating in the National School Lunch Program, 42.8 percent participated in the Special Milk Program. If per pupil consumption of fluid milk in schools participating in the National School Lunch Program but not in the Special Milk Program is raised to the level of per pupil consumption in schools participating in both programs, fluid milk consumption in all schools participating in the National School Lunch Program would increase by 3 percent.[70] In addition, the estimated changes in milk consumption resulting from adjusting the consumption levels for various foods in schools not participating in the National School Lunch Program to those participating would also increase by 3 percent (see table

Table 20. Percentage change in quantity of food used in public schools when per pupil consumption in schools not participating in the National School Lunch Program is raised to the consumption level of pupils participating in the National School Lunch Program

Food group	Change in quantity used in schools		
	Serving meals	Serving no meals	Total
		percent	
All food	.1	.5	.6
Milk and milk products	.3	1.0	1.3
Milk	.3	.9	1.2
Cream and ice cream	—.1	.4	.3
Cheese	.3	.7	.9
Meat, fish, poultry	.1	.3	.4
Bacon, salt pork			
Major meats	.....	.3	.3
Beef	.....	.4	.4
Pork	0	.1	.1
Fish	.2	.7	.8
Total poultry	.1	.3	.4
Other meats	.1	.5	.6
Eggs	.....	.2	.2
Dry beans	.3	.7	.9
Nuts	.1	.3	.4
Vegetables	.1	.4	.6
Potatoes	.1	.4	.5
Sweet potatoes	.2	.3	.5
Dark green and yellow	.1	.3	.4
Other green	.5	1.3	1.7
Tomatoes	.....	.1	.1
Other vegetables	.....	.1	.1
Citrus fruits	.....	.1	.1
Dried fruit	.1	.2	.3
Other fruit	.2	.5	.7
Grain products	.1	.4	.4
Fats and oils	.1	.4	.5
Butter and margarine			
Butter	.6	1.6	2.2
Margarine	.....	.....	.....
Other fats and oils	.....	.2	.2
Sugar and sweets	.....	.1	.1

[70] Computed from Kenneth E. Anderson, *Milk Consumption in the Nation's Schools*, Marketing Research Report No. 284, AMS, USDA, November 1958, pp. 15 and 24.

Table 21. Percentage change in value of food used in public schools when per pupil consumption in schools not participating in the National School Lunch Program is raised to the level of consumption of pupils participating in the National School Lunch Program

Food group	Change in value used in schools		
	Serving meals	Serving no meals	Total
		percent	
All food	.1	.4	.5
Milk and milk products	.2	.8	1.0
Milk	.3	1.0	1.3
Cream and ice cream	.....	.3	.2
Cheese	.2	.5	.8
Meat, fish, poultry	.....	.2	.3
Bacon, salt pork			
Major meats	.....	.2	.2
Beef	.....	.3	.3
Pork	.....	.1	.1
Fish	.1	.6	.7
Total poultry	.1	.2	.3
Other meats	.1	.3	.4
Eggs	.....	.1	.2
Dry beans	.1	.3	.4
Nuts	.....	.1	.1
Vegetables	.1	.3	.4
Potatoes	.....	.3	.3
Sweet potatoes	.1	.2	.4
Dark green and yellow	.1	.2	.3
Other green	.3	.9	1.2
Tomatoes	.....	.....	.....
Other vegetables	.....	.1	.1
Citrus fruits	.....	.....	.....
Dried fruit	.1	.2	.3
Other fruit	.2	.4	.5
Grain products	.....	.3	.3
Fats and oils	.2	.5	.7
Butter and margarine			
Butter	.5	1.4	1.9
Margarine	.....	.1	.....
Other fats and oils	.....	.2	.2
Sugar and sweets	.....	.1	.....

18). The estimated total increases in milk consumption resulting from increased participation in the National School Lunch Program and the Special Milk Program are presented in table 22.

Table 22. Increased quantity used and value of quantity used of milk in public schools when the consumption of milk by all pupils is raised to the consumption level of pupils in schools participating in both the National School Lunch Program and the Special Milk Program, United States, 1957

Type of school	Change in quantity used	Change in value of quantity used
	million pounds	million dollars
All schools participating in the National School Lunch Program	50.5	0.5
Schools not participating in the National School Lunch Program	953.4	91.8
Total	1,003.9	92.3

Public and Nonprofit Private Institutional Feeding Programs

Data on food consumption in public and nonprofit private institutions are fragmentary.[71] A study of 16 non-Federal institutions located in the northeastern and southeastern regions

> revealed that the extent of the market potential for a particular kind of food depended, in some degree, upon the type of institutions involved and its regional location. Two types of institutions may be important for increased utilization of surplus foods, especially those produced locally; they are mental institutions and homes for the aged. Mental institutions presently comprise the largest proportion of the inmate population, representing the largest part of the institutional market. Inmates in homes for the aged make up the next largest category, with the possibility of increasing proportionately faster than other segments of the institutional population in the years ahead. In addition, institutions may also provide an outlet for increased quantities of those foods that are distributed through Government Programs.[72]

One major constraint to increasing food consumption in public institutions is their limited budget for food expenditures. Thus, subsidizing their food expenditures could result in a substantial increase in food consumed. However, these increases might not be significant relative to eliminating surplus agricultural resources.

More data are needed on food consumption patterns in this particular food market before the market potential can be adequately assessed. Knowledge of the level and composition of food consumption would permit estimates of changes in response to lifting budget restraints.

Summary

The nutrition programs analyzed above afford a potential to increased food consumption. Yet, it is a minor potential compared with the magnitude of the problem at hand—reducing or eliminating agricultural surpluses. The estimated potential changes in food consumption that result from increased participation in the School Lunch and Special Milk Programs do not represent net increases in food consumption. School children, not currently participating, are not doing without lunches. Therefore, a large part of the increase in food consumption would represent a substitution of foods eaten under the Programs for foods coming from other sources. Because of the lack of adequate data, net increases in food consumption from expanded participation in these Programs is indeterminable.

Available data are not adequate to assess the market potential for food in public and private nonprofit institutions other than schools. A market potential in these institutions is recognized, but its magnitude cannot now be determined.

CONCLUSIONS

The costs of attaining sizeable increases in food consumption under either the Food Allotment or the Indemnity Price Program are very high. Nevertheless, as will be seen in Chapter V, the resulting increases in farm resource use will not eliminate surplus resources in agriculture. The justifications for public expenditures on demand expansion programs must be nutrition and welfare considerations, as well as the elimination or reduction of agricultural surpluses. Thus, the programs analyzed above must also be judged from the point of view of their capacity to improve nutrition among participants. Nutrition programs, such as the School Lunch and the Special

[71] Some available sources of data are Esther S. Hochotin, *Employee Food Services in Manufacturing Plants*, Marketing Research Report No. 325, AMS, USDA, June 1959, and William S. Hoofnagle, Philip B. Dvoskin and James A. Bayton, *The Market for Food in Selected Public and Private Institutions*, Marketing Research Report No. 84, AMS, USDA, March 1955.

[72] William S. Hoofnagle, Philip B. Dvoskin, and James A. Bayton, *op. cit.*, p. iv.

Milk Programs, are appealing because of their direct approach to improving nutrition. Moreover, they serve the Nation's children—the segment of the population that benefits most from improved nutrition. The Food Allotment Program operates to the benefit of low-income consumers—the group of consumers incurring the largest nutritional shortages. Enabling low-income consumers to adjust their level and pattern of food consumption to those of higher-income groups will reduce some existing nutritional shortages. In addition, the nutrition education role of the Program will further aid in reducing nutritional shortages. Finally, the Indemnity Price Program does not directly attack the nutrition problem. **All** consumers benefit from lower food prices. Consumers at all income levels experience nutritional shortages in their diets, but this is most prevalent among low-income consumers.

In large measure, the operations of the above programs are to be justified on nutritional grounds. However, the resulting increases in food consumption should not be ignored. The programs afford a **partial** solution to two problems: (1) elimination of agricultural surpluses, and (2) improving nutrition.

Chapter V. Impact of Demand Expansion Programs on Farm Resource Use

THE ANALYSIS now focuses on the impact of demand expansion programs on increasing farm resource use. The estimated changes in food consumption presented above are here converted into changes in farm resource use. The various programs are appraised with respect to: (1) reducing surplus agricultural resources, and (2) improving farm prices and incomes.

CONVERSION OF CHANGES IN FOOD CONSUMPTION INTO CHANGES IN FARM RESOURCE USE

The methods for converting changes in food consumption into changes in farm resource use are the same as those used in *Policies for Expanding the Demand for Farm Food Products in the United States: Part I. History and Potentials.* The resource use measures employed are total resource use, acreage, and labor requirements. The measure of total resource requirements is a farm price-weighted index of civilian food consumption at the farm level.[73]

> Economic theory states that, in equilibrium, the value . . . of the marginal unit of production is equal to the value of the inputs required in the production of that unit. Thus, in the ideal world of perfect competition a measure of total resource use, in value terms, is the price (value) of the product. Although it is recognized that the agricultural economy in 1955 did not meet all the conditions of perfect competition, the approximation to such a condition is assumed to be sufficiently close to permit measurement of relative resources used in terms of relative prices received for farm products.[74]

[73] Wetmore *et al., op. cit.*, p. 88.
[74] *Ibid.*, p. 85.

The index of civilian food consumption used is, in value terms, a measure of total resource inputs in food production. Changes in food consumption are converted to changes in acreage and labor requirements using available crop yield and labor coefficients.

CHANGES IN RESOURCE USE

Changes in resource use for several levels of Food Allotment Program operation, with assumed levels of participation, are presented in tables 23-25. As would be expected, the largest increases occur for the high level of program operation at all levels of participation. With 75-percent participation, total resource use would increase by 5.3 percent, but at a cost of about $3 billion. At the same level of participation, total resource use would only increase 1.8 percent and 1.0 percent at the moderate and low levels of operation, respectively. The largest increases in total resource use are obtained for livestock and livestock products, fruits, and vegetables. Total resources used in the production of "other foods" declines at all levels of achievement.

The changes in resource use that result from price declines of 10 and 20 percent for all foods and selected food groups under the Indemnity Price Program are given in tables 26 and 27. The largest increase occurs for a given price decline of livestock and livestock products. A given price reduction for all food except "other" results in a slightly smaller increase in total resource use. Although rather sizeable increases are obtained from price declines of 20 percent for livestock and livestock products, all food except "other," and all food, the cost of achieving these price reductions is also great. Costs range from nearly $4 billion to over $8 billion.

Table 23. Percentage change in total farm resource, land, and farm labor requirements under assumed levels of Food Allotment Program operation for 90-percent participation, United States, 1955 base

Requirements	Levels of Program operation		
	Low	Moderate	High
		percent	
Total resources	1.2	2.1	6.2
Livestock and products	1.1	2.4	7.2
Fruits	1.7	2.3	7.3
Vegetables	2.1	3.4	6.9
Other foods*	—.5	—1.2	—2.9
Acreage (total)	1.0	2.1	6.6
Feed grains	1.0	2.4	6.3
Corn	.9	2.3	6.1
Other grain†	1.1	2.5	6.7
Nonanimal protein	1.0	2.5	6.9
Harvested forage	1.1	2.3	7.0
Pasture	.9	1.9	6.8
Fruits	1.7	2.3	7.3
Vegetables	2.2	3.4	7.4
Other foods*	—1.0	—2.0	—4.2
Labor (total)	1.1	2.3	6.2
Livestock and products	1.3	2.8	7.7
Fruits	1.6	2.6	7.2
Vegetables	.5	.9	1.8
Other foods*	.....	.....	—1.2
Feed grains	1.0	2.3	6.3
Nonanimal protein	.7	2.8	7.0
Harvested forage	1.1	2.3	7.0

* Includes potatoes, sweet potatoes, dry beans, peas, nuts, and food grains.
† Includes oats, barley, wheat used for feed, rye, and sorghum grains.

Table 24. Percentage change in total farm resource, land, and farm labor requirements under assumed levels of Food Allotment Program operation for 75-percent participation, United States, 1955 base

Requirements	Levels of Program operation		
	Low	Moderate	High
		percent	
Total resources	1.0	1.8	5.3
Livestock and products	.9	2.0	6.0
Fruits	1.4	2.0	6.1
Vegetables	1.6	3.0	6.4
Other foods*	—.3	—.9	—2.3
Acreage (total)	.8	1.7	5.6
Feed grains	.9	1.9	5.8
Corn	.8	1.9	5.7
Other grain†	1.0	2.1	5.9
Nonanimal protein	.9	2.0	6.1
Harvested forage	.9	1.9	5.9
Pasture	.7	1.6	5.7
Fruits	1.4	1.9	6.1
Vegetables	1.8	3.1	6.7
Other foods*	—.9	—1.6	—3.5
Labor (total)	.9	1.8	5.3
Livestock and products	1.1	2.2	6.4
Fruits	1.0	2.1	5.9
Vegetables	.5	.7	1.7
Other foods*	.....	—.4	—1.2
Feed grains	.8	1.9	5.7
Nonanimal protein	.7	2.1	6.3
Harvested forage	.9	1.9	5.9

* Includes potatoes, sweet potatoes, dry beans, peas, nuts, and food grains.
† Includes oats, barley, wheat used for feed, rye, and sorghum grains.

Table 25. Percentage change in total farm resource, land, and farm labor requirements under assumed levels of Food Allotment Program operation for 50-percent participation, United States, 1955 base

Requirements	Levels of Program operation		
	Low	Moderate	High
		percent	
Total resources	.6	1.2	3.5
Livestock and products	.6	1.4	4.0
Fruits	.9	1.3	4.0
Vegetables	1.0	2.1	3.9
Other foods*	—.2	—.7	—1.6
Acreage (total)	.5	1.2	3.8
Feed grains	.6	1.3	3.8
Corn	.5	1.3	3.8
Other grain†	.6	1.4	4.0
Nonanimal protein	.6	1.4	4.0
Harvested forage	.6	1.3	3.9
Pasture	.5	1.1	3.8
Fruits	.9	1.4	4.0
Vegetables	1.2	2.0	4.1
Other foods*	—.5	—1.2	—2.0
Labor (total)	.6	1.3	3.6
Livestock and products	.7	1.6	4.3
Fruits	.8	1.3	4.1
Vegetables	.2	.5	1.0
Other foods*	.....	.....	.....
Feed grains	.5	1.3	3.8
Nonanimal protein	.7	1.4	4.2
Harvested forage	.6	1.2	3.9

* Includes potatoes, sweet potatoes, dry beans, peas, nuts, and food grains.
† Includes oats, barley, wheat used for feed, rye, and sorghum grains.

Table 26. Percentage changes in total farm resource, land, and farm labor requirements under assumed food price changes, United States, 1955 base

Measure of resource use	Changes in resource requirements for a price decline of 10 percent for: All food	Meat, fruits, vegetables	Meat	Livestock and livestock products	All food except "other"
			percent		
Total resources	2.4	1.7	1.8	2.6	2.6
Livestock and products	2.5	1.5	2.7	3.9	2.9
Fruits	4.7	5.5	—3.5	—3.5	5.1
Vegetables	2.0	3.2	—2.3	—3.4	2.6
Other foods*	0.0	—0.7	—0.6	—0.9	—1.0
Acreage (total)	2.9	2.2	3.5	3.7	2.7
Feed grains	2.7	2.0	3.4	4.1	3.0
Corn	2.7	3.2	4.4	4.3	3.1
Other grain†	2.5	1.0	1.9	3.7	2.8
Nonanimal protein	2.5	1.4	2.5	3.8	2.9
Harvested forage	2.5	1.1	2.2	3.9	2.8
Pasture	2.9	3.9	5.4	4.6	3.2
Fruits	4.7	5.3	—3.4	—3.4	5.1
Vegetables	1.9	3.2	—2.3	—3.3	2.1
Other foods*	0.0	—0.7	—0.5	—0.8	—1.0
Labor (total)	2.5	0.7	0.9	2.8	2.7
Livestock and products	4.1	—0.6	1.1	6.3	4.7
Fruits	4.7	5.4	—3.4	—3.4	5.2
Vegetables	1.9	2.8	—2.2	—2.8	1.9
Other foods*	0.0	0.0	0.0	0.0	0.0
Feed grains	2.7	2.7	3.9	4.2	3.1
Nonanimal protein	2.8	1.4	2.8	3.5	2.8
Harvested forage	2.5	1.1	2.2	3.9	2.8

* Includes potatoes, sweet potatoes, dry beans, peas, nuts, and food grains.
† Includes oats, barley, wheat used for feed, rye, and sorghum grains.

Table 27. Percentage changes in total farm resource, land, and farm labor requirements under assumed food price changes, United States, 1955 base

Measure of resource use	Changes in resource requirements for a price decline of 20 percent for: All food	Meat, fruits, vegetables	Meat	Livestock and livestock products	All food except "other"
			percent		
Total resources	5.2	3.8	4.0	5.9	5.7
Livestock and products	5.5	3.7	6.1	8.7	6.3
Fruits	10.4	11.0	—7.2	—7.1	11.1
Vegetables	4.0	7.1	—5.2	—7.4	5.1
Other foods*	0.0	—1.6	—1.2	—1.9	—2.3
Acreage (total)	5.4	5.1	7.4	8.2	5.9
Feed grains	5.8	5.3	7.8	9.1	6.5
Corn	6.1	7.2	10.0	9.7	6.8
Other grain†	5.3	2.4	4.5	8.2	6.1
Nonanimal protein	5.5	3.4	5.7	8.5	6.3
Harvested forage	5.4	2.6	5.0	8.5	6.1
Pasture	6.4	8.8	11.9	10.2	7.1
Fruits	10.3	11.1	—7.1	—7.1	11.1
Vegetables	4.1	6.9	—4.8	—6.9	4.6
Other foods*	0.0	—1.6	—1.1	—1.8	—2.2
Labor (total)	5.2	1.7	2.2	6.3	5.9
Livestock and products	8.9	—0.7	2.7	13.7	10.3
Fruits	10.3	10.9	—7.0	—7.0	10.9
Vegetables	4.1	6.9	—4.7	—6.9	4.7
Other foods*	0.0	0.0	0.0	0.0	—0.1
Feed grains	5.9	6.3	8.9	9.3	6.8
Nonanimal protein	5.6	3.5	5.6	8.4	6.3
Harvested forage	5.4	2.6	4.9	8.5	6.2

* Includes potatoes, sweet potatoes, dry beans, peas, nuts, and food grains.
† Includes oats, barley, wheat used for feed, rye, and sorghum grains.

Changes in resource use that result from expanded operation of the School Lunch and Special Milk Programs are very small (see table 28). Moreover, these do not represent a net increase in resource use because the food consumption potentials do not represent net increases. Expanded operations of these two Programs contribute little to eliminating surplus resources in agriculture.

THE MAGNITUDE OF THE SURPLUS

Total surplus resources employed in agriculture expressed as a percent of total resources in agriculture are estimated at 6 percent.[75] This estimate is based on total resources used in both food and nonfood production. Food surpluses compose about 75 percent of total surpluses.[76] If the total surplus in agriculture is to be eliminated by increased food consumption, an 8-percent increase is required in the use of resources used in the production of food for domestic civilian consumption. It is assumed that agricultural resources are sufficiently mobile to allow for production adjustments in response to food consumption changes. These changes would result from operations of demand expansion programs. That is, shifts in resource use are required from the production of some foods to the production of other foods and from the production of nonfood commodities to the production of food commodities.

The immobility of many resources employed in agriculture is well recognized. This immobility is particularly noteworthy if interregional resource shifts are required (e.g., land). Therefore, part of the increased output of some food commodities could result from use of new agricultural resources rather than a shift in the use pattern of existing resources. This would lessen the effectiveness of demand expansion activities in reducing the total surplus problem. Moreover, consumption of some foods declines as a result of program operations. Thus, the resource surplus in these commodities would be intensified if they could not or were not shifted into the production of wanted foods. Although the resource immobility problem is reduced over time, frictions in adjusting resource use patterns and the possibility of additional resources being used in food production should be recognized.

Table 28. Percentage change in total farm resource, land, and farm labor requirements under assumed expansion in the National School Lunch and Special Milk Program, United States, 1957

Measure of resource use	National School Lunch Program	Special Milk Program
	percent	
Total resources	0.5	0.8
Livestock and products	0.5	0.8
Fruits	0.4	.....
Vegetables	0.4	.....
Other foods*	0.4	.....
Acreage (total)	0.4	0.5
Feed grains	0.4	0.4
Corn	0.3	0.4
Other grain†	0.5	0.4
Nonanimal protein	0.5	0.3
Harvested forage	0.8	0.8
Pasture	0.4	0.3
Fruits	0.5	0.5
Vegetables	0.4	0.4
Other foods*	0.8	0.4
Labor (total)	0.6	0.9
Livestock and products	0.8	0.9
Fruits	0.8	.....
Vegetables	0.1	.....
Other foods*	0.8	.....
Feed grains	0.4	0.4
Nonanimal protein	0.7	.....
Harvested forage	0.8	0.8

* Includes potatoes, sweet potatoes, dry beans, peas, nuts, and food grains.

† Includes oats, barley, wheat used for feed, rye, and sorghum grains.

[75] Wetmore *et al., op. cit.*, p. 99.

[76] James T. Bonnen and William A. Cromarty, "Structure of Agriculture," *Agricultural Adjustment Problems in a Growing Economy*, E. O. Heady, ed. (Ames: Iowa State College Press, 1958), p. 125.

A COMPARISON OF PROGRAMS

In comparing demand expansion programs—particularly the Food Allotment Program and the Indemnity Price Program—the costs of obtaining a given increase in farm resource use are important. None of the proposed programs will completely eliminate surplus resources in agriculture at tolerable levels of operation. Nevertheless, it is of interest to determine which programs are most efficient; that is, which result in the largest increases in farm resource use per dollar of program expenditure. There are aspects of the programs other than elimination of surpluses that also should be considered (e.g., effect on nutrition). In this chapter, however, attention centers on increasing farm resource use.

The costs of achieving a 1-percent increase in resource use under different levels of operation and price reductions for the Food Allotment and Indemnity Price Programs are presented in tables 29-30.

Attainment of a 1-percent increase in total farm resource use under the Food Allotment Program, operating with 75-percent participation, costs from $537 million to $786 million. Under the Indemnity Price Program, reducing the

Table 29. Efficiency of the Food Allotment Program in increasing total farm resource use, United States, 1955

Level of Program operation and participation	Total program cost	Percent change in total resource use	Cost per 1-percent change in total resource use
	million dollars	percent	million dollars
High level of operation			
90-percent participation	3,558	6.2	574
75-percent participation	2,964	5.3	559
50-percent participation	1,977	3.5	565
Moderate level of operation			
90-percent participation	1,696	2.1	808
75-percent participation	1,414	1.8	786
50-percent participation	942	1.2	785
Low level of operation			
90-percent participation	645	1.2	538
75-percent participation	537	1.0	537
50-percent participation	358	.6	597

Table 30. Efficiency of price declines of all food and various food groups in increasing total farm resource use under the Indemnity Price Program, United States, 1955

Price declines	Total program cost	Percent change in total resource use	Cost per 1-percent change in total resource use
	million dollars	percent	million dollars
Of 10 percent for:			
All food	4,362	2.4	1,818
Meat, fruits, and vegetables	1,954	1.7	1,149
Meat	939	1.8	522
All livestock and products	1,950	2.6	750
All food except "other"	3,011	2.6	1,158
Of 20 percent for:			
All food	8,735	5.2	1,680
Meat, fruits, and vegetables	3,998	3.8	1,052
Meat	1,974	4.0	494
All livestock and products	3,906	5.9	662
All food except "other"	6,323	5.7	1,109

price of meats results in the largest increase in total resource use per dollar of expenditure. On the other hand, reducing the price of all food costs the most to achieve the 1-percent increase. The Food Allotment Program operating at the high and low levels and a price reduction of 10 and 20 percent for meat compares favorably on a cost basis. Also, the moderate level of operation under the Food Allotment Program and 10- and 20-percent price declines for livestock and livestock products achieve a 1-percent increase in total resource use at about the same cost level. Price declines other than the above cost much more than the Food Allotment Program in achieving this 1-percent increase.

The potential changes in farm resource use that result from expanded operation of the School Lunch and the Special Milk Programs do not represent net increases in resource use. Therefore, the cost of obtaining a 1-percent increase in resource use via these programs has little meaning.

IMPACT OF DEMAND EXPANSION PROGRAMS ON FARM PRICES AND INCOMES

Operation of the Food Allotment and Indemnity Price Programs will increase the demand for farm food products and farm incomes. However, farmers would not receive the full value of the food subsidy granted to participants under either program. The value of the subsidies is based on retail levels of food consumption. The value of marketing and processing services (i.e., marketing margins) has to be subtracted from the value of increased retail food consumption to obtain the increased value of consumption at the farm level. The increased value of consumption at the farm level represents an increase in gross farm income. In the short run, where food supplies are relatively fixed, the food subsidies granted to consumers would be reflected in increased prices (see Chapter III). In the longer run, as supplies respond to higher prices, prices would fall toward preprogram levels. But, farmers can sell more at the same price.

Not all producers benefit equally from the Programs. The demand for some foods actually declines. For example, at all levels of achievement of the Food Allotment Program, the quantity of food purchased increases for all food groups except dry beans, peas, lentils, and grain products. Quantities purchased of the latter food groups decline (see tables 5-7 in Chapter IV). Similarly, changes in food consumption (increases or decreases) vary with the price reduction achieved under the Indemnity Price Program. A price reduction for all meats results in increased meat consumption but decreased consumption of all other food groups.

The longer run impact of the Food Allotment and Indemnity Price Programs on gross farm incomes is estimated from the direct program cost data presented in Chapter IV (see tables 31 and 32). Knowledge about the magnitude of farm-retail price spreads enables the derivation of these estimates. In recent years the farmers' share of retail food costs has been about 40 percent.[77] Increases in gross farm incomes that result from the Food Allotment and Indemnity Price Programs would be about 40 percent of direct program costs. For example, direct costs of the Food Allotment Program operating at the high level with 75-percent participation would be $2,906 million. Farmers, in turn, would receive about $1,162 million. This amount rep-

[77] *Developments in Marketing Spreads for Agricultural Products in 1959*, Marketing Economics Research Division, AMS, USDA, May 1960.

Table 31. Estimated increases in farm incomes resulting from operation of the Food Allotment Program for several levels under assumed levels of participation, United States, 1955

Level of participation	Assumed levels of program operation		
	High	Moderate	Low
	million dollars		
90 percent	1,395.2	665.2	252.8
75 percent	1,162.4	554.4	210.4
50 percent	775.2	369.6	140.4

Table 32. Estimated increases in farm incomes resulting from selected price declines of 10 and 20 percent under the Indemnity Price Program, United States, 1955

Commodity	Changes in farm incomes resulting from price declines of:	
	10 percent	20 percent
	million dollars	
All food	1,661.6	3,327.6
Meat, fruits, vegetables	864.0	1,777.2
Meat	515.2	1,084.4
All livestock and products	844.4	1,704.8
All food except "other"	1,183.6	2,488.4

resents the farmers' share of increased consumer expenditures for food.[78]

The estimated increases in gross farm incomes given in tables 31 and 32 result from the sale of food through commercial marketing channels. If expenditures on other government price-income support were reduced because of these programs, a substitution between governmental expenditures in agriculture would take place and total gross farm income would not increase. Improvements in farm food prices that result from the operation of either demand expansion program would lead to reduced government price-income support operation. Therefore, it is difficult to estimate the net effect of operation on increasing gross farm income.

Estimates of the impact of expanded operation of the National School Lunch and Special Milk Programs on farm prices and incomes are not obtainable because of the lack of information about resulting **net** increases in food consumption. However, even the estimated gross changes in food consumption indicate these programs would have a very small influence on farm prices and incomes.

CONCLUSIONS

The costs of obtaining sizeable increases in resource use, relative to the surplus problem, are high. Moreover, only about 40 percent of program expenditures represent increases in gross farm income.

Demand expansion programs cannot be justified on grounds that they will eliminate surplus resources in agriculture. Additional support for these programs must be based on nutritional grounds. Therefore, the joint criteria of improved nutrition and increased farm resource use must be used in selecting the "best" program and its level of operation.

[78] In the short run, the supply function for agricultural commodities may be highly inelastic. With a highly inelastic demand for food, a small increase in total demand would cause prices to rise substantially. And, the income gains to farmers could exceed the amount of the government subsidy.

Chapter VI. Demand Expansion in Perspective

THE ECONOMIC aspects of demand expansion programs have been analyzed. It is evident that the programs presented will not completely eliminate surplus resources in United States agriculture, even at high levels of program operations and expenditures. These results temper the vigor with which the demand expansion approach might be pursued to achieve some consumption goal. However, these programs should be of interest to agriculture. To the extent that the programs increase demand for farm food products, greater resource use in agriculture is obtained. The programs offer a partial solution to the general overcapacity problem in United States agriculture. Until more effective programs are devised and implemented, partial solutions should not be ignored. In addition, their effects on nutrition must be considered. The remaining task is to place the economic facts in a social and political setting. This will provide a comprehensive evaluation of the programs, so that statements concerning their acceptability can be made.

THE GOALS OF DEMAND EXPANSION

If the programs are to receive social and political acceptance, they must achieve the goal or goals for which they were conceived. It is misleading and probably impossible to sell a program to the public and Congress on nutritional grounds that only remotely focuses on the problem of nutritional shortages. Consumers, as consumers, might have no preference between a Food Allotment Program which subsidizes food consumption of low-income consumers (the group suffering most from nutritional shortages) and an Indemnity Price Program which subsidizes food consumption of all consumers. However, these same consumers, as taxpayers, and their representatives in the Congress, might approve of the former but strongly object to the latter program, because of their different focuses on nutritional shortages —the food consumption goal of demand expansion efforts.

Approval of a program on the basis that it will achieve, to some degree, the desired goal is one thing. How much is to be spent on such a program is quite another thing. The term "reasonable levels of program expenditures" has been alluded to earlier but needs to be given a more definitive meaning. In large measure, reasonableness of costs of public programs is conditional upon how serious the public considers the problems and how effective the proposed solution is.

Improved Nutrition

There are many food consumption goals. However, the goal of improved nutrition ranks above all others. This point has been discussed earlier in connection with the National School Lunch and Special Milk Programs and the proposed Food Allotment Plan of 1944-45. The analysis of the presented

demand expansion programs centers upon this consumption goal.

There are not widespread or even sizeable pockets of starvation in the United States. However, optimum nutrition has not been achieved; nutritional shortages are present on a large scale.[79] It is difficult to evaluate the magnitude of these shortages because detailed information about nutrient intake is not available. The 1955 Household Food Consumption Survey gives data on the number of households that receive less than the recommended quantities of various nutrients. However, there is available information on how far short these households fall of the desired nutritional goals. They may fall short of the recommended nutrient levels by one-half of 1 percent or by 50 percent. Moreover, the recommended nutritional allowances used in computing nutritional adequacy include wide margins of safety. Consequently, falling short does not automatically imply that individuals are not consuming **necessary** levels of nutrients (i.e., levels that would not result in any nutritional ill effects). However, available data indicate that a larger proportion of low-income persons incur nutritional shortages than higher-income persons.

An adequate objective measure of nutritional shortages is not available. Instead, the end results of improper nutrition have to be examined and used as a guide to evaluate the problem. To date, some degree of magnitude of the nutrition problem has been recognized. It was recognized in the proposed Food Allotment Plan of 1944-45 and in the National School Lunch and Special Milk Programs. The questions to be answered are how serious is the problem of nutritional shortages and what levels of public expenditures are consistent with it.

The people of the United States have one of the most expensive and varied average national diets the world has ever known. It does not follow, however, that it is the most healthful or that all families conform to the average.[80] ". . . it seems safe to say that deprivation of any one of most of the known essential nutrients would tend to reduce the resistance of the human body to infections of many sorts—infections not themselves originating in the lack of an essential nutrient, but whose opportunity to damage and overwhelm the human body is enhanced by absence of the nutrient."[81] These nutritional shortages may not be of an acute type but mild and unsuspected. Over time, however, they take their toll and their effects become visible.

The problem of nutritional shortages is not one of emergency proportions. It does not require immediate and drastic action. Action has been taken in the past and future efforts will undoubtedly be put forth. Compared to the many problems faced by the United States and their assessed importance, nutritional shortages ranks well down the priority scale in attention received and funds expended.

Increased Farm Resource Used

The demand expansion approach would contribute to the reduction of the surplus problem. Greater utilization of resources in agriculture would result from the operation of the presented demand expansion programs. The resulting increased food consumption would, in general, be directed toward high-resource-using commodities such as livestock and livestock products, fruits, and vegetables. Increased demand for livestock and livestock products would, in turn, increase the demand for feed

[79] Agnes Fay Morgan and Lura M. Odland, "The Nutriture of People," *Food, The Yearbook of Agriculture, 1959* (Washington: United States Government Printing Office, 1959), p. 187.

[80] M. K. Bennett, *The World's Food* (New York: Harper and Brothers, 1954), pp. 65-66.

[81] *Ibid.*, p. 95.

grains. And, feed grains are in surplus. On the other hand, these same programs would either have no effect or a negative effect on the demand for food grains. Although all commodities would not benefit equally from the operation of demand expansion programs, increased total resource use can be effected and this is beneficial to agriculture as a whole.

ACCEPTABLE LEVELS OF DEMAND EXPANSION OPERATIONS

A lower limit can be set for demand expansion program expenditures. This lower limit is the level of current annual expenditures, $175 million, on existing programs—the National School Lunch and Special Milk Programs.[82] Of the $175 million spent in recent years, $100 million went to the School Lunch Program. An additional amount of about $200 million was spent annually under the Direct Distribution Program.[83] Although the latter program does not meet the definition of demand expansion used in this analysis, it does represent subsidies to food consumption. Thus, total Government expenditures on demand expansion and food subsidy programs amounted to about $375 million yearly. This total expenditure does not allow for new programs or the expansion of existing ones. The question is what amount of additional expenditures is reasonable?

Upper limits have to be set on the levels of expenditures on demand expansion programs. As a starting point, the proposed programs should be operated and administered by the United States Department of Agriculture. Considering the Department's numerous and varied activities, it appears unreasonable that a program would be approved which required expenditures equal to or greater than the current Department's budget. In recent years the USDA has had appropriations of about $5 billion.[84] Therefore, expenditures on demand expansion programs approaching $5 billion would not be politically possible.

It is difficult to determine the maximum level of expenditures on demand expansion programs that would be acceptable to the Congress. It is the authors' judgment that about $1 billion represents this maximum level. This figure includes the $175 million currently alloted to the National School Lunch and Special Milk Programs and the $200 million annual expenditure on the Direct Distribution Program, as well as expenditures on new programs or expansion of existing programs. However, many of the functions of the Direct Distribution Program might be absorbed by new programs. The funds spent on the Direct Distribution Program could then be allocated to the new programs.

In terms of effectiveness in obtaining the improved nutrition goal, the programs presented in this analysis can be ranked in the following order: (1) The National School Lunch and Special Milk Programs; (2) The Food Allotment Program; and (3) The Indemnity Price Program.

The National School Lunch and Special Milk Programs concentrate on children—the group most adversely affected by nutritional shortages. To the extent that children participate in these programs, they receive nutritionally adequate meals. Moreover, children are made aware of the benefits of good nutrition and exposed to a variety of

[82] *The Budget of the United States for the Fiscal Year Ending June 30, 1959* (Washington: United States Government Printing Office, 1958), pp. 324-339.

[83] *Selected Statistics on Operation of Food Distribution Programs, Fiscal Years 1958 and 1959*, AMS, USDA, p. 1.

[84] *Department of Agriculture Appropriations for 1961*, Hearings before the subcommittee of the Committee on Appropriations, House of Representatives, 86th Congress, Second Session (Washington: United States Government Printing Office, 1960), pp. 2-3.

foods. Their food tastes and preferences are thereby influenced. Of all the programs presented, the National School Lunch and Special Milk Programs have the greatest effect on insuring good nutrition because they guarantee nutritional adequacy of meals served to the segment of the population that suffers most from nutritional shortages.

The Food Allotment Program more directly assails the nutrition problem than the Indemnity Price Program. Whereas the Indemnity Price Program gives food price reductions to all consumers, the Food Allotment Program concentrates the food subsidy at low-income levels where nutritional shortages are most intense. In addition, the Food Allotment Program, is generally more efficient in obtaining a 1-percent increase in farm resource use at lower costs than the Indemnity Price Program.

An expansion of the National School Lunch and Special Milk Programs could raise the level of Federal expenditures to a maximum of $268 million. If all schools not now participating in these programs participated, the increased Federal contributions would be $60 million to the National School Lunch Program and $33 million to the Special Milk Program.[86] A total expenditure of $268 million would cover virtually all the Nation's children of precollege age enrolled in public schools. This figure is undoubtedly an overestimate, because all school children would not participate in the Programs.

Operation of the Food Allotment Program at the low level, assuming a 75-percent level of participation, would cost about $550 million. About 10 percent of the total United States population would be involved. At the moderate level of program operation, for the same level of participation, total program costs would be approximately $1,500 million and involve about 15 percent of the total United States population. However, since a maximum of about $1 billion is set for total demand expansion expenditures, the moderate level of operation would not be within the realm of possibility. Together, the Food Allotment Program, operating at the moderate level, and the National School Lunch and Special Milk Programs would well exceed the $1 billion maximum. This level would not be surpassed if the Food Allotment Program operated at the low level.

The Indemnity Price Program is the least desirable for achieving the objectives of demand expansion. Of all the food price declines examined, only a 10-percent reduction in the price of meat would result in an acceptable level of expenditures—slightly over $900 million. All other price declines exceed the maximum expenditure level assumed.

The increases in farm resource use resulting from increased expenditures on demand expansion programs are now presented. Expansion of the National School Lunch Program and operation of the Food Allotment Program at the 60-percent level of achievement, assuming 75-percent participation, results in a maximum possible increase in total farm resource use of 2.3 percent—1.3 percent would come from the former program and 1.0 percent from the latter. The maximum total cost of achieving this increase is slightly under $650 million. When the current level of expenditures on the National School Lunch and Special Milk Programs are included, the **total cost** of demand expansion efforts is about $825 million.

The combination of expanded operation of the two nutrition programs and a 10-percent decline in the price of meats results in an increase in total resource use of 3.1 percent at a cost of about $1,000 million. When current expenditures on the two nutrition programs are included, totals costs are about $1,175 million. The combination of expenditures on the National School

[86] Federal contributions to these programs are based on the percent of current program expenditures coming from the Federal Government.

Lunch and Special Milk Programs and either level of operation of the Food Allotment Program or the Indemnity Price Program other than those mentioned above result in increased total costs of more than $1 billion. In fact, the next lowest cost level is about $2 billion—an amount that far exceeds the maximum acceptable expenditure level decided upon in this analysis.

GENERAL CONCLUSIONS

Demand expansion programs provide a means for partially eliminating surplus agricultural production. Total food consumption is highly price and income inelastic. Large changes in food prices or consumers' incomes are needed to achieve a small increase in total food consumption. At best, reasonable levels of expenditures on the demand expansion approach would reduce the agricultural surplus by about one-fourth to one-third. The former estimate is possibly the most realistic.

The goal of improved nutrition dictates a preference ordering of the programs presented in this analysis. Within the imposed cost restrictions, the programs that most effectively attack the problem of nutritional shortages are most desirable. Consequently, the National School Lunch and Special Milk Programs have top priority. These programs directly attack the problem of nutritional shortages. Moreover, they operate for the benefit of the group most sensitive to the ill effects of nutritional shortages (i.e., the Nation's children of elementary and secondary school age).

Next in order of preference is the Food Allotment Program. It, too, is directed at a segment of population exhibiting the highest incidence of nutritional shortages; namely, low-income consumers. It does not attack the nutrition problem as directly as the National School Lunch or Special Milk Programs because income is not the only restraint to good nutrition.

Finally, the Indemnity Price Program is the least preferred of the programs presented. It does not directly come to grips with the problem of nutrition. It operates for the benefit of all consumers rather than for those with the largest incidence of nutritional shortages.

The people of the United States are, in general, well fed. Improving consumer diets will not result in major or even moderate increases in food consumption. The extent to which demand expansion efforts can reduce the agricultural surplus depends in large measure on how seriously the public views the problem of nutritional shortages and the amount it is willing to spend to remedy this problem through increased food consumption.

Appendix

The tables presented below contain a detailed breakdown of food consumption data relating to the Food Allotment Program. Figures 1-4 present per capita expense of food purchased by per capita incomes and as a percent of per capita incomes for each region-urbanization. Data on the percentage changes in quantity of food purchased of all food and various food groups for different levels of Program operation and region-urbanizations, assuming full participation, are given in tables 1-3. Similar data on percentage changes in expense of quantity purchased are given in tables 4-6. Change in total United States quantity purchased and expense of quantity purchased for all food and various food groups expressed in millions of pounds and millions of dollars, for alternative levels of program operation and participation, are presented in

tables 7-14. Changes in quantity purchased and expense of quantity purchased for all food and various food groups, expressed in millions of pounds and millions of dollars, for alternative levels of operation and region-urbanizations, assuming full participation in the Program, are presented in tables 15-20.

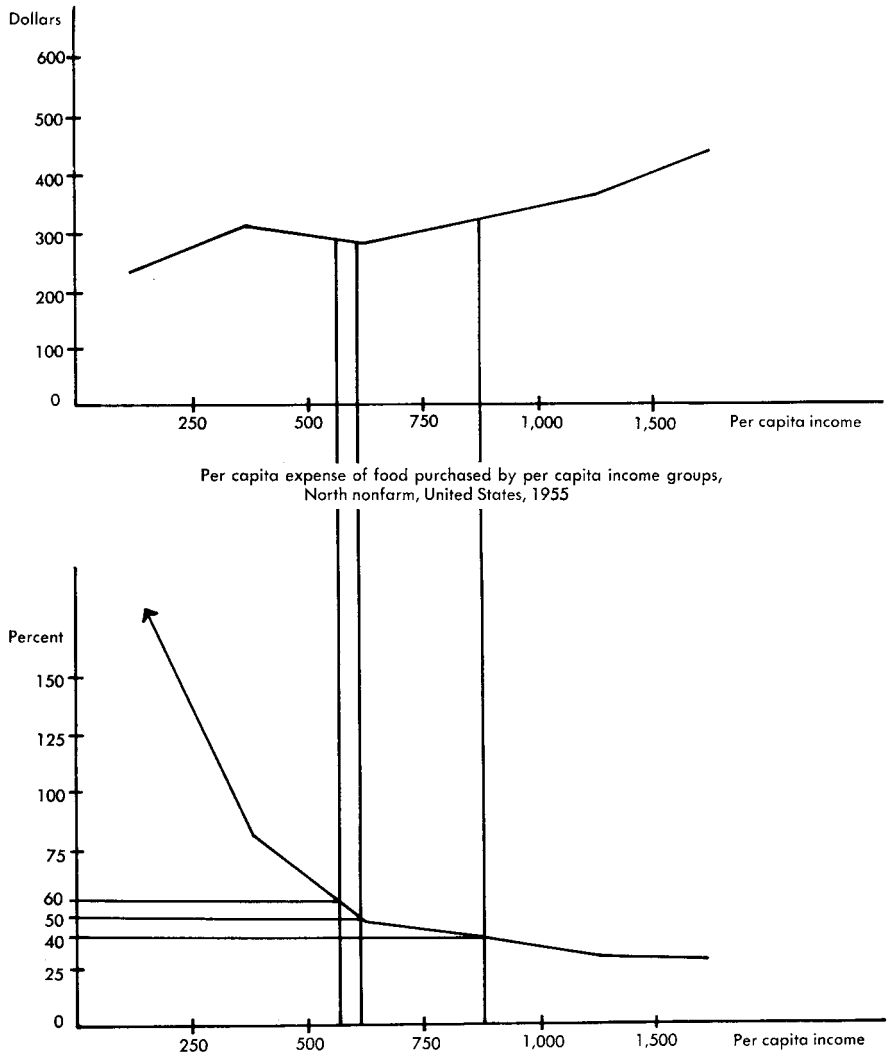


FIG. 1. Per capita expense of food purchased as a percent of per capita incomes, North nonfarm, United States, 1955

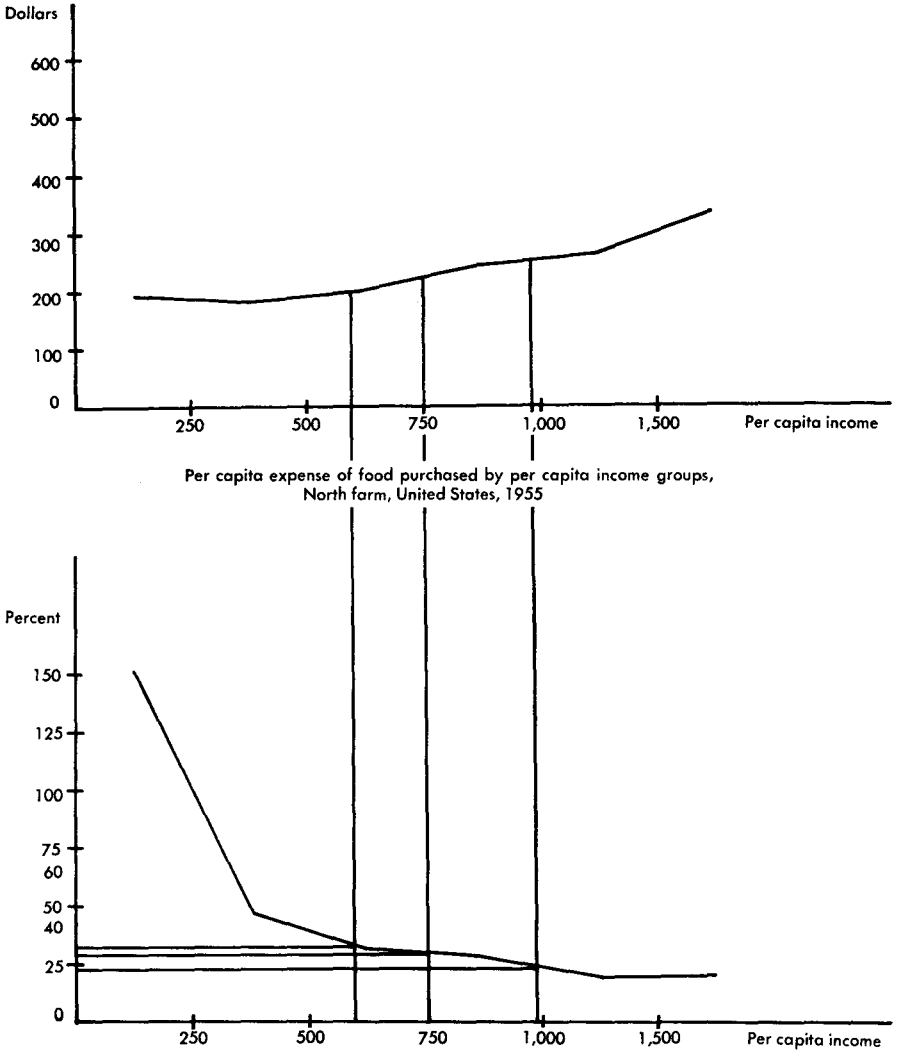
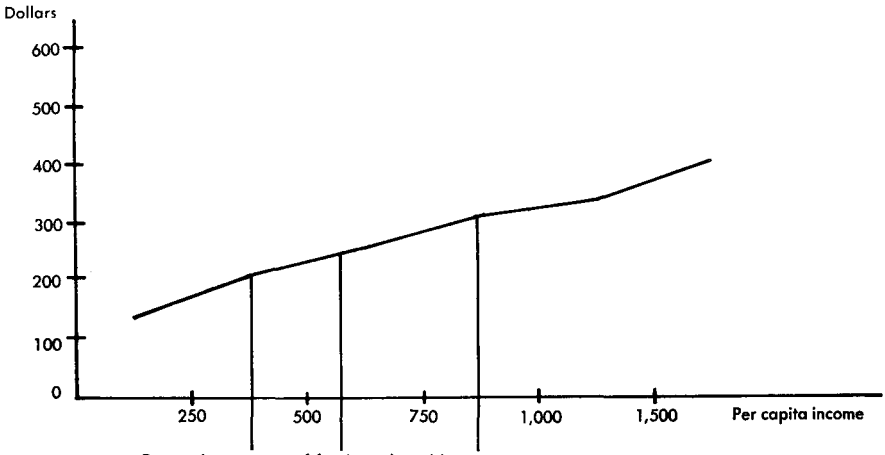


FIG. 2. Per capita expense of food purchased as a percent of per capita incomes, North farm, United States, 1955



Per capita expense of food purchased by per capita income groups, South nonfarm, United States, 1955

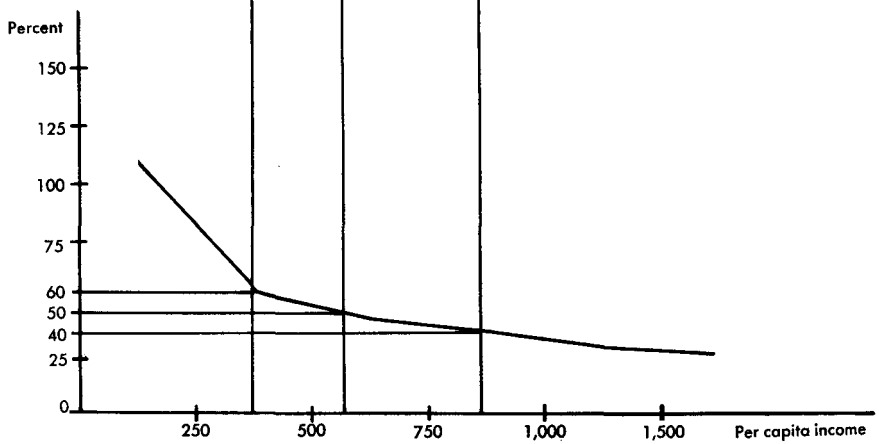


FIG. 3. Per capita expense of food purchased as a percent of per capita incomes, South nonfarm, United States, 1955

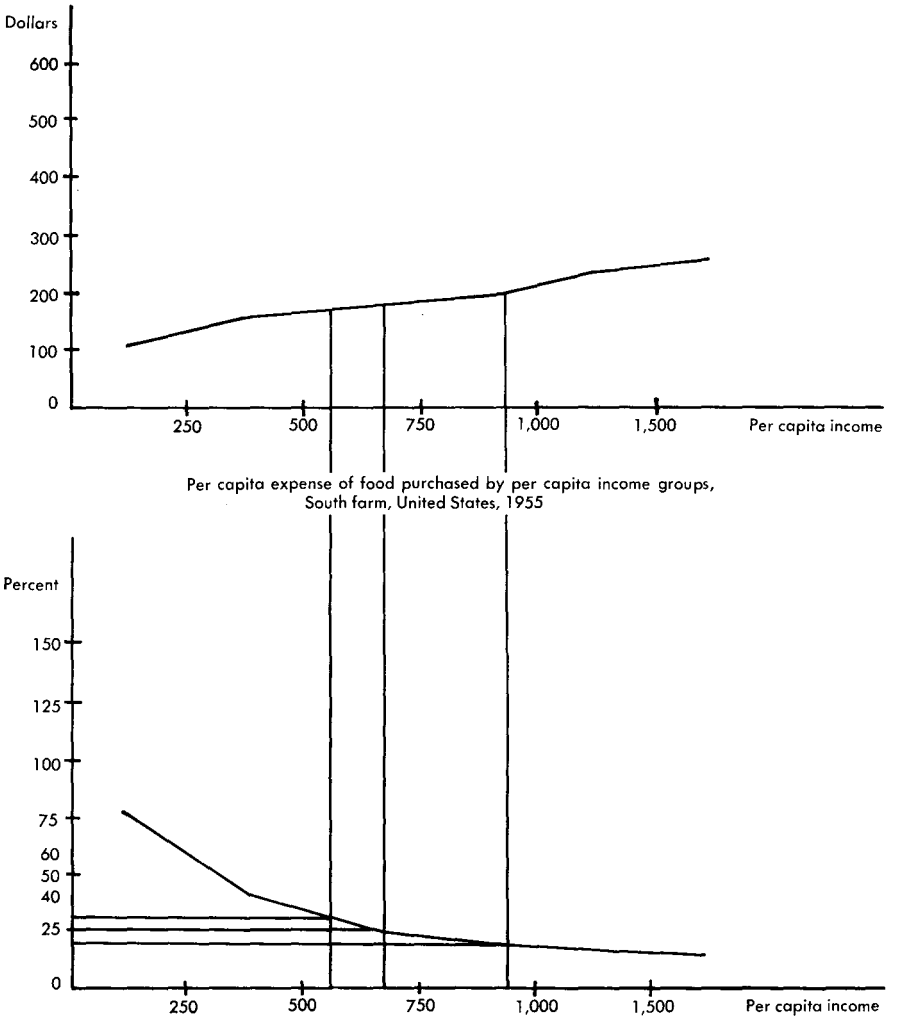


FIG. 4. Per capita expense of food purchased as a percent of per capita incomes, South farm, United States, 1955

Table 1. Percentage change in *total United States quantity purchased* of various foods and food groups at the *high level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Percentage change in total U. S. quantity purchased				
	North nonfarm	North farm	South nonfarm	South farm	U. S.
			percent		
All food	1.2	.3	3.5	.9	5.8
Milk and milk products	1.0	.5	5.0	1.3	7.8
Milk	.3	.5	5.1	1.2	7.1
Cream and ice cream	3.9	2.6	8.8	1.3	16.6
Cheese	.3	.....	2.7	1.9	4.9
Meat, fish, poultry	1.6	.7	5.5	.9	8.7
Bacon, salt pork	.3	—.8	—.2	.9	.2
Major meats	1.7	.6	5.3	.8	8.4
Beef	2.2	—.2	5.3	.8	8.1
Pork	1.0	.3	4.3	1.0	6.6
Fish	1.1	4.2	4.9	—.3	9.9
Total poultry	2.9	.9	7.5	.7	12.0
Other meat	—.3	—.2	2.1	1.9	3.5
Eggs	1.4	.3	5.3	.8	7.8
Dry beans	—3.0	—.9	—11.9	—.8	—17.5
Nuts	1.2	—.1	3.4	2.9	7.4
Vegetables	.9	.3	3.5	1.1	5.8
Potatoes	—.4	.....	1.2	.9	1.7
Sweet potatoes	3.0	—.8	11.2	.9	11.6
Dark green and yellow	1.2	.5	2.3	.5	4.5
Other green	1.0	.4	4.5	1.1	7.0
Tomatoes	1.6	.7	4.8	1.8	8.9
Other vegetables	2.1	.3	5.9	1.3	9.6
Citrus fruits	1.9	.2	5.6	1.6	9.3
Dried fruit	2.4	.5	—.7	5.1	7.3
Other fruit	2.7	.1	4.2	.7	7.7
Grain products	—.6	—.3	—3.2	—.7	—4.8
Fats and oils	1.0	.4	2.0	.7	4.1
Butter	4.0	.7	1.6	.3	6.6
Margarine	—2.2	—.6	4.1	1.4	2.7
Other fats and oils	1.2	.4	1.3	.2	3.1
Sugar and sweets	.5	.1	.6	1.3	2.5

Table 2. Percentage change in *total United States quantity purchased* of various foods and food groups at the *moderate level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Percentage change in total U. S. quantity purchased				
	North nonfarm	North farm	South nonfarm	South farm	U. S.
			percent		
All food	.2	.3	1.5	.5	2.5
Milk and milk products	.7	.5	2.2	1.1	4.5
Milk	.3	.5	2.1	.9	3.8
Cream and ice cream	.7	2.6	1.8	1.7	6.8
Cheese	—.2	.....	2.0	1.3	3.1
Meat, fish, poultry	.3	.7	1.4	.1	2.5
Bacon, salt pork	—.3	—.8	1.5	.9	1.3
Major meats	.....	.6	1.6	.2	2.4
Beef	.2	—.2	1.9	.1	2.0
Pork	.3	.3	1.4	.3	2.3
Fish	.1	4.2	.2	—1.1	3.4
Total poultry	.....	.9	1.9	.8	3.6
Other meat	1.6	—.2	.....	.....	1.4
Eggs	—.6	.3	2.7	.6	3.0
Dry beans	.1	—.9	—4.6	—2.5	—7.9
Nuts	1.5	—.1	2.5	1.6	5.5
Vegetables	.....	.3	1.7	1.2	3.2
Potatoes	.2	.....	.5	.8	1.5
Sweet potatoes	—1.8	—.8	5.3	1.7	4.4
Dark green and yellow	—.6	.5	2.6	.9	3.4
Other green	—.7	.4	2.4	1.4	3.5
Tomatoes	.8	.7	1.9	2.0	5.4
Other vegetables	.3	.3	2.2	1.3	4.1
Citrus fruits	—.6	.2	1.4	1.3	2.3
Dried fruit	—.2	.5	.7	1.8	2.8
Other fruit	.1	.1	1.7	.8	2.7
Grain products	—.4	—.3	—.9	—.7	—2.3
Fats and oils	—.2	.4	1.0	.3	1.5
Butter	—1.5	.7	.2	.5	—.1
Margarine	—.5	—.6	3.6	1.8	4.3
Other fats and oils	.4	.4	.3	—.4	.7
Sugar and sweets	—.2	.1	2.8	1.0	3.7

Table 3. Percentage change in *total United States quantity purchased* of various foods and food groups at the *low level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Percentage change in total U. S. quantity purchased				
	North nonfarm	North farm	South nonfarm	South farm	U. S.
			percent		
All food	.2	.1	.5	.5	1.3
Milk and milk products	.7	.2	.5	1.1	2.5
Milk	.3	.2	.6	.9	2.0
Cream and ice cream	.7	.7	.2	1.7	3.3
Cheese	—.2	.4	.5	1.3	2.0
Meat, fish, poultry	.3	.5	.5	.1	1.4
Bacon, salt pork	—.3	—.8	.3	.9	.1
Major meats	.....	.....	.5	.2	.7
Beef	.2	.....	.5	.1	.8
Pork	.3	.....	.4	.3	1.0
Fish	.1	.4	.3	—1.1	—.3
Total poultry	.....	—.2	1.0	.8	1.6
Other meat	1.6	—.2	.4	.....	1.8
Eggs	—.6	.1	.8	.6	.9
Dry beans	.1	—.3	—.8	—2.5	—3.5
Nuts	1.5	.5	1.0	1.6	4.6
Vegetables	.....	.1	.6	1.2	1.9
Potatoes	.2	—.1	.6	.8	1.5
Sweet potatoes	—1.8	—.3	3.5	1.7	3.1
Dark green and yellow	—.6	.....	1.0	.9	1.3
Other green	—.7	.1	.6	1.4	1.4
Tomatoes	.8	.1	—.1	2.0	2.8
Other vegetables	.3	.2	.7	1.3	3.0
Citrus fruits	—.6	—.2	.8	1.3	1.3
Dried fruit	—.2	.2	1.5	1.8	3.3
Other fruit	.1	.1	1.0	.8	2.0
Grain products	—.4	.....	—.2	—.7	—1.3
Fats and oils	—.2	.2	.2	.3	.5
Butter	—1.5	1.1	—.1	.5	.....
Margarine	—.5	.5	1.0	1.8	2.8
Other fats and oils	.4	.....	—.1	—.4	.1
Sugar and sweets	—.2	.3	.6	1.0	1.7

Table 4. Percentage change in *total United States expense* of various foods and food groups at the *high level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Percentage change in total U. S. expense				
	North nonfarm	North farm	South nonfarm	South farm	U. S.
			percent		
All food	2.2	.7	4.5	1.0	8.3
Milk and milk products	1.1	.8	6.1	1.3	9.3
Milk	.7	.6	6.4	1.4	9.1
Cream and ice cream	2.6	2.3	8.4	1.0	14.3
Cheese	1.0	—.2	2.5	1.5	4.8
Meat, fish, poultry	2.4	.4	5.8	.8	9.4
Bacon, salt pork	—.5	—.6	1.9	1.8	2.6
Major meats	2.3	.3	5.8	.8	9.2
Beef	3.2	—.1	5.3	.7	9.1
Pork	1.8	.4	5.7	1.2	9.1
Fish	1.7	.4	5.7	.....	7.8
Total poultry	3.0	.8	7.3	.6	11.7
Other meat	8.3	.3	3.2	1.5	13.3
Eggs	1.1	3.0	4.6	.4	9.1
Dry beans	1.4	—1.4	—10.5	—2.5	—13.0
Nuts	2.3	.7	4.3	2.3	9.6
Vegetables	1.6	.5	3.9	1.0	7.0
Potatoes	.7	.7	2.4	1.1	4.9
Sweet potatoes	4.8	—1.2	—3.6	.....	.....
Dark green and yellow	2.2	.6	3.4	.....	6.2
Other green	1.3	.5	4.9	.9	7.6
Tomatoes	1.8	.9	4.3	1.6	8.6
Other vegetables	2.3	.5	4.8	1.2	8.8
Citrus fruits	1.9	.4	3.9	1.7	7.9
Dried fruit	1.3	1.9	—3.9	4.5	3.8
Other fruit	3.0	.5	5.7	1.3	10.5
Grain products	1.1	.2	.9	.5	2.7
Fats and oils	1.9	.4	1.9	.7	4.9
Butter	3.1	.7	1.4	.4	5.6
Margarine	—.3	.3	3.8	1.6	5.4
Other fats and oils	2.1	.3	2.1	.8	5.3
Sugar and sweets	1.9	1.0	3.6	1.7	8.2

Table 5. Percentage change in *total United States expense* of various foods and food groups at the *moderate level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Percentage change in total U. S. expense				
	North nonfarm	North farm	South nonfarm	South farm	U. S.
			percent		
All food	.0	.7	2.4	.7	3.8
Milk and milk products	.3	.8	6.2	.9	8.2
Milk	.3	.6	2.3	.8	4.0
Cream and ice cream	.3	2.3	1.5	1.0	5.1
Cheese	—.3	—.2	2.1	1.2	2.8
Meat, fish, poultry	.1	.4	1.4	.2	2.1
Bacon, salt pork	—.4	—.6	2.4	1.5	2.9
Major meats	—.1	.3	1.7	.4	2.3
Beef	—.1	—.1	1.8	.2	1.8
Pork	.2	.4	1.7	.5	2.8
Fish	.6	.4	.9	—.1	1.8
Total poultry	—.3	.8	2.1	.7	3.3
Other meat	.8	.3	—.1	—.1	.9
Eggs	—.4	3.0	2.7	.6	5.9
Dry beans	.....	—1.4	—1.8	—1.4	—4.6
Nuts	1.4	.7	2.2	1.4	5.7
Vegetables	—.1	.5	1.9	1.1	3.8
Potatoes	.4	.7	1.1	.8	3.0
Sweet potatoes	—1.2	—1.2	4.8	3.6	6.0
Dark green and yellow	1.0	.6	1.6	.6	3.8
Other green	—.8	.5	2.1	1.3	3.1
Tomatoes	.5	.9	1.8	1.6	4.8
Other vegetables	.1	.5	2.0	1.2	3.8
Citrus fruits	—.8	.4	1.1	1.5	2.2
Dried fruit	.6	1.9	—.6	.....	1.9
Other fruit	—.4	.5	1.4	1.0	2.5
Grain products	.....	.2	1.3	.5	1.9
Fats and oils	—.5	.4	1.0	.6	1.5
Butter	—1.4	.7	.6	.4	.3
Margarine	—1.0	.3	3.2	1.9	4.4
Other fats and oils	.3	.3	1.0	.1	1.7
Sugar and sweets	.2	1.0	1.8	1.2	4.2

Table 6. Percentage change in *total United States expense* of various foods and food groups at the *low level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Percentage change in total U. S. expense				
	North nonfarm	North farm	South nonfarm	South farm	U. S.
			percent		
All food	.0	.1	.6	.7	1.3
Milk and milk products	.3	.2	.6	.9	2.0
Milk	.3	.2	.6	.8	1.9
Cream and ice cream	.3	.5	.4	1.0	2.2
Cheese	—.3	.3	.7	1.2	1.9
Meat, fish, poultry	.1	.....	.5	.2	.8
Bacon, salt pork	—.4	—.4	.8	1.5	1.5
Major meats	—.1	.....	.6	.4	.9
Beef	—.1	—.1	.5	.2	.5
Pork	.2	.....	.5	.5	1.2
Fish	.6	.6	.1	—.1	1.2
Total poultry	—.3	—.3	1.0	.7	1.1
Other meat	.8	.....	.3	—.1	1.0
Eggs	—.4	.....	.8	.6	1.0
Dry beans	.....	—.4	.....	—1.4	—1.8
Nuts	1.4	.4	.7	1.4	3.9
Vegetables	—.1	.2	.6	1.1	1.8
Potatoes	.4	.1	.8	.8	2.1
Sweet potatoes	—1.2	—.6	2.4	3.6	5.4
Dark green and yellow	1.0	.....	1.0	.6	2.6
Other green	—.8	.1	.5	1.3	1.1
Tomatoes	.5	.1	.2	1.6	2.4
Other vegetables	.1	.3	.6	1.2	2.2
Citrus fruits	—.8	—.1	.7	1.5	1.3
Dried fruit	.6	—1.9	1.3	.....	.....
Other fruit	—.4	.1	.8	1.0	1.5
Grain products	.....	.2	.6	.5	.8
Fats and oils	—.5	.3	.3	.6	.7
Butter	—1.4	.8	.1	.4	—.1
Margarine	—1.0	.....	1.0	1.9	1.9
Other fats and oils	.3	—.1	.4	.1	.7
Sugar and sweets	.2	.....	.7	1.2	2.0

Table 7. Change in *total United States quantity purchased* for several levels of operation of the Food Allotment Program assuming *100-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
		million pounds	
Milk and milk products	5,551	3,187	1,810
Milk	4,303	2,315	1,181
Cream and ice cream	707	285	137
Cheese	91	58	38
Meat, fish, poultry	2,003	562	227
Bacon, salt pork	9	36	3
Major meats	1,887	540	171
Beef	736	182	74
Pork	585	199	84
Fish	122	41	−4
Total poultry	442	131	58
Other meat	113	49	60
Eggs	433	168	50
Dry beans	−224	−107	−48
Nuts	69	51	43
Vegetables	2,530	1,397	804
Potatoes	232	219	203
Sweet potatoes	167	52	37
Dark green and yellow	120	92	36
Other green	604	297	118
Tomatoes	552	333	177
Other vegetables	953	405	250
Citrus fruits	943	239	127
Dried fruit	40	16	18
Other fruit	1,229	427	313
Grain products	−1,129	−545	−322
Fats and oils	300	103	30
Butter	81	−2	.....
Margarine	34	56	37
Other fats and oils	147	28	−7
Sugar and sweets	413	601	262

Table 8. Change in *total United States quantity purchased* for several levels of operation of the Food Allotment Program assuming *90-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
	million pounds		
Milk and milk products	4,995.9	2,868.3	1,629.0
Milk	3,872.7	2,083.5	1,062.9
Cream and ice cream	636.3	256.5	123.3
Cheese	81.9	52.2	34.2
Meat, fish, poultry	1,802.7	505.8	204.3
Bacon, salt pork	8.1	32.4	2.7
Major meats	1,698.3	486.0	153.9
Beef	662.4	163.8	66.6
Pork	526.5	179.1	75.6
Fish	109.8	36.9	−3.6
Total poultry	397.8	117.9	52.2
Other meat	101.7	44.1	54.0
Eggs	389.7	151.2	45.0
Dry beans	−201.6	−96.3	−43.2
Nuts	62.1	45.9	38.7
Vegetables	2,277.0	1,257.3	723.6
Potatoes	208.8	197.1	182.7
Sweet potatoes	150.3	46.8	33.3
Dark green and yellow	108.0	82.8	32.4
Other green	543.6	267.3	106.2
Tomatoes	496.8	299.7	159.3
Other vegetables	857.7	364.5	225.0
Citrus fruits	848.7	215.1	114.3
Dried fruit	36.0	14.4	16.2
Other fruit	1,106.1	384.3	281.7
Grain products	−1,016.1	−490.5	−289.8
Fats and oils	270.0	92.7	27.0
Butter	72.9	−1.8	...
Margarine	30.6	50.4	33.3
Other fats and oils	132.3	25.2	−6.3
Sugar and sweets	371.7	540.9	235.8

Table 9. Change in *total United States quantity purchased* for several levels of operation of the Food Allotment Program assuming *75-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
	million pounds		
Milk and milk products	4,163.2	2,390.2	1,357.5
Milk	3,227.2	1,736.2	885.8
Cream and ice cream	530.2	213.8	102.8
Cheese	68.2	43.5	28.5
Meat, fish, poultry	1,502.2	421.5	170.2
Bacon, salt pork	6.8	27.0	2.2
Major meats	1,415.2	405.0	128.2
Beef	552.0	136.5	55.5
Pork	438.8	149.2	63.0
Fish	91.5	30.8	—3.0
Total poultry	331.5	98.2	43.5
Other meat	84.8	36.8	45.0
Eggs	324.8	126.0	37.5
Dry beans	—168.0	—80.2	—36.0
Nuts	51.8	38.2	32.2
Vegetables	1,897.5	1,047.8	603.0
Potatoes	174.0	164.2	152.2
Sweet potatoes	125.2	39.0	27.8
Dark green and yellow	90.0	69.0	27.0
Other green	453.0	222.8	88.5
Tomatoes	414.0	249.8	132.8
Other vegetables	714.8	303.8	187.5
Citrus fruits	707.2	179.2	95.2
Dried fruit	30.0	12.0	13.5
Other fruit	921.8	320.2	234.8
Grain products	—846.8	—408.8	—241.5
Fats and oils	225.0	77.2	22.5
Butter	60.8	—1.5	.....
Margarine	25.5	42.0	27.8
Other fats and oils	110.2	21.0	—5.2
Sugar and sweets	309.8	450.8	196.5

Table 10. Change in *total United States quantity purchased* for several levels of operation of the Food Allotment Program assuming *50-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
	million pounds		
Milk and milk products	2,775.5	1,593.5	905.0
Milk	2,151.5	1,157.5	590.5
Cream and ice cream	353.5	142.5	68.5
Cheese	45.5	29.0	19.0
Meat, fish, poultry	1,001.5	281.0	113.5
Bacon, salt pork	4.5	18.0	1.5
Major meats	943.5	270.0	85.5
Beef	368.0	91.0	37.0
Pork	292.5	99.5	42.0
Fish	61.0	20.5	2.0
Total poultry	221.0	65.5	29.0
Other meat	56.5	24.5	30.0
Eggs	216.5	84.0	25.0
Dry beans	—112.0	—53.5	—24.0
Nuts	34.5	25.5	21.5
Vegetables	1,265.0	698.5	402.0
Potatoes	116.0	109.5	101.5
Sweet potatoes	84.0	26.0	18.5
Dark green and yellow	60.0	46.0	18.0
Other green	302.0	148.5	59.0
Tomatoes	176.0	166.5	88.5
Other vegetables	476.5	202.5	12.5
Citrus fruits	471.5	119.5	63.5
Dried fruit	20.0	8.0	9.0
Other fruit	614.5	213.5	156.5
Grain products	—564.5	—272.5	—161.0
Fats and oils	150.0	51.5	15.0
Butter	40.5	—1.0	.....
Margarine	17.0	28.0	18.5
Other fats and oils	73.5	14.0	—3.5
Sugar and sweets	206.5	300.5	131.0

Table 11. Change in *total United States expense* for several levels of operation of the Food Allotment Program assuming *100-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
	million dollars		
All food	3,875	1,848	702
Milk and milk products	800	699	166
Milk	529	233	109
Cream and ice cream	268	96	41
Cheese	44	25	17
Meat, fish, poultry	1,306	294	119
Bacon, salt pork	37	41	21
Major meats	1,223	301	105
Beef	519	108	30
Pork	470	139	61
Fish	55	12	8
Total poultry	227	63	25
Other meat	261	20	21
Eggs	190	123	21
Dry beans	−37	−13	−5
Nuts	54	32	22
Vegetables	474	226	115
Potatoes	58	36	26
Sweet potatoes	.....	10	7
Dark green and yellow	31	19	13
Other green	114	47	17
Tomatoes	106	59	29
Other vegetables	151	65	38
Citrus fruits	114	32	18
Dried fruit	6	3	.....
Other fruit	291	72	43
Grain products	177	126	79
Fats and oils	127	40	20
Butter	47	2	−1
Margarine	17	14	6
Other fats and oils	71	23	10
Sugar and sweets	336	173	83

Table 12. Change in *total United States expense* for several levels of operation of the Food Allotment Program assuming *90-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
	million dollars		
All food	3,487.5	1,663.2	631.8
Milk and milk products	720.0	629.1	149.4
Milk	476.1	209.7	98.1
Cream and ice cream	241.2	86.4	36.9
Cheese	39.6	22.5	15.3
Meat, fish, poultry	1,175.4	264.6	107.1
Bacon, salt pork	33.3	36.9	18.9
Major meats	1,100.7	270.9	94.5
Beef	467.1	97.2	27.0
Pork	423.0	125.1	54.9
Fish	49.5	10.8	7.2
Total poultry	204.3	56.7	22.5
Other meat	234.9	18.0	18.9
Eggs	171.0	110.7	18.9
Dry beans	—33.3	—11.7	—4.5
Nuts	48.6	28.8	19.8
Vegetables	426.6	203.4	103.5
Potatoes	52.2	32.4	23.4
Sweet potatoes	.....	9.0	6.3
Dark green and yellow	27.9	17.1	11.7
Other green	102.6	42.3	15.3
Tomatoes	95.4	53.1	26.1
Other vegetables	135.9	58.5	34.2
Citrus fruits	102.6	28.8	16.2
Dried fruit	5.4	2.7	.....
Other fruit	261.9	64.8	38.7
Grain products	159.3	113.4	71.1
Fats and oils	114.3	36.0	18.0
Butter	42.3	1.8	—.9
Margarine	15.3	12.6	5.4
Other fats and oils	63.9	20.7	9.0
Sugar and sweets	302.4	155.7	74.7

Table 13. Change in *total expense* for several levels of operation of the Food Allotment Program assuming *75-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
	million dollars		
All food	2,906.2	1,386.0	526.5
Milk and milk products	600.0	524.2	124.5
Milk	396.8	174.8	81.8
Cream and ice cream	201.0	72.0	30.8
Cheese	33.0	18.8	12.8
Meat, fish, poultry	979.5	220.5	89.2
Bacon, salt pork	27.8	30.8	15.8
Major meats	917.2	225.8	78.8
Beef	389.2	81.0	22.5
Pork	352.5	104.2	45.8
Fish	41.2	9.0	6.0
Total poultry	170.2	47.2	18.8
Other meat	195.8	15.0	15.8
Eggs	142.5	92.2	15.8
Dry beans	—27.8	—9.8	—3.8
Nuts	40.5	24.0	16.5
Vegetables	355.5	169.5	86.2
Potatoes	43.5	27.0	19.5
Sweet potatoes	.....	7.5	5.2
Dark green and yellow	23.2	14.2	9.8
Other green	85.5	35.2	12.8
Tomatoes	79.5	44.2	21.8
Other vegetables	113.2	48.8	28.5
Citrus fruits	85.5	24.0	13.5
Dried fruit	4.5	2.2	.....
Other fruit	218.2	54.0	32.2
Grain products	132.8	94.5	59.2
Fats and oils	95.2	30.0	15.0
Butter	35.2	1.5	—.8
Margarine	12.8	10.5	4.5
Other fats and oils	53.2	17.2	7.5
Sugar and sweets	252.0	129.8	62.2

Table 14. Change in *total expense* for several levels of operation of the Food Allotment Program assuming *50-percent* participation, United States, 1955

Food group	Level of Program operation		
	High	Moderate	Low
	million dollars		
All food	1,937.5	924.0	351.0
Milk and milk products	400.0	349.5	83.0
Milk	264.5	116.5	54.5
Cream and ice cream	134.0	48.0	20.5
Cheese	22.0	12.5	8.5
Meat, fish, poultry	653.0	147.0	59.5
Bacon, salt pork	18.5	20.5	10.5
Major meats	611.5	150.5	52.5
Beef	259.5	54.0	15.0
Pork	235.0	69.5	30.5
Fish	27.5	6.0	4.0
Total poultry	113.5	31.5	12.5
Other meat	130.5	10.0	10.5
Eggs	95.0	61.5	10.5
Dry beans	—18.5	—6.5	—2.5
Nuts	27.0	16.0	11.0
Vegetables	237.0	113.0	57.5
Potatoes	29.0	18.0	13.0
Sweet potatoes	.....	5.0	3.5
Dark green and yellow	15.5	9.5	6.5
Other green	57.0	23.5	8.5
Tomatoes	53.0	29.5	14.5
Other vegetables	75.5	32.5	19.0
Citrus fruits	57.0	16.0	9.0
Dried fruit	3.0	1.5	.....
Other fruit	145.5	36.0	21.5
Grain products	88.5	63.0	39.5
Fats and oils	63.5	20.0	10.0
Butter	23.5	1.0	—.5
Margarine	8.5	7.0	3.0
Other fats and oils	35.5	11.5	5.0
Sugar and sweets	168.0	86.5	41.5

Table 15. Change in *total quantity purchased* of various foods and food groups under the Food Allotment Program as the average money value for each income group is adjusted to the average money value of the income group whose money value is *40 percent* of income by region-urbanizations, United States, 1955

Food group	Change in total quantity purchased			
	North nonfarm	North farm	South nonfarm	South farm
	millions of pounds			
Milk and milk products	673	391	3,567	920
Milk	157	322	3,096	728
Cream and ice cream	165	110	376	56
Cheese	5	.....	51	35
Meat, fish, poultry	372	152	1,270	209
Bacon, salt pork	9	—21	—4	25
Major meats	384	135	1,197	171
Beef	202	—22	486	70
Pork	89	28	376	92
Fish	14	52	60	—4
Total poultry	108	33	277	24
Other meat	—11	—6	68	62
Eggs	77	18	295	43
Dry beans	—41	—12	—160	—11
Nuts	11	—1	32	27
Vegetables	389	113	1,540	488
Potatoes	—55	3	156	128
Sweet potatoes	35	—9	131	10
Dark green and yellow	33	13	60	14
Other green	85	31	388	100
Tomatoes	101	41	298	112
Other vegetables	206	28	585	134
Citrus fruits	195	24	566	158
Dried fruit	13	3	—4	28
Other fruit	429	21	662	117
Grain products	—150	—65	—757	—157
Fats and oils	75	27	146	52
Butter	49	8	20	4
Margarine	—29	—8	53	18
Other fats and oils	57	18	62	10
Sugar and sweets	85	24	90	214

Table 16. Change in *total quantity purchased* of various foods and food groups under the Food Allotment Program as the average money value for each income group is adjusted to the average money value of the income group whose money value is *50 per cent* of income by region-urbanizations, United States, 1955

Food group	Change in total quantity purchased			
	North nonfarm	North farm	South nonfarm	South farm
	millions of pounds			
Milk and milk products	492	391	1,545	759
Milk	153	322	1,281	559
Cream and ice cream	28	110	76	71
Cheese	—4	.....	38	24
Meat, fish, poultry	69	152	320	21
Bacon, salt pork	—7	—21	41	23
Major meats	2	135	359	44
Beef	18	—22	176	10
Pork	23	28	122	26
Fish	1	52	2	—14
Total poultry	.....	33	70	28
Other meat	53	—6	1	1
Eggs	—35	18	150	35
Dry beans	1	—12	—62	—34
Nuts	14	—1	23	15
Vegetables	4	113	763	517
Potatoes	26	3	79	111
Sweet potatoes	—21	—9	62	20
Dark green and yellow	—15	13	70	24
Other green	—62	31	206	122
Tomatoes	50	41	117	125
Other vegetables	33	28	217	127
Citrus fruits	—56	24	140	131
Dried fruit	—1	3	4	10
Other fruit	8	21	274	124
Grain products	—99	—65	—207	—174
Fats and oils	—17	27	72	21
Butter	—18	8	2	6
Margarine	—6	—8	47	23
Other fats and oils	18	18	12	—20
Sugar and sweets	—31	24	449	159

Table 17. Change in *total quantity purchased* of various foods and food groups under the Food Allotment Program as the average money value for each income group is adjusted to the average money value of the income group whose money value is *60 percent* of income by region-urbanizations, United States, 1955

Food group	Change in total quantity purchased			
	North nonfarm	North farm	South nonfarm	South farm
	millions of pounds			
Milk and milk products	492	167	392	759
Milk	153	127	342	559
Cream and ice cream	28	29	9	71
Cheese	—4	8	10	24
Meat, fish, poultry	69	11	126	21
Bacon, salt pork	—7	—21	8	23
Major meats	2	4	121	44
Beef	18	—1	47	10
Pork	23	2	33	26
Fish	1	5	4	—14
Total poultry	.....	—8	38	28
Other meat	53	—7	13	1
Eggs	—35	4	46	35
Dry beans	1	—4	—11	—34
Nuts	14	5	9	15
Vegetables	4	24	259	517
Potatoes	26	—19	85	111
Sweet potatoes	—21	—3	41	20
Dark green and yellow	—15	1	26	24
Other green	—62	9	49	122
Tomatoes	50	8	—6	125
Other vegetables	33	18	72	127
Citrus fruits	—56	—25	77	131
Dried fruit	—1	1	8	10
Other fruit	8	20	161	124
Grain products	—99	2	—51	—174
Fats and oils	—17	13	13	21
Butter	—18	13	—1	6
Margarine	—6	7	13	23
Other fats and oils	18	—2	—3	—20
Sugar and sweets	—31	43	91	159

Table 18. Change in *total expense* of various foods and food groups at the *high level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Change in total expense			
	North nonfarm	North farm	South nonfarm	South farm
	millions of dollars			
Milk and milk products	96	67	526	111
Milk	42	37	371	79
Cream and ice cream	49	43	158	18
Cheese	9	—2	23	14
Meat, fish, poultry	335	54	802	115
Bacon, salt pork	—7	—8	27	25
Major meats	310	40	764	109
Beef	179	—3	301	42
Pork	92	19	295	64
Fish	12	3	40	.....
Total poultry	58	15	142	12
Other meat	162	6	63	30
Eggs	22	63	96	9
Dry beans	4	—4	—30	—7
Nuts	13	4	24	13
Vegetables	108	34	263	69
Potatoes	8	8	29	13
Sweet potatoes	8	—2	—6	.....
Dark green and yellow	11	3	17	.....
Other green	19	8	73	14
Tomatoes	22	11	53	20
Other vegetables	40	8	83	20
Citrus fruits	28	6	56	24
Dried fruit	2	3	—6	7
Other fruit	82	15	157	37
Grain products	70	13	61	33
Fats and oils	50	11	49	17
Butter	26	6	12	3
Margarine	—1	1	12	5
Other fats and oils	28	4	28	11
Sugar and sweets	77	40	149	70

Table 19. Change in *total expense* of various foods and food groups at the *moderate level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Change in total expense			
	North nonfarm	North farm	South nonfarm	South farm
	millions of dollars			
Milk and milk products	23	67	535	74
Milk	19	37	132	45
Cream and ice cream	6	43	29	18
Cheese	—3	—2	19	11
Meat, fish, poultry	18	54	193	29
Bacon, salt pork	—6	—8	34	21
Major meats	—18	40	228	51
Beef	—4	—3	104	11
Pork	8	19	87	25
Fish	4	3	6	—1
Total poultry	—6	15	40	14
Other meat	16	6	—1	—1
Eggs	—8	63	56	12
Dry beans	.....	—4	—5	—4
Nuts	8	4	12	8
Vegetables	—6	34	126	72
Potatoes	5	8	13	10
Sweet potatoes	—2	—2	8	6
Dark green and yellow	5	3	8	3
Other green	—12	8	32	19
Tomatoes	6	11	22	20
Other vegetables	2	8	34	21
Citrus fruits	—12	6	16	22
Dried fruit	1	3	—1	.....
Other fruit	—10	15	39	28
Grain products	—3	13	82	34
Fats and oils	—12	11	26	15
Butter	—12	6	5	3
Margarine	—3	1	10	6
Other fats and oils	4	4	13	2
Sugar and sweets	8	40	75	50

Table 20. Change in *total expense* of various foods and food groups at the *low level of operation* of the Food Allotment Program by region-urbanizations, United States, 1955

Food group	Change in total expense			
	North nonfarm	North farm	South nonfarm	South farm
	millions of dollars			
Milk and milk products	23	19	50	74
Milk	19	9	36	45
Cream and ice cream	6	9	8	18
Cheese	—3	3	6	11
Meat, fish, poultry	18	3	69	29
Bacon, salt pork	—6	—5	11	21
Major meats	—18	—2	74	51
Beef	—4	—5	28	11
Pork	8	2	26	25
Fish	4	4	1	—1
Total poultry	—6	—3	20	14
Other meat	16	.....	6	—1
Eggs	—8	1	16	12
Dry beans	.....	—1	.....	—4
Nuts	8	2	4	8
Vegetables	—6	11	38	72
Potatoes	5	1	10	10
Sweet potatoes	—2	—1	4	6
Dark green and yellow	5	.....	5	3
Other green	—12	2	8	19
Tomatoes	6	1	2	20
Other vegetables	2	5	10	21
Citrus fruits	—12	—2	10	22
Dried fruit	1	—3	2	.....
Other fruit	—10	3	22	28
Grain products	—3	12	36	34
Fats and oils	—12	8	9	15
Butter	—12	7	1	3
Margarine	—3	.....	3	6
Other fats and oils	4	—1	5	2
Sugar and sweets	8	—2	27	50

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