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**Pensioners and Food Intake
Patterns in a Transition Economy**

Abstract

Using nationwide food consumption survey data collected in Bulgaria in 1997, this study examines how food intake patterns of the unemployed and pensioners differ from patterns of the employed. During transition, the unemployed and pensioners are particularly vulnerable to nutritional deficiencies and chronic diseases resulting from unbalanced and unhealthy diets as well as food shortage.

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Pensioners and Food Intake Patterns in a Transition Economy

Introduction

Economic instability associated with transition to a market-oriented economy in Bulgaria significantly influenced household expenditure structures and food consumption patterns. Due to increases in food prices and declining real incomes, consumers diverted expenditures to food and consequently food expenditure shares in household budgets increased considerably from 32 percent in 1989 to 42.9 percent in 1994. Consumers also adjusted the types of food they purchased. For example, bread consumption increased, while meat consumption declined measurably. In the pre-reform period, the level of meat consumption in Bulgaria was not significantly different from that in Western European countries, which was unusual considering the relatively low incomes of the Bulgarian population (Buckwell et al., 1994). In essence, consumers in Bulgaria seem to have made the transition from consumption patterns dictated by availability and rationing under a command economy to a budget-constrained and utility-maximizing behavior compatible with a market-oriented economy (Buckwell et al., 1994).

In the pre-reform period, near-full employment, low income inequality, and low food price generally ensured a minimal level and variety of food intake even for those in the bottom deciles of the income distribution. However, when an economy undergoes such a dramatic transition, an important issue arising from the perspective of social welfare is the nutritional status of the low income segment of the population (Cornia, 1994; Petrova, 1997). Low income groups could be at a greater risk of nutrient deficiencies or chronic diseases resulting from unbalanced and unhealthy diets as well as food shortage. In 1993, 74.4 percent of the Bulgarian population was living at or below the subsistence level, compared to 38 percent at the close of 1990 (Strong et al., 1996).

The purpose of this paper is to examine food intake patterns of the unemployed and

pensioners in Bulgaria. We explore whether food consumption behavior of the unemployed and pensioners differs from employed workers. In this article, the unemployed are distinguished from pensioners because the former is eligible for social benefits only for a fixed period of time, while social benefits for the latter are guaranteed for lifetime.¹ Subsequently, we select observations for the unemployed and pensioners and identify socioeconomic and demographic factors influencing food intake patterns within these groups. In transition economies experiencing a considerable fall in real incomes, governments have to drastically cut back their expenditures and those on pensions or unemployment benefits could be particularly vulnerable for substantial income reduction. In fact, there were 2.5 million Bulgarian on pension in 1993, or 29 percent of the population. The average pension in 1993 was \$39 per month (1,037 lev), or only 78 percent of the subsistence level and 34 percent of the average wage (Strong et al., 1996).

Transition and Social Welfare Policy

Since the collapse of communism in 1989, the Bulgarian government has embarked on a series of reform programs including the abolition of central planning, liberalization of the majority of prices, and removal of most barriers to foreign trade. However, unlike other Central and Eastern European countries such as Poland, Hungary, or Czech Republic, the Bulgarian economy failed to achieve macroeconomic stability and growth during most of the 1990s. Inflation has been high and extremely variable, ranging from 32.9 percent in 1995 to 473.7 in 1991, and damaging to private business environment. The banking system has virtually collapsed, and the GDP has significantly declined in

¹Only employees who were involuntarily dismissed and who had worked at least six months in the year preceding the dismissal were entitled to compensation. Unemployment benefits were paid for nine months on a progressively decreasing scale. The size of the unemployment benefits was determined by the formula: minimum wage + 20 percent *(average monthly salary - minimum wage). As a consequence, previous income turned out to have a negligible effect on the size of benefits (Lenkova, 1997).

comparison with the pre-reform years.

Due to a prolonged economic recession and slow creation of new jobs in the private sector, the unemployment rate in Bulgaria climbed rapidly to 15.3 percent of the labor force in 1992, reaching a peak of 16.4 percent in 1993 (OECD, 1997). Moreover, macroeconomic instability and declining economy brought rapidly growing interest payments and falling tax revenue, resulting in a substantial reduction in government expenditures. Bulgaria had featured a high share of social expenditures in GDP, estimated at 11.4 percent for cash transfers and 7.5 percent for health and education in 1987. This compared to averages of 4.7 and 1.8 percent, respectively, in middle-income developing countries. A smaller government budget coupled with high rates of exit from the labor force, including early retirement has placed a great strain on the Bulgarian pension system. The ratio of pensioners to contributors in Bulgaria has escalated steadily from 55.1 percent in 1990 to 89 percent in 1995. The Bulgarian government was forced to reduce social expenditures on wages, pensions, and direct subsidies to less than 14 percent of GDP by 1996 from 21 percent in 1989.

On average, real value of social security benefits has declined by approximately 50 percent from 1989 to 1996. Thus, state guarantees of economic security were disappearing, with unemployment escalating into double digits. Before the transition began in 1989, Bulgaria had boasted a higher than average standard of living in the eastern bloc, including the benefits of guaranteed employment and pension programs. Given the deteriorating economic conditions during a transitional period, it would be insightful to examine dietary composition of the unemployed and pensioners and discuss policy implications.

Data

This study uses consumer survey data collected in Bulgaria in 1997. The survey was conducted with the purpose of obtaining insights about households' food consumption behavior

during the economic transition. The survey instrument was drafted by a multidisciplinary team of researchers from the United States and Bulgaria. Following a pre-test on a group of Bulgarian consumers, questionnaires were distributed to 2,500 households across the country; 2,133 completed questionnaires were returned. Questionnaires were delivered in-person by enumerators in 28 statistical districts throughout Bulgaria and collected four weeks later. Questionnaires probed for monthly consumption frequency of 102 food items selected to represent Bulgarian consumer's preferences. Information about demographic and socioeconomic characteristics was also collected from respondents and their households. Table 1 describes variable definition and summary statistics for demographic and socioeconomic characteristics used in this research.

Among the 2,133 respondents who completed the questionnaire, about 44 percent, or 923 were pensioners, while 15.4 percent were unemployed. The sample statistics are fairly consistent with national averages of labor force. For example, 1995, unemployment rate was 16.5 percent, while pensioners occupied nearly 40 percent.

Table 2 shows cross tabulations of household income and educational attainment level by three employment status. While employed workers are expected to depend on wages for income, the unemployed and pensioners may earn incomes from household plots and other sources, in addition to social benefits.² As expected, income and educational attainment level differed significantly across employment status. Average income of pensioners was 1.45, while those of the unemployed and employed were 1.61 and 1.95, respectively (refer to table 1 for measurement units for household income and education). Similarly, average educational level of pensioners was 3.01, whereas those of the unemployed and employed workers were 3.78 and 4.68, respectively.

²Other sources may include income from employment in small firms in the private (informal) sector who did not register their employees because of high social security taxes (OECD, 1997).

Consumption Frequency and Model Development

While frequency data have been widely used for measuring recreational and health care demand, use of frequency data for food demand analysis in established market economies has been limited to a few items including seafood products (Creel and Loomis, 1990; Yen and Adamosicz, 1994; Pohlmeier and Ulrich, 1997; and Lin and Milon, 1993). Limited use of frequency data could be because volume or expenditure data (time-series and cross-section) are well developed for most food products in market economies (Raunikar and Huang, 1987; Schrimper, 1989). Considering that reliability of official statistical data has often been questioned in Central and Eastern European countries, consumption frequency of various foods collected directly from consumers could offer an excellent alternative to volume or expenditure records. Although frequency data are not compatible with sophisticated neoclassical demand theory and testing associated theoretical constraints (e.g., homogeneity, adding-up, or symmetry), they could present rare insights to food intake patterns after the collapse of central planning in 1989. This study will provide information comparable to expenditure studies to the extent that consumption frequencies are correlated with expenditures.

Five aggregate food categories were identified from the list of 102 food items: (1) meat, including fresh and processed meat products; (2) dairy products; (3) vegetables and fruits; (4) starches; (5) and animal fats. Given the identified five distinctive food categories, we computed frequency share of each category by dividing summed frequencies of each category with total consumption frequency. Frequency shares of each category are used as dependent variables in the empirical model estimation. Table 3 shows sample means of each share for all observations and sample means for three employment status including the employed, unemployed and pensioners. The meat consumption share of pensioners is less than half of the share of the employed, while there were no significant differences for vegetables and fruits or dairy products. The animal fat consumption

share for the unemployed and pensioners was measurably higher than that of the employed.

We specify two systems of equations to examine food intake patterns of the unemployed and pensioners. In the first system, five equations are specified linking frequency share of each category to socio-economic and demographic characteristics, including employment status, gender, education of respondents, and geographic region. We do not include income and age in this model because of the obvious correlation of employment status with income and age. Employment status, with three categories, enters the model as a binary variable; the category of employed was used as a base in estimation. This specification would give some measure of how food intake patterns of the unemployed and pensioners differ from the employed, while controlling the effects of other variables on food intake patterns.

We hypothesized that consumption frequency share of meat would be significantly lower for the unemployed and pensioners than for employed workers. Given the substantially reduced aggregate meat consumption since the transition to a market-oriented economy began in 1989, we expected that reduction in the consumption of meat by the lower income group was greater than reduction by the higher income group. The animal fat consumption share was hypothesized to be higher by the unemployed and pensioners because reduced social benefits of these groups would force them to substitute expensive meat with inexpensive animal fat. We expected that basic starch and vegetable and fruit consumption shares would be positively associated with the unemployed and pensioners as compared to employed workers.

In Bulgaria, many households own a garden and grow vegetables and fruits. Thus, garden ownership could be an important factor influencing vegetable and fruit consumption. A binary variable representing garden ownership was added in the vegetable and fruit equation in both systems. Data were collected from 28 statistical districts in Bulgaria and aggregated into four geographic

regions; Southern, Metropolitan, Northern, and Coastal. Regions were delineated along national or natural boundaries and reflect economic differences across regions. The Southern region served as a base and was omitted from the empirical models. Income distribution in Bulgaria exhibits a high regional variance with low income concentrated in depressed “smokestack’ industrial regions, some agricultural regions, and areas with a high concentration of ethnic minorities (OECD, 1997). Hence, we anticipated some differences in food consumption patterns across the four regions.

Subsequently, we selected observations for the unemployed and pensioners and regress consumption share of each food category on socioeconomic and demographic characteristics, including household income, age, gender, education, garden ownership, and geographic regions. This model would lead us to identify factors influencing variations in dietary composition within the unemployed and pensioner group. Respondents with relatively lower income among the unemployed and pensioners groups are most likely to be classified as “ultra-poor” and their dietary composition could be of particular concern for public-policy makers. Cornia (1994) showed that about 20-29 percent of the population in selected Central and Eastern European countries including Bulgaria were ultra-poor in 1992, referring to those with incomes below the subsistence minimum, and an additional 20-39 percent was affected by less acute, but nonetheless debilitating, poverty.

Empirical Results

Both systems were estimated using the iterative seemingly unrelated regression (ITSUR) method to account for potential contemporaneous correlation among error terms of each equation. Parameter estimates and related statistics for the two systems are reported in tables 4 and 5. Computed R-squares were generally low, but not particularly so for cross-sectional data. The Lagrange multiplier (LM) test indicates that the null hypothesis of homoscedasticity is rejected in every equation except for dairy in both systems. Accordingly, reported *t*-values were calculated

using White heteroscedastic consistent covariance matrix.

Results using the first system clearly show that food intake patterns of unemployed and pensioners significantly differ from the employed. As hypothesized, the meat consumption share of the unemployed and pensioners were statistically significantly lower than that of the employed. Substantially reduced social benefits and pensions over the last few years are likely to have induced the unemployed and pensioners to curtail their consumption of meat. It appears that many of the unemployed and pensioners have responded to their income reduction by not purchasing fresh meat and processed meat products, particularly, beef and ham. About 79.0 and 80.6 percentage of respondents reported zero consumption of disaggregated beef and ham, respectively, and smaller but significant percentages of respondents reported that they did not consume other fresh and processed meat products.

While consumption shares of vegetables and fruits and dairy products for the unemployed and pensioners did not differ from that of the employed, consumption share of starch was significantly higher than that of the employed. This is consistent with cross-sectional evidences showing that as income rises, expenditure share of traditional staples declines (Mitchell and Ingco, 1993). This result, coupled with a lower meat consumption share of the unemployed and pensioners, is likely to indicate that these groups changed their dietary composition pattern toward a higher proportion of high-starch foods in response to a measurable reduction in income.

Educational attainment level and gender were also important determinants of food consumption profiles. Respondents with higher education had a larger meat consumption share than those of lower education. Whereas education was not associated with vegetable and dairy consumption shares, it had a negative and statistically significant effect on starch and animal fat consumption shares. Males were more likely to have a higher share of meat consumption than were

females.

Food consumption patterns differed substantially across the four regions. Consumers residing in the Northern region had higher shares of vegetable, starch, and animal fat consumption as compared to consumers in the Southern region. Moreover, northerners had lower shares for meat and dairy consumption than consumers in any other regions. These results may indicate that consumers in the Northern region were more severely affected by the transition and had to adjust their diets to include a higher proportion of less expensive sources of nutrients. Interestingly, consumers in the Metropolitan region had significantly lower share of vegetable and fruit consumption than consumers in the Southern region. Such regional differences could be due to culinary traditions, customs and lifestyles unique to each region, as well as uneven economic development and income distribution across the four regions.

Income was an important determinant of dietary composition within the unemployed and pensioners (Table 5). Income was negatively associated with vegetable, starch and animal fat consumption shares, while positively linked to meat and dairy shares. Accordingly, the unemployed and pensioners with higher income were likely to intake relatively more animal protein than those with lower income. This result indicates that the unemployed and pensioners with lower income had to make a substitution between more and less expensive sources of nutrients, resulting in a diet pattern toward vegetables and starchy foods and away from animal protein and dairy products.

Consistent with the results of the overall model, the unemployed and pensioners in the Northern region had lower shares of meat and dairy products as compared to consumers in the Southern region, while having greater shares for vegetable, starch and animal fat.

Concluding Remarks

Using food consumption frequency data collected in Bulgaria in 1997, this study addressed food intake patterns of the unemployed and pensioners impacted by a dramatic decline in social benefits and pensions. Under the central planning system in Bulgaria, a minimal level and variety of food intake for all people were guaranteed with a well developed social safety net including extensive food subsidy programs. The transition to a market economy was suspected to have brought with it larger differences in food intake patterns across various income groups. This study established that dietary composition pattern of the unemployed and pensioners significantly differed from the employed. Particularly, the unemployed and pensioners with relatively low incomes and residing in the Northern region had dietary patterns with high starch, vegetable and animal fat and proportionately lower animal protein and dairy products.

Although this study was not designed to yield any definitive conclusions about nutritional status of the unemployed and pensioners, suspected deteriorations in dietary quality in the more deprived sectors of society could have serious long-term health implications. The tendency to intake more animal fat among lower income groups could worsen diet-related chronic disease problems in Bulgaria where the morbidity and mortality rates from circulatory system diseases are already high and show negative tendencies (Petrova, 1997). For example, in contrast to the decreasing trend in western European countries, mortality rates for cardiovascular and cerebrovascular diseases are increasing in Bulgaria. Undernutrition also deserves attention if households with low incomes include young children and pregnant and lactating mothers who require proportionately greater intakes of proteins, vitamins, irons, and other micronutrients (Cornia, 1994). Since public health is a social good critical for long-term economic development, the government should re-evaluate its social safety net policies and address deteriorating diet quality problems.

Table 1. Definitions and Descriptive Statistics of Variables Used in Empirical Model Estimation.

Variable	Description	Mean
Household Income	1=under 10,000; 2=10,001-20,000; 3=20,001-30,000; 4=30,001-40,000; 5=40001-50,000; 6=50,000 and more	1.69
<u>Employment Status</u>		
Employed	1=employed; 0=otherwise	0.48
Unemployed	1=unemployed; 0=otherwise	0.12
Pensioners	1=pensioners; 0=otherwise	0.40
Education	1=4 years; 2=7 years; 3=vocational; 4=high school; 5=technical; 6=junior; 7=univ. 8=postgraduate	3.82
Age	Actual age of respondents	43.8
Gender	1=Female; 0=male	0.67
Household Size	Number of household members	2.90
<u>Geographic Regions</u>		
Southern	1=southern; 0=otherwise	0.29
Coastal	1=coastal; 0=otherwise	0.21
Northern	1=northern; 0=otherwise	0.23
Metropolitan	1=metropolitan; 0=otherwise	0.27

Source: Bulgarian National Consumer Survey, 1997.

Table 2. Household income and Educational attainment level by Employment Status

	Employed	Unemployed	Pension	Gross mean
Household income	1.95	1.61	1.45	1.69
Education	4.68	3.78	3.01	3.84

Note: refer to table 1 for measurement units of household income and education.

Source: Bulgarian National Consumer Survey, 1997.

Table 3. Mean values of each food category's share by employment status.

	Employed	Unemployed	Pension	Gross mean
Meat	7.99 (%)	6.00	3.59	5.8
Veg. & Fruits	31.8	32.3	29.1	30.0
Dairy	25.0	24.82	28.1	26.8
Starch	33.0	35.83	38.2	35.9
Fat	0.70	1.10	0.98	0.79

Source: Bulgarian National Consumer Survey, 1997.

Table 4. ML Estimates from Iterative Seemingly Unrelated Regression Using All Observations.

	Meat	Veg. & Fruit	Dairy	Starchy	Animal Fat
Constant	6.474(12.5)***	33.56(14.8)***	24.00(14.3)***	34.62(27.4)***	0.951(3.75)***
Garden	-	2.328(3.52)***	-	-	-
Unemployed	-1.338(3.58)***	1.016(0.82)	-1.48(1.59)	1.688(1.51)	0.082(0.57)
Pensioners	-3.517(13.3)***	0.609(0.47)	0.990(1.00)	3.576(4.48)***	-0.086(0.57)
Education	0.451(6.57)***	0.106(0.46)	0.050(0.29)	-0.423(2.12)**	-0.131(5.21)***
Gender	-0.643(2.62)**	0.392(0.48)	0.911(1.48)	-0.723(1.00)	0.074(0.82)
Coastal	0.196(0.52)	-1.254(1.01)	0.924(0.98)	0.936(0.82)	0.045(0.32)
Northern	-1.311(4.21)***	2.135(2.07)**	-4.243(5.42)***	4.049(4.51)***	0.379(3.35)***
Metropolitan	0.425(1.42)	-3.786(3.79)***	2.450(3.24)***	1.079(1.21)	0.082(0.73)
R ²	0.18	0.089	0.074	0.12	0.068
LM statistics	52.9(0.00)	72.3(0.00)	4.97(0.02)	41.07(0.00)	5.22(0.02)

* $P < 0.1$; ** $P < 0.05$; *** $P < 0.01$.

Note: Numbers in parenthesis are asymptotic t -values. Standard errors are computed from White heteroscedastic covariance matrix.

Table 5. ML Estimates from Iterative Seemingly Unrelated Regression for Unemployed and Pensioners.

	Meat	Veg. & Fruit	Dairy	Starchy	Animal Fat
Constant	5.060(5.27)***	41.29(7.72)***	18.63(4.54)***	34.08(12.39)***	1.779(5.10)***
Garden	-	1.390(1.25)	-	-	-
Income	0.548(3.76)***	-1.483((2.43)***	1.730(3.42)***	-1.027(2.05)**	-0.042(0.91)
Age	-0.033(2.91)***	-0.114(1.72)*	0.093(1.82)*	0.055(1.70)*	-0.008(1.99)*
Education	0.130(2.21)**	0.258(0.77)	-0.110(0.43)	-0.051(0.17)	-0.169(6.15)***
Gender	-0.537(2.22)**	-1.709(1.35)	0.603(0.64)	0.403(0.39)	-0.055(0.48)
Coastal	1.531(3.93)***	-4.490(2.40)***	1.420(0.89)	0.835(0.50)	0.328(1.89)*
Northern	-0.709(3.06)***	-0.268(0.15)	-3.756(3.07)***	3.916(2.87)***	0.599(3.66)***
Metropolitan	0.716(2.39)***	-5.462(3.74)***	4.107(3.22)***	0.838(0.64)	0.219(1.76)*
R ²	0.139	0.074	0.069	0.053	0.049
LM statistics	24.61(0.00)	29.13(0.00)	0.428(0.51)	14.25(0.00)	8.31(0.00)

* $P < 0.1$; ** $P < 0.05$; *** $P < 0.01$.

Note: Numbers in parenthesis are asymptotic t -values. Standard errors are computed from White heteroscedastic covariance matrix.

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