

Demographic and Socio-Economic Characteristics and the Consumption of Dietary Foods:
An Illustration from an Economy in Transition

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ABSTRACT---

The market for functional foods in industrialized nations has shown rapid growth over the last decades, sales being estimated at \$9 billion in 1995. The emerging market economies of Central and Eastern Europe provide a unique opportunity to study consumer behavior regarding the consumption of functional foods. This paper examines demographic and socio-economic factors affecting consumer beliefs in dietary properties of food in Bulgaria, one of the economies in transition. Estimated results are expected to provide information useful for developing marketing strategies for dietary food product marketing and assist in the formulation of policies and education programs to assure that consumers make informed choices in product selection. Educational attainment level, gender, household size, and regional variables were found to have statistically significant effects on consumer beliefs in dietary properties of food in Bulgaria.

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Abstract

The market for functional foods in industrialized nations has shown rapid growth over the last decades, sales being estimated at \$9 billion in 1995. The emerging market economies of Central and Eastern Europe provide a unique opportunity to study consumer behavior regarding the consumption of functional foods. This paper examines demographic and socio-economic factors affecting consumer beliefs in dietary properties of food in Bulgaria, one of the economies in transition. Estimated results are expected to provide information useful in developing marketing strategies for dietary food product marketing and assist in the formulation of policies and education programs to assure that consumers make informed choices in product selection. Educational attainment level, gender, household size, and regional variables were found to have statistically significant effects on consumer beliefs in dietary properties of food in Bulgaria.

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Introduction

The emerging market economies of Central and Eastern Europe provide a unique opportunity to study consumer behavior. A typical characteristic in the early stage of transition to a market economy from a centrally planned system is a sudden proliferation of choices offered to consumers. The freedom to choose among many imported and domestic goods stimulates the process of rapid change in consumer preferences. The wide array of goods and simultaneous influx of information from the western world shape consumer behavior.

Popular western culture considers physical appearance important and health concerns have become an obsession of the aging population in many industrialized nations. Many food manufacturing companies and the pharmaceutical industry have responded by developing products that have helped to control weight, improve health, prevent aging or lower the risk of degenerative diseases, including coronary heart disease and cancer. Pills, candy bars, shakes, beverages, and modified food products are marketed on a large scale in the United States. The market for functional foods has shown rapid growth, sales being estimated at \$9 billion in 1995 (Matthews, 1995). In addition, people with chronic conditions such as lactose intolerance, food allergies, and chronic diseases have created a demand for specialty products to fulfill their daily diets. Medical and nutritional research have encouraged the demand for foods with particular dietary attributes suggesting a causal effect between eating some foods and the improvement of consumers' health or the perception of well being.

The evolving market for functional foods presents untapped opportunities for food and pharmaceutical industries. The term “nutraceuticals” has been used to describe food or any food ingredient with nutritional, medicinal, or therapeutic benefit (LePree, 1994) which offer health or cosmetic advantages to consumers (Sfiligoj, 1994). The variety of available functional food products and supporting research information blur the distinction between nutrients and pharmaceuticals.

The lack of clear distinction between traditional products and nutraceuticals did not prevent the industry from actively pursuing new marketing opportunities. Food manufacturers recognizing the potential of new markets have accelerated their investment in product development. Some American corporations restructured and channeled resources into their new functional food divisions (Thompson, 1997). In the United States, existing government regulations retard development of the market, restricting manufacturers’ claims regarding health and medical value of consuming nutraceuticals (Ouellette, 1995). There is no statutory definition of functional foods (Cockbill, 1994) and some argue that almost any consumed food could classify as a functional food.

Development of functional food products in industrialized nations has resulted in foods with different sensory qualities than traditional products. However, some consumers are prepared to compromise taste in return of perceived nutritional or health benefits (Sinki and Bucu, 1994). Therefore, it is possible that consumer preferences driving the demand for new types of foods can alter the expenditure pattern and limit the effect of budget constraint on functional food purchases. A less restrictive role of the budget constraint justifies a closer look at the market potential and marketing opportunities in transition economies.

The extent to which a consumer in an economy in transition may behave differently than consumers in industrialized nations presents a research question regarding each individual’s beliefs

that food indeed has dietary properties. The term ‘dietary properties’ seems more appropriate than the term ‘functional foods’ because the latter has been used only in recent years and the public is largely unfamiliar with this concept in many countries, whatever their level of industrialization. In transition economies, decline in real incomes of the population effectively curtail disposable income and limit discretionary purchases. However, as lifestyles change and access to information about worldwide consumption trends is increased, the buying behavior in transition economies become similar to that of buyers in industrialized countries. Many Western consumers who have become skeptical of modern medicine have attempted to treat, mostly minor afflictions, themselves. The perception of lack of time and the desire to quickly and conveniently eliminate potential health problems encourage the search for products with desired dietary attributes.

In transition economies such as Bulgaria, consumers are curious to try new food products, and will buy them if the product attributes promise nutritional or health benefits. The objective of this paper is to identify factors that influence Bulgarian consumer beliefs in dietary properties of food. Such information will be helpful in developing marketing strategies for dietary food product marketing and assist in the formulation of policies and educational programs to assure that consumers make informed choices in product selection.

Health and Dietary Food Consumption in Bulgaria

The public health policy under centrally planned systems included nutritional goals in line with general guidelines of the World Health Organization. The free health care system provided services to the entire population in need of medical attention, but prevention programs were limited in scope. Nutritional education was limited because it was a politically sensitive topic in an environment of

government controlled food supply and prices. Overall, Bulgaria was characterized by a life expectancy of 72 years in the late 1980s, while 75 percent of eligible students were enrolled in secondary schools (Chu and Holzmann, 1992). These figures were higher than for many countries at a similar level of economic development. A high level of education of the population could be advantageous in nutrition education because this factor was particularly influential in food choices among consumers in industrialized nations.

The main cause of death in Bulgaria, before and after change in the political and economic system, is circulatory disease, which accounts for about 67 percent of all deaths (Petrova, 1997). In 1992, mortality rate related to circulatory diseases in Europe was highest for males; the second highest for women. This rate continued to increase, while western countries reported a decline in death rate associated with circulatory diseases. Many circulatory diseases are related to the diet and can be prevented or their negative effects can be lessened by changing eating habits. Cancer, the second most frequent cause of death in Bulgaria, may also be prevented by reducing the consumption of some foods while increasing the consumption of food with desirable attributes.

Many functional foods have been known to Bulgarian consumers and their use has been justified by centuries of tradition. Brews based on herb mixtures, syrups, and the use of spices were part of traditional medicine. However, these products have been perceived as treatments after symptoms of illness are experienced. Many were used for ailments associated with advancing age and attracted few buyers among young consumers. However, the worsening quality of health services due to cuts in public expenditures, the lack of growth of real incomes, and the process of adjusting to new economic conditions, has renewed interest in dietary foods. Consequently, perhaps in spite of the different reasons, consumers in Bulgaria have similar preferences for dietary foods as consumers in

industrialized nations. The changing system of preferences reflected in perceived importance of physical appearance and health can override typically expected purchasing behavior dictated by budget constraint, which is dictated by the level of economic development. Nutraceutical manufacturers may develop affordable products which are supported by sound research and meet expectations of Bulgarian consumers. Furthermore, to protect vulnerable or inexperienced consumers and prevent unnecessary expenses on dietary foods, government agencies may consider information campaigns and labeling regulations to protect consumers from unsubstantiated claims by manufacturers or distributors of dietary foods. Some subgroups identified in this study may require such special attention.

Theoretical Framework

The choice of dietary foods reflects the preference of an individual for this type of product. Implied in the choice is the utility derived from consumption which, assuming the person behaves rationally, will reach the maximum constraint only by available budget. Implied utility is unobservable and can only be measured indirectly. The decision to buy or to refrain from a purchase is commonly considered a reasonable measure of the consumer's utility.

In this study, specific choice refers to dietary food consumption in Bulgaria based on the belief that some foods have special properties. The nature of the question regarding beliefs concerning dietary properties of food included in survey instrument allowed for a dichotomous choice of "yes" or "no." A binary variable was used to reflect consumer utility maximizing choice. This variable became the dependent variable in an empirical model and was hypothesized to be explained by a set of independent variables. In consumer utility maximization studies, independent variables include

demographic and socio-economic characteristics of the person making the choice because the economic theory provides little guidance in the variable selection process. Following earlier consumer studies, we chose to include the respondent's gender, age, education, and household size to obtain important demographic characteristics. Furthermore, questions on monthly gross household income and employment status were included to determine socio-economic factors expected to influence the choice of dietary foods.

Three more variables were included in a specified empirical model of dietary food choice. These variables were based on observations that in Bulgaria, as in many other countries, there seems to exist regional differences in consumption behavior. Therefore, 28 statistical districts were aggregated into four regions: Southern, Metropolitan, Northern, and Coastal. The aggregation was based on the type of economic activity, geographical uniformity, and natural boundaries such as coastline or mountain ranges. Estimation methods selected for this study do not permit the inclusion of all four variables because the statistical model would become underidentified. Therefore, the Southern region was excluded from the estimation and served as benchmark for comparison of regional differences or similarities.

Then, empirical model specification is summarized as,

$$(1) \quad \text{Belief in Dietary Properties of Food} = f(\text{gender, age, education, household size, gross household income, employment status, Metropolitan, Northern, and Coastal})$$

Since the dependent variable was represented with dichotomous choice of "yes" and "no", probit model can be used to estimate the equation (1).

The Data

The original sample used in the study was drawn from populations residing in 28 statistical reporting districts in Bulgaria. The number of households included from each district was drawn in proportion to the number of inhabitants in the region and the percentage they represented in the country's total population. Therefore, results of the survey can be expected to closely represent the profile of the actual population and accurately portray consumption habits, opinions, and household characteristics.

The survey instrument was drafted by the team of American and Bulgarian scientists. Because of the specialized nature of the project, each team included economists, food scientists, and food engineers to assure that the collected information could be utilized in addressing various aspects of consumer needs. Although the economists played a pivotal role in the survey design, contribution from other disciplines assured that information provided sufficient details for further interdisciplinary analysis. Special attention was given to translation of the survey instrument to Bulgarian to avoid linguistic mistakes and avoid misinterpretations associated with cultural conditions, traditions, and habits. Following translation, a pilot survey was conducted on a sample of consumers to identify difficulties in understanding the questions, detect potential sensitivity to some topics which could lead to a refusal to provide information, and determine the consistency of interpreting questions as expected by survey organizers.

With the help of the National Statistical Service, the survey instrument was distributed to 2500 households through personal visits by enumerators in the summer of 1997. Four weeks after delivering the questionnaire, the enumerators collected the completed copies. Data were collected from 2133 households, an 85.3 percent rate of return.

Collected data described the eating behavior of consumers, shopping habits, opinions, and perceptions about food characteristics and quality preferences. Respondents provided information about household size and age composition, cooking habits, and frequency of consumption of 99 foods. Finally, each respondent was asked to provide details about the demographic, social, and economic characteristics.

Results

The model was estimated using the probit procedure. Results of the chi-squared test (table 1) indicate that a set of selected independent variables had substantial explanatory power relevant to the modeled choice. Five estimated coefficients of independent variables significantly differed from zero according to the asymptotic t-test.

Gender is an important variable explaining differences in purchasing and consumption behavior regarding many goods and services. Gender roles within a household emphasize the woman's responsibility for food shopping and meal preparation in Bulgaria, with the exception of single person households. According to the results, female consumers seemed to be more likely to believe in the dietary food properties than males. This result could have been expected because many dietary products, especially weight control products, are targeted at female consumers. This belief and responsibility for shopping stresses the importance women play in the purchases of dietary foods.

However, budget constraints, which in economies in transition can be severe, may limit the purchase of dietary foods. The income variable was insignificant, although positive values suggest that respondents with higher incomes may be more likely to desire, and eventually purchase, dietary foods. In studies of consumers in industrialized nations, income and education variables tend to have

similar influences because a higher level of education implies higher earnings. The significant influence of education attainment level on the desire for dietary food properties was expected in this study (table 1). The significance of this variable testifies to the knowledge of well educated Bulgarian consumers, although, at present, this knowledge may not be demonstrated in actual purchases of dietary foods because of budget constraints.

Another variable included in the empirical model supports the notion that beliefs in dietary food properties are related to the level of income, and, possibly, education. The household size variable suggested that the larger the household the less likely was the respondent to believe in dietary food properties. This indirectly reflects household composition and budget constraints. If the household includes children, the preference for dietary foods may be considered secondary to concerns about adequate volume of food needed to feed household members.

Dietary foods can be expected to appeal to younger consumers and consumers with special needs, especially those suffering from consequences of the advancing age. The age variable, although positive, was insignificant at a predetermined significance level of 10 percent. Nevertheless, consumers' age should not be dismissed as irrelevant, and may play a vital role in beliefs associated with dietary properties of specific foods, which were treated in this study as an aggregate category. Employment status had no statistically significant impact on beliefs about dietary food properties in Bulgaria.

Two of the three regional variables significantly influenced beliefs in dietary properties of food. A comparison of regional impact was made, with the Southern region serving as a reference region. Consumers in Northern and the Metropolitan regions were less likely to believe in dietary properties of food compared to residents in the Southern region. An explanation for this difference cannot be

readily offered because dietary foods are a broad group of products. In other studies of Bulgarian consumers, we observed that residents of the Metropolitan and Southern regions tended to differ in their consumption behavior from the inhabitants in Northern and Coastal areas. However, the dependent variable in this study refers to beliefs in dietary properties of food which implicitly reflect consumption behavior. In this context, Metropolitan region consumers can be expected to be less likely to hold such beliefs, presumably, because of exposure to different influences resulting from their social and economic environment. However, why people in the Northern region were reacted in a similar fashion is not evident. It is possible that regional disparities in economic development relevant to the formulation of such beliefs were excluded from the empirical model. Future data collection may address this issue and allow for detailed explanation of regional differences.

Implications

Beliefs are influential in shaping the demand for food products, including specialty items as dietary foods. Beliefs are also reflected in consumer preferences and ultimately influence the purchase and consumption of a product. Factors which are essential in forming such beliefs include demographic characteristics of consumers, characteristics of their households, and socio-economic factors. This study has revealed unique insights into the behavior of consumers in an economy in transition using survey data collected in Bulgaria in 1997. Because transition from an authoritative state to an economy regulated by a market mechanism is similar, but not identical, in various countries, results from study may not apply to other countries without a critical evaluation. The country-specific stage of transition may also be responsible for observed consumer behavior. The Bulgarian economy has been stabilized only recently and the expected benefits of economic growth has yet to reach a broad

population. However, as real income increases, the importance of consumer characteristics found insignificant in this study (e.g. household income) is likely to rise.

Dietary food manufacturing and distribution sectors can advance their investment and marketing decisions by focusing on the factors which significantly influence beliefs in dietary properties of food. Gender and education are more likely to be associated with beliefs in dietary food attributes, suggesting that the educated, professional females represent a sub-segment of the market. The location of markets should be seriously considered because the existence of regional differences was confirmed by this study.

Although age and household income were not significant in influencing the dependent variable, these two characteristics can grow in importance in Bulgarian and other economies in transition under two conditions. First, if the economy begins to grow and real income increases, consumers may feel sufficiently confident to purchase dietary foods. In this case, the timing of distribution of such foods becomes critical in order to make them accessible in retail outlets. Second, Central and East European economies in transition are undergoing demographic changes characterized by an increased older segment of the population. The nutritional needs of this population and its expenditure patterns will change in response to physical aging and altered priorities. As a result, despite budget constraints, the purchase pattern of older consumers may include items which younger consumers with comparable incomes do not buy.

This study offers only an aggregate analysis of factors influencing beliefs in dietary food properties. Additional research concerning the relationship between beliefs and actual purchases is warranted. However, empirical model estimates, based on a large sample of the Bulgarian population, provide unique insights into the minds of consumers in a transition economy. Results

enable the development of guidelines which can lead to additional surveys to advance the understanding of consumer beliefs and preferences concerning dietary foods.

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Table 1. Maximum Likelihood Estimates of the Probit Model for Dietary Properties of Foods

Variables	Units	Parameter Estimates	Asymptotic t-values
Constant	---	-1.6821	-6.563
Household Size	Actual number of persons	-0.0569*	-1.950
Household Income ^a		0.0329	0.967
Education Attainment Levels ^b		0.1283*	6.452
Gender	1=Female; 0=Otherwise	0.2536*	3.385
Age	Years	0.0039	1.479
Employment Status	1=Employed full time; 0=Otherwise	-0.0186	-0.222
Coastal Region	1=Coastal; 0=Otherwise	0.0198	0.180
Northern Region	1=Northern; 0=Otherwise	-0.2066*	-2.235
Metropolitan Region	1=Metropolitan; 0=Otherwise	-0.1888*	-2.104
Log-Likelihood value		-878.87	
χ^2 -Statistics**		74.55	

* Statistically significant at $\alpha=0.10$ level.

** Critical χ^2 values for the degrees of freedom equal to 9 and $\alpha=0.10$ is 14.7

^a Income categories include

^b Education categories.