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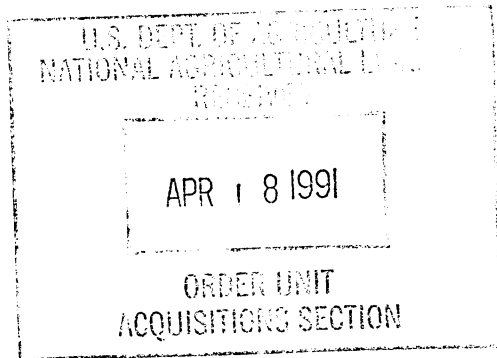
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FOOD DEMAND ANALYSIS
Implications for Future Consumption

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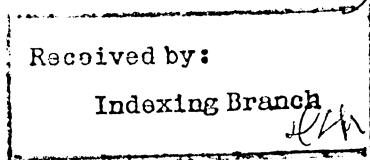


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Role of Integrated Decision Theory
In Considering
Future Food Consumption Patterns of the Elderly

by Dorothy Z. Price¹

Decision Making Theories

Consumer decisions are made by individuals and by households. Various academic disciplines contribute theoretical frameworks toward an understanding of these decisions. One such framework, concentrating on basic needs, was discussed in a paper presented at the annual meeting of the American Agricultural Economics Association in 1981. This paper is an extension and application of those ideas.

Economic theory has long provided one frequently utilized framework of decision-making. This approach basically states that decisions are made to maximize utility of the decision-making unit. The question of what constitutes utility, however, has remained nebulous. An increasing number of economists include more substantive consideration of this concept within their deliberations, but nevertheless, the impact largely remains in the realm of psychology or social psychology. Utility includes individual tastes and preferences, concepts that are primarily psychological in nature.

Since consumer decision-making is a complex form of behavior, it is expected that theoretical frameworks from a number of disciplines would contribute to a better understanding of the decision-making process. Various attempts have been made to formulate integrated theoretical approaches to decision-making. Some of these focus specifically on the concept of decision-making while others include it within a broader framework of management. Although it is possible to separate the two, it is not always desirable to do so, since different scientists have differing parameters of limiting the scope of each of these concepts. What is termed "management" by some authors is termed "decision-making" by others. The integrated decision-making approach which underlies this study is derived from theoretical approaches which focus either on decision-making or on management.

An integrated approach is especially relevant when considering individual or household decisions, including decisions in regard to consumption. Concepts pertinent to individual human development, family life cycle, values, basic needs, and all aspects of family interaction play

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an equal, or perhaps greater, role than do purely economic concepts in providing an explanation of this behavior. Along with the advantages of this integrated approach, obvious limitations must be acknowledged. Many of these theoretical frameworks have had little empirical testing. The latter part of this paper will focus on one limited empirical approach using an integrated framework. A variety of integrated management or decision theories can be identified. This paper will concentrate on those which have been related to families or households, in most cases primarily, but in some cases only indirectly. Those which relate indirectly usually are frameworks developed for business situations; a number of these can be adapted to aid in understanding the consumer decisions of families and households. In developing this specific framework, aspects of several recognized management and decision theories were utilized. These include those which discuss: (1) defensive or theory X management and participative or theory Y management; (2) management traits, and (3) programmed and nonprogrammed decisions, among others.

The result of this integration has been a categorization of three managerial frameworks: traditional, organizational and humanistic. Traditional management is based on the premise that each decision is centered on a specific task or goal. The decision-maker is concerned with efficient and economical use of resources and is relatively unconcerned with the effects of psychological or social environments, primarily because of the feeling that nothing can be done by the decision-maker in regard to those variables. In regard to food consumption decisions, it is assumed that economy and familiarity would be emphasized.

The organizational manager is concerned primarily with the appearance of the group (family or household) to the other units of society. Rather than making decisions concerned with individual preferences, those which reflect societal expectations tend to be made. However, actually few decisions are made, since this manager prefers to "go along with the group" rather than make decisions. The food purchases of this decision maker would likely be similar to the purchases of other people in his or her recognized social group; this person is unlikely to be among the forerunners in new types of purchases.

The humanistic manager is very concerned with all individuals. The opinions of those outside the immediate group, however, are viewed as being relatively unimportant. This person, then, may be willing to move beyond traditional, routine choices but must be convinced that a new approach is likely to bring greater satisfaction to self and to immediate group. Food purchases for this consumer are most likely to emphasize preferences, variety and new ideas.

Reaction to change provides one of the most striking differences among the three management styles. The traditional manager is willing, though perhaps not eager, to accept change; the organizational manager dislikes change and attempts to avoid or ignore it, while the humanistic manager is most willing to accept and to instigate change. In considering education for change in food consumption, these varying attitudes toward change may provide useful insight. It is assumed that management styles, or the frameworks in which individuals and households make consumption-related

decisions, differ among decision-making units. These different styles will not only affect what alternatives are selected when decisions are made, but will also provide clues for most appropriate and effective means of attempting to change nutritional behavior, where needed, as has already been indicated. A set of forced-choice questions are used to identify predominant management style. This and similar instruments have been used by the researcher and others in a number of studies.

In addition to over-all management or decision-making style, several specific concepts within the integrated model were designated for special emphasis. These include: (1) basic needs, (2) preferences and acceptances; and (3) selected management practices. Management or decision-making behavior is seen as motivated by basic needs and by values. (In economic theory, these would help to define and measure utility.) In this study, basic need level was identified, and preferences and acceptances were included as one measure of value. Basic needs follow the categorization developed by Maslow and are assumed to identify the primary motivation underlying decisions made by a decision-making unit. This categorization includes: (1) physiological needs; (2) safety and security needs; (3) love and belonging needs; (4) self-esteem needs; and (5) self-actualization needs. (For a more detailed discussion; see Price and Price, 1981.)

Although identification of basic need level is difficult, studies in many disciplines, especially in counseling and in business, have concentrated on developing and testing several related types of instruments now used quite extensively. The techniques used in this study combine several of these instruments and have been used in a number of earlier studies. Preferences and acceptances for specific foods were identified. Preferences were determined by a scale of favorite to least favorite foods, while acceptance was identified as foods a respondent was willing to eat, even though they were disliked. In addition, several economic and demographic variables which are frequently identified in such integrated frameworks were included.

Nutrition and the Elderly

The integrated decision-making approach is especially appropriate for a study of the older population. Recent research has increasingly shown that many stereotypes of this population are inaccurate, especially as related to many social-psychological aspects of their behavior. Schafer (1980) pointed out that earlier nutritional stereotypes are of little use since the aging population is not the homogeneous group that it has been assumed to be.

As with all age groups, older individuals experience deficiencies of certain nutrients. Work by nutritionists has pointed to inadequate consumption of foods high in calcium, iron, vitamin A, and vitamin C by numbers of older people. Therefore, this study focused on foods specifically identified with each of these nutrients.

As all statistics indicate, the aging population is becoming increasingly important segment in our society. Aging is generally defined as referring to those who are 65 or older. For the purpose of this study, the definition was expanded to include those who were 60 years of age or older. The 60-75 age group was designated as the young-old and the over 75 group was designated as the old-old. This latter group represents a growing segment of the consumer society. From a nutritional point of view, there is concern with assuring a continuation of good health, so these added years for more people can continue to be productive, satisfying years. To some extent, there is a degree of irony here, since better nutrition is one of the reasons why more and more reach this age level. (Some people have said that it is needless to be concerned with nutrition of the older population, since if they have reached that point, they must have been doing something right!) Despite this tongue-in-cheek statement, there does exist legitimate concern with some ongoing food-related problems of the elderly.

As has already been mentioned, many of these concerns focus on deficiencies related to inadequate consumption of calcium, iron, vitamin A, and vitamin C. Part of this concern may result from the recurring, and as yet unresolved, question of the suitability of current Recommended Dietary Allowances (RDA) for the elderly. Even with this continuing controversy, additional data still support a concern with the diet of the elderly. Considerable evidence shows that even when sufficient calories are consumed, there is not a sufficient variety of foods to assure adequate nutrient intake. Also, prevalent diseases among the elderly are related to nutritional deficiencies (for, example, osteoporosis). From both an economic marketing and a nutritional point of view, it is important to study food consumption patterns of the elderly.

The sample for this study included people over 60 who represented primarily a middle to high education group. Education level for older people has increased in past decades, and continues to do so. Evidence for this statement is indicated by percentages of individuals in the present 44-54 age group (who will be the older group in 2000) who have completed high school and college as compared to figures for the over-55 group. For the younger group, 42% completed high school, 17% completed college, and an additional 13% attended college. For the older group, 32% completed high school, 10% had some college education, and 11% completed college. Therefore, in the 44-54 age group, 72% completed 12 or more years of school compared to 53% of the over-55 group. It is recognized that these figures will not cover all older people in the future, but they should related to a large proportion. Education is seen as an important demographic variable here, since it is generally used as a guide for developing differing methods for introducing change, including nutritional change. If educational level is fairly homogeneous, it then becomes even more necessary to look to other intervening variables, including some which may be outside the traditional variables, especially if acceptance of change appears to be limited. In regard to income, median income of elderly, though still below that of younger counterparts, continues to rise.

The older segment of the population in the state of Washington is generally above the national median for both education and income. If we

assume that, in the future, the elderly in the United States will be at a higher education and income median in the year 2000, then this type of sample can perhaps provide us with more insight to future food consumption problems and possible solutions.

Most food consumption data sets include little to the type of social psychological information required in an integrated decision-making model. Therefore, primary data are needed in order to empirically test this framework as it relates to consumption decisions of the elderly.

Discussion of Empirical Study

Data for this study were collected through mailed questionnaires. (In an accompanying similar study, data were collected by interview.) Questionnaires were mailed to 525 people in Washington, Oregon, Idaho, and Montana. Four hundred and twenty useable questionnaires were returned, for a return rate of 82%. The sample was selected from two different populations: a list of 4,100 participants in elder hostel classes, and a list of participants in senior centers and/or community centers in 10 counties in the state of Washington. The elder hostel group had relatively high educations and high incomes. The counties were chosen to represent different levels of urbanization, and different economic and ethnic mixes. Both senior centers and community centers were included, because in the state of Washington, senior centers attract primarily middle income individuals while community centers attract primarily a lower income group.

In keeping with the higher education and income level assumptions for this group, this particular sample included 30% who had college degrees. Another 30% had attended college, and only 7% did not graduate from high school. In regard to income, only 10% had an annual household income of less than \$10,000. The large majority were in the \$10,000-\$30,000 range, with 30% receiving \$10,000-\$20,000 and 28% receiving \$20,000-\$30,000. Most still retained their own residence, with 74% living in a single family house. (The sample was heavily skewed toward the young-old, with 77% under the age of 75; only 6, less than 2%, were over the age of 85). The 85 and over age group represents a greatly expanding group, about which relatively little is known and where much additional data are needed. It was unfortunate that the number in this sample was so low. This result was to be expected, however, since this sample represented a relatively active, older group. The over-85 group includes a much larger proportion of individuals who are confined to the house for a variety of physical reasons.

Despite the relatively high incomes of many in the sample, 18% indicated that they were eligible for food stamps. However, only one-third of this group actually received food stamps; the remainder indicated that they did not bother with the food stamps because they were too hard to get and/or because they were too expensive. Shopping patterns generally corresponded to patterns common with younger shoppers. For example, more than 65% planned and shopped alone; this finding was true even when there were 2 or more members of the household present. In regard to discards, where the assumption is frequently made that the elderly have

a high discard rate, about 60% reported that they seldom or never discarded food. When they did, the major reasons were that they forgot the food, that the necessity to purchase in large quantities caused the food to spoil or that they became bored with it.

Additional analysis focused on specific elements within the integrated decision model and related these to actual consumption of four groups of foods. Each of these groups represented one nutrient; the four nutrients were: calcium, iron, vitamin A, and vitamin C. Calcium foods included: whole milk, powdered milk, skim milk, buttermilk, chocolate milk, American cheese, cheddar cheese, cottage cheese, cream of mushroom soup, chocolate pudding, yoghurt, ice cream, baked custard, beet greens and broccoli. Iron foods included: cocoa, chocolate pudding, baked custard, prunes, lettuce, potatoes, beet greens, and broccoli. Vitamin A foods included: prunes, apricots, carrots, beet greens, and broccoli. Vitamin C foods included: grapefruit, pineapple, honeydew melon, orange juice, cabbage, potatoes, cauliflower, and broccoli. (It is recognized that this is a selective, not all-inclusive, list of foods representing each nutrient.)

Preference data were collected through a question which asked if a specific food was a favorite, one that was relatively liked, one that was relatively disliked, or one that the respondent would not eat. Results for each food in a given nutrient group were combined for a nutrient preference total. Percentages for these, by nutrient group, are listed in Table 1.

Table 1. PERCENTAGE OF PREFERENCES FOR FOODS, BY NUTRIENT GROUP

Preference	Nutrient Group			
	Calcium	Iron	Vitamin A	Vitamin C
Favorite	38%	47%	51%	62%
Liked	45%	43%	39%	33%
Disliked	5%	5%	5%	3%
Won't eat	12%	5%	5%	2%

A high percentage of respondents reported that many foods in each of these nutrient groups could be ranked as favorites, ranking from 38% for calcium foods to 62% for vitamin C foods. On the other hand, low percentages, generally 5% or less, reported that they would not eat some of these foods. Calcium foods were somewhat of an exception here, with 12% indicating that they would not eat some of these foods. In the calcium group, foods that would not be eaten were various types of fluid milk; between 20-35% would not drink skim milk, powdered milk, buttermilk, or chocolate milk.

Regression models were run with consumption of the four food groups as dependent variables. Consumption was determined by totalling the number of times each food in the nutrient group had been eaten during the past month. As might be expected, vitamin C foods were eaten most frequently. Over one-fourth of the respondents reported eating these foods more than 10 times in the past month. Iron foods were a close second, with nearly

one-fourth of the respondents reporting consumption of more than 10 times. On the other hand, a relatively high percentage of the sample (35%) reported eating none of the identified iron foods in the past month. This percentage of non-consumption was surpassed only by calcium foods, with nearly two-fifths of the sample reporting no consumption of any of the identified foods. In many cases, no consumption was reported even when the specific food was classified as a favorite. When this case occurred, the primary reasons given were: unavailability, high cost, and health restrictions.

Independent variables which were elements of the specified decision model included the following: housing arrangements (single family dwelling, apartment, etc.); number in household; age of respondent; sex of respondent; education of respondent; household income; food expenditure; number of meals outside the house; number of diet restrictions; reasons for purchasing foods (ease of preparation, dietary concerns, storage concerns, spoilage concerns, ease of eating, familiarity of foods, food preferences); amount of food discard; preference for foods in target nutrient group; food acceptance for foods in target nutrient group (determined by unwillingness to eat food); decision-making style of respondent (traditional, organizational, or humanistic); and predominant need level of respondent (physiological, safety and security, love and belongingness, self-esteem, and self-actualization.)

Regressions were estimated for each of the food groups. Variables showing significant t-values within each nutrient group will be discussed. (See Appendix A for specific values.) Although there are a large number of regressors, some of which are theoretically related, multicollinearity is not a serious problem. For example, the simple correlation coefficient between income and food expenditures is .39. The characteristic roots for the 37 regressors range in value from 4.45 to 0.23, further indicating that multicollinearity is not a serious problem. (For further discussion, see Judge, *et. al.*, 1982, p. 621).

In reporting the findings a p value of less than .10 was deemed as significant. For calcium foods, four variables showed a positive relationship with consumption. These were: respondent's age; weekly food expenditures; preference for calcium foods; and familiarity with the identified foods. Two variables, ease of preparation, and need for self-esteem showed a negative relationship.

For iron consumption, a positive relationship was found with four variables; high preference level for iron foods, age of respondent; concern with dietary restrictions; and self actualization needs. Negative relationships were found for four variables: household income; number of dietary restrictions; interest with ease of preparation of a food; and need for love and belonging.

Three variables showed a positive relationship with consumption of vitamin A foods: concern with dietary restrictions when purchasing food, education level of the respondent; and total expenditures for food. Five variables showed a negative relationship: household income; number of dietary restrictions; need for love and belonging; concern with ease of

preparation of foods; and predominance of physiological needs as motivators.

A total of 10 variables showed a significant relationship with consumption of vitamin C foods. Five of these were positive: preference for vitamin C foods; food expenditures; concern with storage when purchasing foods; need for self-actualization; and concern with dietary restrictions when purchasing food. Negatively significant were: the need for love and belonging; household income; concern with ease of preparation when purchasing food; concern with ease of eating when purchasing food; and preference for vitamin A foods.

Food preferences and reasons for purchasing foods (familiarity, dietary and storage concerns) were most frequently related to consumption of foods within these four nutrient groups. It is interesting to note that while preferences for foods in the calcium, iron, and vitamin C categories were strongly related to high consumption of these foods, this relationship did not exist for vitamin A goods. A strong preference for vitamin A foods did, however, result in a lower consumption of vitamin C foods. This finding might be related to preference for certain vitamin A foods (such as specific vegetables) leading to consumption of vegetables and vegetable salads instead of consumption of fresh fruit or fruit salads. Vegetables provided from home gardens might also lead to higher preference for vegetables than for fruits. Since dietary restrictions were important when purchasing many foods, and a negative relationship existed between the number of dietary restrictions and iron consumption, the dietary restriction issue may be more pertinent in explaining consumption of iron-rich foods than the matter of actual preference for these foods. Diet restrictions are more likely to be related to cholesterol, salt, or sugar; therefore, a greater number of restrictions may limit other food choices and result in greater consumption of vitamin A foods, which generally are not included in these restrictions.

Specific age rather than age group of respondent, significant for consumption of both calcium and iron foods, also needs more consideration, especially with increasing longevity of the population.

Older individuals apparently have little concern with ease of preparing foods, since this factor was negatively related to consumption of foods within each of the four nutrient groups. This finding may be related partially to a stigma attached to easy preparation by a segment of the elderly.

The role of basic needs was consistent with earlier studies by the researcher. Prevalent basic needs are seen as strong motivators for behavior; therefore, these relationships need to be carefully considered. In this study, all such relationships were negative. An unsatisfied need for love and belonging appeared most often. This is generally recognized as the first psychological need to emerge when primarily physical relationships are relatively satisfied. Since this need is a strong motivator for many individuals living in our society (meaning that it is not being fully satisfied), its relationship both to consumption and to instigating change is important. Importance of love and belonging needs

indicates a great concern with others and with being accepted as a member of a group. Certain types of foods may not be consumed or actual consumption may be under reported because they may not be identified as the "in-foods" to consume. There was a negative relationship with consumption of iron, vitamin A, and vitamin C. People with love and belonging as a prime motivator also are more likely to eat out, either with friends or relatives, or at restaurants; either these foods are not as available there or are not served or ordered. The negative relationship may not exist in regard to calcium foods, partly due to recent educational and advertising efforts in regard to the importance of these foods. Because of these efforts, calcium foods, especially some specific items (such as yoghurt) may be viewed as "in-foods".

Both income and food expenditures were included in these models. Food expenditures were positively related to consumption of all but iron foods, while total household income was negatively related to consumption of iron, vitamin A, and vitamin C.

No significant relationship between consumption of foods in any of the four nutrient groups and over-all decision-making style was found. However, nearly half the respondents reported a strong tendency toward a humanistic style of management, indicating an individualistic point of view and a willingness to change, if convinced that it is to their benefit to change. This finding is contrary to the view often held about older people.

Implications for the Future

An integrated decision-making model provides us with some additional insight as to possible issues of concern in regard to food consumption of the older segment of the population in the year 2000 and/or with clues into ways of changing food habits. To more effectively utilize this approach requires additional empirical work, but some directions have been identified. These relate largely to reasons why the older consumer purchases, or does not purchase, specific items, and to additional information in regard to most effective approaches for instigating or encouraging changes in food consumption patterns.

Since the sample in this study was assumed to have a number of characteristics (such as education and income level) which may be more similar to the over 65 population at the turn of this century, the findings are related to actual future issues. Overall, there appear to be more similarities than differences in reasons underlying food consumption patterns of the elderly and of the remainder of the population. The elderly are not a homogeneous group, but show variations in consumption patterns as do other age groups in our society. Contrary to some popularly held views, older individuals are also motivated to buy specific foods because of their strong preferences for the foods and their interest in variety of foods and in trying new foods. It can only be expected that this trend will continue and become even stronger. It may be found, however, that the enjoyment of older consumers in preparing complex foods can be

targeted as an approach for increasing use of foods containing needed nutrients, especially if combined with a basic need motivation approach.

Basic need theory provides us with some of the more insightful approaches to understanding individual differences in food consumption. If general income and educational level of the elderly do continue to increase, physical needs will more likely be relatively satisfied, and preliminary emotional or psychological needs, represented by the need for love and belonging, will become a strong motivator for much behavior, as was the case with this sample.

As the data indicate, physiological need, as a motivator, was inversely related to consumption of vitamin A foods. This result indicates the absolute need for food to satisfy hunger. Vitamin A products are not usually seen as foods which will keep a person satisfied for a long period of time. They are more likely to be considered as diet foods, eaten to limit rather than to maximize calorie consumption.

The need for love and belonging was inversely related to consumption of iron, vitamin A, and vitamin C foods. Additional attention should be paid to the reasons for this result. The inverse relationship of household income to consumption of foods in these groups can also be brought into play in determining possible explanations. If fewer of these foods are consumed as income increases, a larger share of the food dollar will likely be spent on other types of food, such as calcium-related products (for example, ice cream), meat and bakery goods. Many of these products are associated with family gatherings and social occasions; therefore, these foods can be more important in satisfying love and belonging needs. Efforts to include foods high in iron, vitamin A, and vitamin C as part of family-oriented meals and celebrations may need to be accelerated. Actually, some of the changing meal patterns present in some younger households today (such as increased emphasis on vegetables and fruits) may lead to these results, but the effects on the older segment of the population may not be seen until 2020 or later. (The broccoli, beet green, cabbage, and cauliflower casserole may become the dish associated with home, love, and mother!) If these changes do not occur, additional nutrient-related problems for the elderly are likely.

A change in calcium consumption may be indicated as a person moves higher up the need hierarchy, since an inverse relationship was found between self-esteem as a motivator and consumption of calcium foods. At this level, a person is seen as seeking approval of others and self; the pressure to be slim may then be a strong motivator and low calorie foods (such as fruits and vegetables) may replace milk products (such as ice cream) and other foods which are reminders of family get-togethers.

The same trend can be seen, to some extent, as people move on to the highest need level - self actualization. A positive relationship was found between self actualization as a motivator and the consumption of vitamin C products. It is often considered that the person who is satisfied with self and involved in many activities is one who is a likely consumer of fruit, and generally of a wide variety of fruits. Although this is usually only a stereotype of young, upwardly mobile consumers, it should be considered.

In summarizing implications from the basic-need approach, it can be speculated that love and belonging will be a prime motivator of consumption. Therefore, problems related to underconsumption of iron, vitamin A, and vitamin C foods may escalate. A small group of elderly at the upper level of needs will not experience these problems, but, for a variety of reasons, will have moved to greater consumption of fruits and vegetables. At the lower end, a small group will continue to be concerned primarily with getting sufficient calories to keep from being hungry. Increased income and increased availability of satisfying, filling, and nutritious foods will be needed here. For the vast majority, reeducation and other publicizing of iron, vitamin A, and vitamin C foods as family and party foods may be necessary. As we move further into the 21st century, reeducation, changing meal patterns, and changing need levels may indicate a general move toward greater consumption of fruits and vegetables.

Several precautions related to these predictions should be noted. Overall, the fact that empirical evidence is still limited needs to be kept in mind. More specifically, age was found to be related to consumption of calcium and iron foods; therefore, actual age of a person over 65 will become even more important. It is impossible to label "the elderly" as one relatively homogeneous group. This sample included primarily those under the age of 85. By the year 2000, the over-85 group will represent a much larger share of the older population. One can only speculate on their food problems. While some of the same reasons for consuming certain foods will likely remain, it appears that such reasons as dietary restrictions and ease of preparation may become more important. Prediction of primary motivators for specific food products, however, is still very uncertain since little study has been done with this age group. However, evidence does make it appear safe to predict that preferences and food variety may still retain importance.

It can be assumed that low-income elderly will still exist in significant numbers. Their consumption patterns, though still influenced by personal preferences, will be equally or more strongly motivated by physiological needs. For this group, it will be important that inexpensive, easily available food items high in the needed nutrients be available.

Finally, older people maintain their own residences for more years; their food consumption desires and needs when they reach situations where food is provided for them will require increased attention. The emphasis on personal food preferences and interest in variety which many of them would have experienced in their earlier years is likely to remain as an important motivator.

In summary, food consumption of the over 65-age group is likely to become more complex to explain and predict. This segment of the population will become more heterogeneous. Nutritional and economic concerns will continue to affect consumption of specific food products, but personal preferences and other psychological-emotional motivators will play an increasing role in determining what is actually eaten.

Appendix A

T-Values For Selected Variables in the
Decision-Making Model and Four Food Groups

Variables	Food Groups			
	Calcium	Iron	Vitamin A	Vitamin C
Apartment	1.25	0.93	1.38	1.43
Multiple residence	0.09	1.19	1.55	1.07
Single residence	1.34	1.30	1.51	1.08
Trailer	0.95	0.86	1.44	1.10
Number in hshld.	0.90	0.94	0.59	0.75
Respondent age	3.33***	2.05**	1.60	1.37
Respondent sex	-0.04	-1.04	-1.35	-1.16
Respondent educ.	0.68	1.43	2.21**	0.70
Household income	-1.00	-1.76*	-2.19**	-1.64*
Food expenditures	2.61***	2.38	2.09**	2.28**
Meals with others	0.77	0.95	0.61	1.12
No. diet restrictions	-1.53	-1.70*	-2.25**	-1.11
Ease of preparation	-2.74***	-1.80*	-1.76*	-1.95**
Diet restric. concern	0.59	2.32**	3.66***	1.82*
Storage concern	0.85	1.18	1.21	2.36**
Spoilage concern	0.28	-0.85	-1.01	-0.94
Wants food variety	0.03	-0.72	0.03	0.46
Eating ease concern	-1.31	0.05	-1.32	-1.65*
Wants familiar foods	1.71*	0.81	0.48	-0.55
Wants preferred food	0.40	0.57	-0.61	-1.20
Amount of discard	0.12	-0.01	0.22	-0.32
Calcium preference	3.15***	-0.86	-0.17	-0.32
Iron preference	-1.49	3.27***	0.86	0.78
Vitamin A preference	0.68	-1.16	1.13	-1.87*
Vitamin C preference	0.79	-0.06	-0.49	4.27***
Calcium consumption	0.03	-0.01	-0.00	-0.25
Iron consumption	-0.34	1.08	0.55	0.12
Vitamin A consumption	0.25	-1.20	-0.38	-0.76
Vitamin C consumption	0.86	0.25	0.87	0.80
Traditional management	-0.38	-0.17	0.02	-0.77
Organizational management	-0.37	-0.10	0.11	-0.53
Humanistic management	-0.68	-0.62	-0.40	-0.96
Physiological needs	0.36	-0.97	-1.68*	-1.41
Safety needs	1.08	1.28	0.79	-0.53
Love needs	-1.56	-1.94	-2.08**	-2.71***
Self esteem needs	-1.74*	-0.49	0.62	-0.42
Self actualization	0.41	1.96*	1.28	2.37**

*p .10
 **p .05
 ***p .01

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