



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# Distributional Impacts of CAP Adoption on Romanian Households

M. Carmen Firici  
Email: firicina@abdn.ac.uk

Kenneth J. Thomson



**Paper prepared for presentation at the X<sup>th</sup> EAAE Congress  
'Exploring Diversity in the European Agri-Food System',  
Zaragoza (Spain), 28-31 August 2002**

*Copyright 2002 by M. Carmen Firici and Kenneth J. Thomson. All rights reserved.  
Readers may make verbatim copies of this document for non-commercial purposes by any  
means, provided that this copyright notice appears on all such copies.*

# **DISTRIBUTIONAL IMPACTS OF CAP ADOPTION ON ROMANIAN HOUSEHOLDS**

**M. Carmen Firici and Kenneth J. Thomson<sup>1</sup>**  
University of Aberdeen, Scotland, UK

---

<sup>1</sup> Respectively PhD student and Professor, Department of Agriculture and Forestry, University of Aberdeen, Scotland, UK. This research was undertaken with support from the European Union's Phare ACE Programme 1998. The content of this publication is the sole responsibility of the authors and it in no way represents the views of the European Commission or its services. Email: [firmicina@abdn.ac.uk](mailto:firmicina@abdn.ac.uk) for correspondence.

## Distributional impacts of CAP adoption on Romanian households

*This paper focuses on estimation of distributional economic welfare effects of the adoption of the CAP on different groups of Romanian households. The calculations of welfare effects are based on 1999 household data and refer to a 10-fold breakdown of Romanian households, i.e. five socio-economic categories from urban and rural areas, taking into account own (home) production of food. To identify the most vulnerable groups of Romanian consumers to food price changes, the Slutsky approximation Compensating Variation approach is applied. The results suggest that, if the current CAP is adopted and results in food price changes averaging a 10 per cent increase in all food prices, the lowest-income groups (i.e. urban and rural unemployed households, urban pensioner households) will be the most affected, ceteris paribus (prices of all other goods held constant). The minimum amount by which the groups could be compensated for the effect of price change on their real incomes varies between Euro 3 per month for employers' households (about 1% of total income) and about Euro 8 per month for farmers' households (6%). However, due to the relatively large shares of food self-production in total consumption, in particular by rural households, somewhat smaller money compensation would be appropriate.*

Keywords: distributional economic effects, CAP, Slutsky approximation, Compensating Variation, Romania

### 1. Introduction

It is very well known that the farm price support system of the current Common Agricultural Policy (CAP) of the European Union (EU) results in higher prices of agricultural products than would be necessary under free market conditions. Although the CAP does not have a direct effect on prices paid by consumers, higher prices for agricultural raw materials involve higher food prices, and thus higher costs for consumers.

The accession to the EU of the Central and Eastern European Countries (CEECs), and in particular the adoption of the CAP, implies price convergence to EU levels, and an increase in food prices for the applicant countries once they join. For the majority of the candidate countries, expenditure on food represents a high proportion of their total household expenditure. In 1998, the share of food expenditure for the CEEC-10<sup>1</sup> represented 36.8 per cent of total household expenditure, compared with 22 per cent for the EU-15 (EC, 2001). A rise in food prices will be reflected in higher expenditure on food and a decline in consumers' real income, hence in their standard of living. The significance of these impacts depend, *inter alia*, on the magnitude of the food price increases, their distribution across products, and the level of consumers' incomes (European Economy, 1997).

---

<sup>1</sup> Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

The academic and official work related to the impacts of the CAP adoption on different CEECs has expanded considerably in recent years. The core of this work concentrates, in particular, on the estimation of total costs and benefits at the national level as a result of the implementation of the CAP under different scenarios (Munch (2000), Thomson *et al.* (2000); Pattichis (1999); Thomson *et al.* (1998)). McCorriston and Morgan (1998) have looked at the impact of CAP on consumers within some member states, modelling imperfect competition in vertically related markets. Georgakopoulos (1990), using a residual approach, founded that the impact of Greece's accession to the European Community increased the price of food by 8.5 per cent, causing a first round of inflation of 3.5 per cent. Total food consumption changed its structure and decreased by about 1 per cent.

Far less attention has been paid to the distributional effects of the CAP, both for current member states and particularly in the CEECs. Renwick and Hubbard (1994) have pointed out that when most studies focus on estimation of the benefits to the farmers (Brown, 1990; Blandford, 1987, Ahearn *et al.*, 1985) and "little analysis has been undertaken of the way in which the costs are distributed amongst individuals". They estimated an average cost of £284 per household per year, of which 83 per cent represents consumer costs. Ritson (1997) observed that only a "small proportion of the academic work on the CAP [is] directed specifically at the consumer interest". Kol & Kuijpers (1998) estimated that the total cost of the CAP for a family with two children in the Netherlands was about 6 per cent of disposable income in 1996, of which around 60 per cent was consumer costs. Banse (2000) analyses the macroeconomic implications of enlargement for four<sup>2</sup> EU applicant countries, estimating also the welfare impacts for urban and rural household under different scenarios. With one exception (Slovenia), the introduction of CAP (with direct payments not available in the candidate countries) implied an increase in rural household welfare and a deterioration in the welfare of urban households, due to higher food prices.

This paper adds to the studies that address distributional aspects of the CAP, by using household data to focus on the estimation of economic effects of the implementation of the CAP in Romania, on different groups of food consumers. It has as its main objective the identification of the most vulnerable groups of Romanian consumers (i.e. households) within a 10-fold breakdown, in a *ceteris paribus* situation. For Romania, a candidate country where the share of food expenditure for an average household represented 54 per cent of total expenditure in the year 1999, an increase in food prices towards current EU levels could have significant social consequences.

The paper is organised as follows. The main data source and some preliminary analysis are presented in Section 2, followed by the theoretical framework and methodology in Section 3. The results and some concluding remarks are presented in Sections 4 and 5.

---

<sup>2</sup> The Czech Republic, Hungary, Poland and Slovenia.

## 2. Data Source and Preliminary Analysis

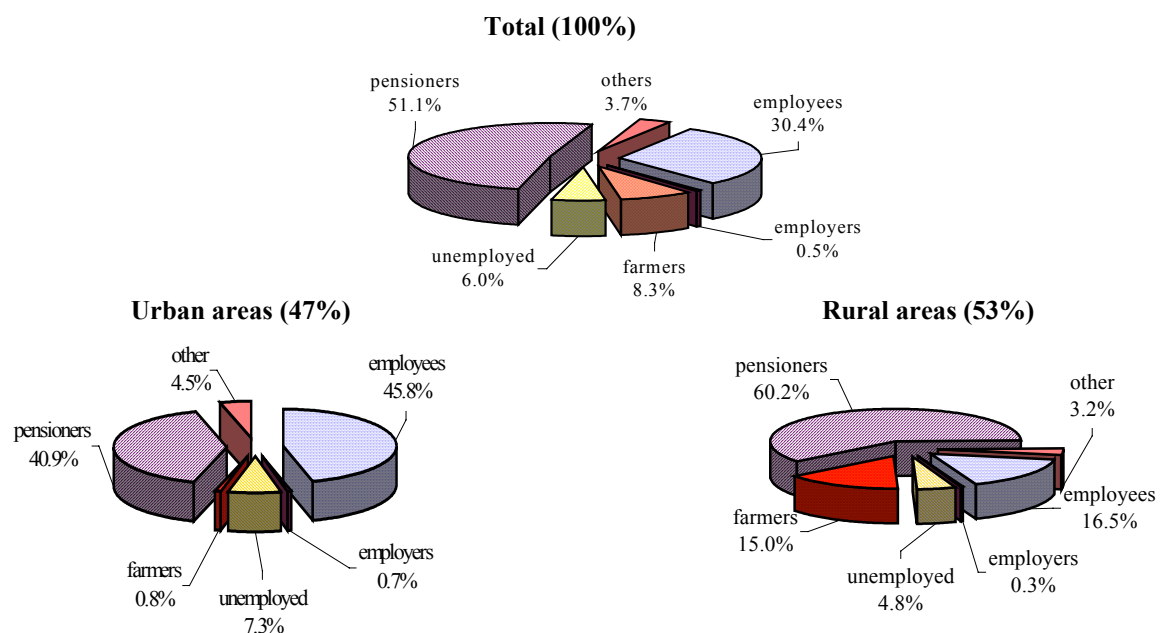
### 2.1. The Integrated Household Survey

The estimation below is based on data at the household level provided by the 1999 Integrated Household Survey (IHS), a continuous multifunctional official study carried out by the Romanian National Institute of Statistics. The survey sample is representative at the national level, and the households are selected using a two-stage sampling methodology. The first stage involves the selection of so-called 'investigation centres', respectively 501 localities from both urban and rural areas all over the country, from which the households are extracted in the second stage. The IHS includes about 36,000 households per year, approximately 3,000 households each month. The primary information collected relates to the population's living standards (e.g.. household composition, income, expenditure structure, food consumption, imputed value of consumption from own resources, living conditions, etc.). Households are classified according to the occupational status declared by the head of the household, i.e. as employees, employers, unemployed, farmers, pensioners and other categories (e.g. self-employed in non-agricultural activities, students, etc.). The margin of error in the estimates is about  $\pm 3$  per cent. Data are presented as monthly averages per household, for all socio-economic categories of households.

### 2.2. Preliminary analysis

The 1999 IHS included 53 per cent of surveyed households from rural areas and 47 per cent from urban areas. The size of the average household was 2.7 persons. The distribution of households by socio-economic categories (Figure 1) reveals that pensioner households (51 per cent) and employee households (30 per cent) dominate the structure, in both urban and rural areas. Employer households represent a very small proportion (0.5 per cent), but are significant in economic and policy terms.

*Fig.1. Household Distribution by Socio-Economic Categories and Area, Romania, 1999*

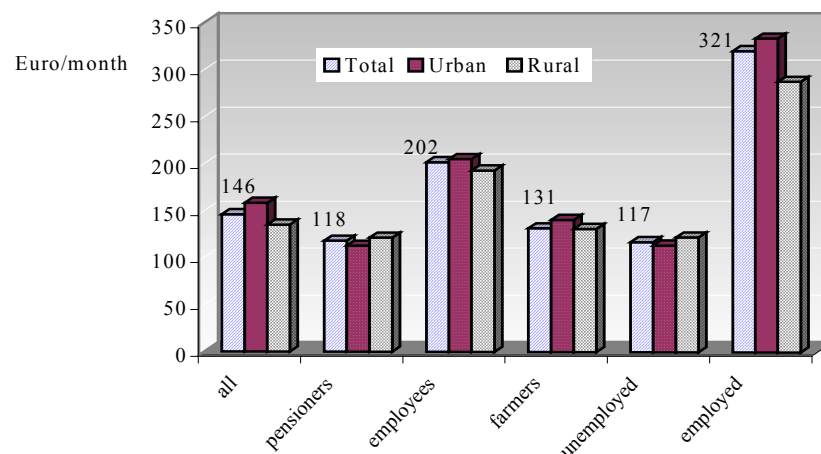


Source: Veniturile, cheltuielile si consumul populatiei in anul 1999, CNS, 2000

The preponderance of pensioner households within the distribution of households can be explained by an early retirement policy applied since 1990, and used as a social security measure. People close to the retirement age could apply for early retirement if they thought that their jobs were insecure, or on grounds of ill health. As a consequence, the ratio in 1999 between employees and pensioners was 1.4 pensioner to one employee, as against 1990 when the ratio was 3.3 employees to one pensioner. However, farmer pensioners were not included in the 1990 calculation. The shift in the employee-pensioner ratio juxtaposed with the contraction of the economy as a whole has created many difficulties for pensioners, who are sometimes obliged to wait several months to get their pension, which is often reduced in real terms.

Considering the level of total gross income<sup>3</sup> (before tax payments) the average Romanian household received in 1999 about Euro<sup>4</sup> 146 per month (Figure 2).

*Figure 2. Total Gross Income by Household Category, Romania, 1999*



*Source: authors' calculation based on CNS and BNR*

Urban employer households are by far the highest income earners (i.e. more than twice the average), followed by urban employee households. The main sources of income are self-employed earnings for employer households, and salary income for employee households. There is a big gap (around Euro 200) between the high-income group (employer households) and the low-income groups (pensioner, unemployed and farmer households). Within the lowest-income groups, i.e. urban pensioner and unemployed households, the differences are negligible. They rely on social benefits and salary income as the main sources of total income (Table 1). Agricultural self-production plays an important role for almost all household categories, but in particular for rural households.

<sup>3</sup> Total gross income adds up money income (e.g. salary, sales income, social benefits, etc.), the imputed value of agricultural self-production and the imputed value of social benefits in kind.

<sup>4</sup> The average exchange rate for 1999 is Euro = Lei 16,296. Source: Romanian National Bank, <http://www.bnro.ro>

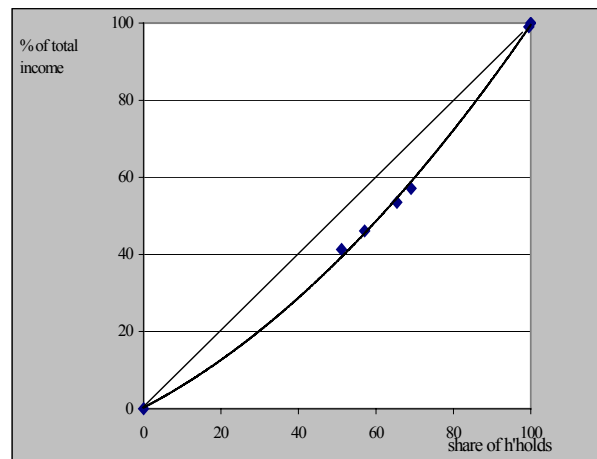
Table 1. Distribution of Total Gross Income by Main Sources, Romania, 1999 (%)

	Salary		Sales		Self-employed earnings		Social benefits		Imputed value of self-production	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
<b>Employees</b>	80.1	57.4	0.5	3.1	1.0	1.3	5.0	5.0	10.6	31.4
<b>Employers</b>	22.6	20.8	0.5	0.7	63.9	50.2	2.5	2.9	8.0	23.0
<b>Farmers</b>	14.7	5.7	25.5	18.4	12.2	8.0	7.6	6.8	38.4	56.9
<b>Unemployed</b>	33.7	11.5	1.2	6.5	6.3	5.3	23.4	21.6	21.2	48.6
<b>Pensioners</b>	20.7	8.0	1.0	6.5	1.9	1.7	55.0	31.8	16.5	49.3
<b>All</b>	<b>56.5</b>	<b>19.4</b>	<b>0.9</b>	<b>7.3</b>	<b>4.2</b>	<b>4.0</b>	<b>20.6</b>	<b>20.6</b>	<b>13.7</b>	<b>46.2</b>

Source: authors' calculation based on CNS, 2000

For a clearer picture of the total gross income distribution between categories of households, a Lorenz curve has been drawn as Figure 3. The curve shows that the low-income groups, which represent the majority (about 70 per cent) of the total number of households are more or less equally poor, and get only 57 per cent of total income, while the high-income groups representing 30 per cent of all households receive about 43 per cent of total household income.

Figure 3. Lorenz Curve of Households Income Inequality, Romania, 1999



The money savings of the low-income households (pensioners, unemployed and farmers) are non-existent, since these groups tend to spend their entire monthly income on current consumption. Employee households save a small amount of about Euro 5 per month, and employer households around Euro 60 per month. In general, however, income closely approximates expenditure for all households.

The breakdown of total expenditure (Table 2) by main components shows that almost all types of household use a large proportion (55 per cent on average) of their total income on purchases (i.e. food, non-food products and services). The exceptional group is rural farm households. Owing to a high share of agricultural self-production (consumption from own resources)<sup>5</sup>, rural farm households are able to spend a lower share of their total income on purchases, mainly food and drink.

<sup>5</sup> includes home consumption and animal feed.



Taking into consideration their low level of total income, the urban pensioner and unemployed households spend a very large share (70 per cent) on purchases.

*Table 2. Households' Expenditure Shares (%), Romania, 1999*

	Purchases			Non-purchases*			Other **			Total
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	
<b>Employees</b>	63.2	48.2	59.1	10.9	32.1	16.7	<b>25.9</b>	19.7	24.2	100.0
<b>Employers</b>	73.4	59.0	68.7	10.9	22.6	15.0	15.7	18.4	16.3	100.0
<b>Farmers</b>	45.8	<b>35.8</b>	36.3	41.9	<b>57.2</b>	56.5	12.3	6.7	7.2	100.0
<b>Unemployed</b>	67.7	44.7	57.7	20.0	47.6	31.9	12.3	7.7	10.4	100.0
<b>Pensioners</b>	<b>70.0</b>	42.0	<b>43.0</b>	16.6	49.3	37.5	13.4	8.7	10.5	100.0
<b>All</b>	<b>65.8</b>	<b>52.0</b>	<b>54.6</b>	<b>13.5</b>	<b>46.0</b>	<b>29.4</b>	<b>20.7</b>	<b>11.0</b>	<b>16.0</b>	<b>100.0</b>

Source: authors' calculation based on NCS, 2000

\* agricultural self-production

\*\* taxes, inputs and investments, etc.

Agricultural self-production represents an important percentage of total expenditure for all types of household, and varies between 11 per cent for urban employee and employer households and 57 per cent for rural farm households, compared to the average of 29 per cent. For comparison, in the EU the share of consumption from own-resources represents around 2 per cent of total household income. Romanian households, in particular those in rural areas, like households in other candidate countries, maintain a culture of producing and preserving their own food products (e.g. for Bulgaria, see Balcombe *et al.*, 1999). Ten years of severe transition towards a market economy, with a decline in real incomes for all socio-economic categories (for a detailed analysis see Alexandri, 2000) accompanied by concern for food security, have determined that much Romanian household behaviour is based on ensuring subsistence consumption, especially in rural areas.

Within total purchases, a very large proportion (40 per cent) of expenditure is on average allocated to food and drink, while unemployed and pensioner households allocate about half of their purchase expenditure to food and drink (Table 3). Owing to a larger share of agricultural self-production, these groups spend less of their purchases on food and drink and more on non-food products.

*Table 3. Purchase Expenditure Shares (%), Romania, 1999*

	Food and drink			Non-food products			Services			Total
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	
<b>Employees</b>	41.7	37.1	40.7	31.5	43.3	34.0	26.8	19.6	25.3	100.0
<b>Employers</b>	38.0	27.1	35.0	37.2	<b>53.4</b>	41.8	24.8	19.5	23.2	100.0
<b>Farmers</b>	45.3	34.0	34.7	34.8	45.4	44.7	19.9	20.6	20.6	100.0
<b>Unemployed</b>	<b>47.0</b>	43.4	45.7	26.4	37.6	30.2	26.6	19.0	24.1	100.0
<b>Pensioners</b>	<b>46.7</b>	34.0	40.1	25.0	40.0	32.7	28.3	26.0	27.2	100.0
<b>All</b>	<b>43.6</b>	<b>35.5</b>	<b>40.5</b>	<b>29.4</b>	<b>41.5</b>	<b>34.0</b>	<b>27.0</b>	<b>23.0</b>	<b>25.5</b>	<b>100.0</b>

Source: authors' calculation based on CNS, 2000

Looking at food consumption patterns (Table 4), the general conclusion is that all ten types of households base their food intake on standard staple products.

Cereals and cereal-based products are the principal components of food intake for all households. Consumption of fresh and processed meat products is modest. The low consumption of fresh meat is obvious due to the high prices and the low real incomes. Vegetables, in particular potatoes and beans, characterise the diet of almost all categories of households. Due to the decline of internal production (during the ten years), and the increase of prices, fruit consumption is also very low. Consumption of imported citrus fruits has become a luxury for the majority of Romanian population (Alecsandri, 2000, Petrovici & Gorton, 2000).

Table 4. Household Food Consumption Patterns, Romania, 1999  
(kg/household monthly average)

	Bread and pastries		Fresh meat		Milk		Potatoes		Vegetables		Fruits	
	U	R	U	R	U	R	U	R	U	R	U	R
<b>Employees</b>	31.4	35.9	8.3	8.2	12.2	21.3	14.4	14.7	24.5	24.9	7.2	5.5
<b>Employers</b>	29.6	37.4	10.3	10.0	16.6	20.4	14.9	15.9	26.3	30.3	10.3	10.3
<b>Farmers</b>	31.9	29.1	7.6	6.1	17.8	20.7	12.7	12.3	23.4	23.1	4.8	4.0
<b>Unemployed</b>	31.4	32.9	7.1	6.7	11.4	21.3	15.4	15.0	23.0	23.9	5.3	4.3
<b>Pensioners</b>	21.6	23.0	5.8	5.2	11.2	17.0	10.6	10.1	19.5	19.5	5.1	3.7
<b>All</b>	<b>27.3</b>	<b>26.8</b>	<b>7.2</b>	<b>5.9</b>	<b>11.8</b>	<b>18.6</b>	<b>12.9</b>	<b>11.6</b>	<b>22.3</b>	<b>21.3</b>	<b>6.2</b>	<b>4.1</b>

Source: authors' calculation based on CNS, 2000  
U = urban, R = rural

### 3. Theory and Method

The most common measure used in applied welfare economics for the estimation of gains or losses of a consumer (e.g. individuals, households) due to price changes is consumer's surplus, i.e. the Marshallian measure. However, the concept of consumer surplus (the triangle area under the *ceteris paribus* demand curve and above the market price) has been a controversial issue since its development by Alfred Marshall in 1920 (see Currie *et al.*, 1971; Willig, 1976; Deaton & Muellbauer, 1980; Just *et al.*, 1982; Yew-Kwang, 1983), and is not applied in the current research. Instead, for the assessment of distributional welfare impacts of food relative price changes in Romania due to the implementation of the CAP, the Slutsky Compensating Variation technique, based on the construction of price index numbers, is employed.

Compensating Variation (CV) represents one out of four alternative measures<sup>6</sup> of the welfare effects of changes in prices and income of a consumer. Compensating and Equivalent Variations are considered the correct theoretical measures of consumer surplus (Willig, 1976) and represent the key concepts in applied welfare economics (Just *et al.* 1982). However, they are not often used, either because to compute them more information is required to find the area under the compensated (Hicksian) demand curve or because empirically they are "unobservable" (Kola, 1993). Nevertheless, Deaton and Muellbauer (1980) have argued that there are "several straightforward methods of calculation for CV and EV [Equivalent Variation] based only on knowledge of the uncompensated demand functions", thus not involving the Marshallian measure in approximating them. CV and EV are typically viewed as alternative welfare measures of the changes in the cost of living due to a price change of a particular good (see Miller, 1978; Laidler, 1980; Mansfield, 1982). Both can be

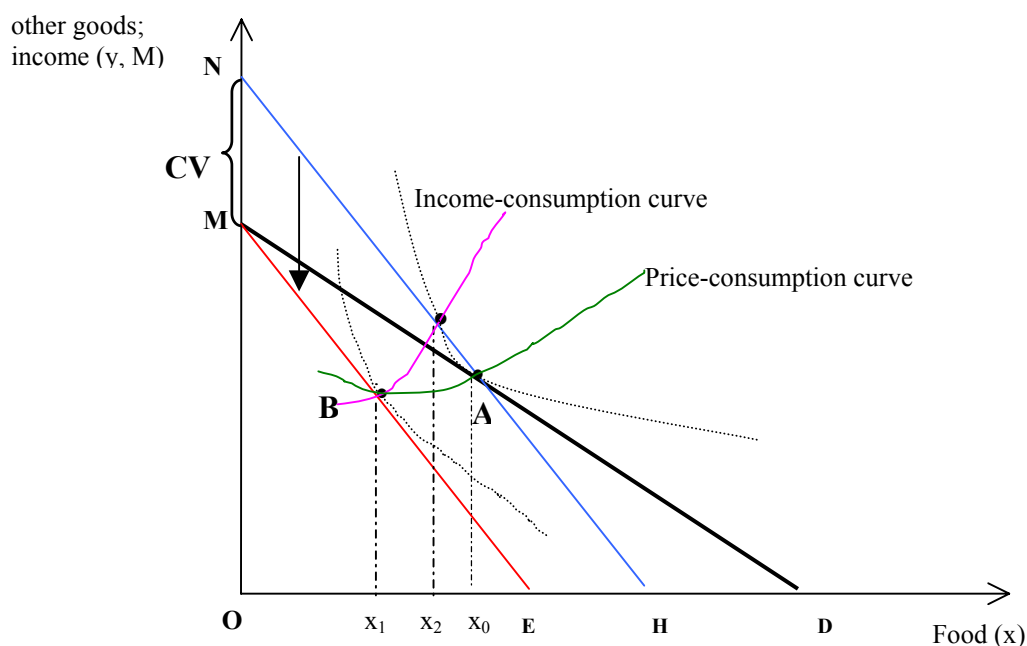
<sup>6</sup> Compensating Variation, Equivalent Variation, Compensating Surplus and Equivalent Surplus were introduced by Hicks, in his attempt at the 'rehabilitation of consumer surplus' concept.

more easily determined by constructing index numbers (e.g. Laspeyres and Paasche indexes), based on information about price and quantity vectors.

Hicks (1956) defined the Compensating Variation as “the amount of compensation, paid or received, that will leave the consumer in his initial welfare position following the change in price if he is free to buy any quantity of the commodity at the new price”. However, Hicks’s technique has been criticised for its lack of real world applicability, i.e. the deficiency of our knowledge to measure utility. It is impossible to determine exactly how much the consumer’s real income should be altered in order to keep him or her on the original indifference curve, and so to compensate for the effects on real income for a change in price of a good (Laidler, 1980; Miller, 1978).

An alternative approach has been developed by Eugene Slutsky. He approximated the real income of a consumer as the ability of purchasing the same bundle of goods as was bought before the price change, instead of the ability of achieving (or maintaining) a given level of utility (the Hicksian real income). Figure 5 presents the usual textbook diagram, in which a price change of a particular good moves the consumer from A to B, with Compensating Variation representing the vertical difference MO – NO.

*Figure.5. Slutsky Approximation: Compensating Variation for a Rise in Food Prices*



For each type of Romanian household, 18 food products were considered as the main food intake: bread and pastries, corn flour, wheat flour, potato, sugar, sunflower oil, beans; pork, poultry, beef, processed meat products, milk, cheese, butter, margarine, eggs, total fruits and fresh vegetables.

The following assumptions were made and applied for each type of household:

- prices for all other goods remain constant;
- total income equals total expenditure (no net savings);
- food products are considered as normal goods;
- changes in households’ tastes and quality of food products are negligible;

- the adoption of the current CAP leads to changes in the real level of food prices in Romania, averaging 10 per cent. This assumption is somewhat arbitrary, but it is in the line with experience of previous accession (e.g. for Greece, see Georgakopoulos, 1990), and with current relative levels of agricultural protection in the EU and Romania.

For each product, total consumption per household is derived from consumption per person (kg/head) multiplied by the average size of the household. The initial price variables are the monthly unit value, calculated as total quantity purchased value (Lei) divided by quantity purchased (kg). Base expenditures are calculated (total consumption per household multiplied by corresponding unit value) for each product and aggregated at the household level in order to get total base food expenditure.

To determine the Laspeyres price indexes per household, price changes for each product are necessary. These food price changes were estimated following two steps. First, a convergence was assumed of Romanian relative food prices to the EU relative price levels<sup>7</sup>, (e.g. using Germany food prices pattern), holding household total expenditure on food constant and assuming that the relative prices across the current member states are aligned. In other words, the new prices are those which, at EU relativities, result in the same total expenditure by Romanian households on the same bundle of food products.

Secondly, an increase by the same percentage (e.g. 10 per cent) of all re-aligned Romanian food prices is assumed. Based on the new food prices, total food expenditure (i.e. quantity consumed remaining constant) are re-calculated for each household, and further applied to the computation of the Laspeyres price indexes.

#### 4. Results

The main results of the estimation of the impacts of the adoption of CAP on 10 types of Romanian households are presented in Tables 5 and 6. Table 5 highlights the increase in the cost of living for each household due to the rise in food prices as a result of the adoption of the CAP. Table 6 estimates the minimum amount of money that a household should receive or is willing to accept, on average per month, in order to remain as well off as it was before the food price increase.

*Table 5. Laspeyres Price Indexes (%), Romanian Adoption of CAP*

	Urban			Rural			All		
	Total	Market	Non-market	Total	Market	Non-market	Total	Market	Non-market
<b>Employees</b>	102.1	102.0	100.1	103.8	102.5	101.3	102.6	102.2	100.4
<b>Employers</b>	100.6	100.6	100.0	102.0	101.7	100.3	101.0	100.9	100.1
<b>Farmers</b>	103.9	101.9	102.0	105.9	102.1	103.8	105.8	102.1	103.7
<b>Unemployed</b>	104.9	104.7	100.2	106.6	103.4	103.2	105.7	104.2	101.5
<b>Pensioners</b>	102.6	102.6	100.0	104.4	102.1	102.3	103.7	102.3	101.4
<b>All</b>	<b>102.4</b>	102.3	100.1	<b>104.6</b>	102.3	102.2	<b>103.4</b>	102.4	101.1

*Source: authors' estimates*

<sup>7</sup> To determine the EU relative food prices pattern, the set of prices (average retail prices for Germany) is provided by a study carried out by the UK Department of Trade and Industry (Nielsen, 2000).

Table 6. Slutsky Compensating Variation, Romanian Adoption of CAP  
Euro/household/month

	Urban			Rural			All		
	Total	Market	Non-market	Total	Market	Non-market	Total	Market	Non-market
<b>Employees</b>	4.4	4.1	0.3	7.3	4.9	2.4	5.2	4.4	0.8
<b>Employers</b>	2.2	2.1	0.1	5.7	4.9	0.8	3.2	3.0	0.2
<b>Farmers</b>	5.5	2.7	2.8	7.7	2.8	4.9	7.6	2.8	4.8
<b>Unemployed</b>	5.6	5.4	0.2	8.1	4.2	3.9	6.6	4.9	1.7
<b>Pensioners</b>	3.0	3.0	0.0	5.3	2.6	2.7	4.4	2.7	1.7
<b>All</b>	3.7	3.6	0.1	6.2	3.2	3.0	5.0	3.4	1.6

Source: authors' estimates

On average, a Romanian household will have to increase its total income by 3.4 per cent or Euro 5 per month in order to be able to consume the same bundle of goods as before the food price changes. The low-income groups (i.e. farmers, unemployed and pensioners) are the most vulnerable. The percentage rise in the cost of living varies between 4 per cent for pensioner households and 6 per cent for the other two categories. The differences between urban and rural households are significant, i.e. rural households require an increase in their total income (by 4.6 per cent) twice as much as urban households. Within the socio-economic categories, rural unemployed households are the most affected; they need about a 7 per cent increase of their total income to maintain their initial standard of living, followed by rural farmer households, the urban unemployed, and rural pensioners. In terms of the minimum amount of money by which the households would have to be compensated, the households with a higher initial share of food expenditure in total income are entitled to receive more.

Due to the important role played by agricultural self-production within the total consumption for the majority of Romanian households, and because consumption from own-resources is less-price responsive than market demand for the same products, these 'total' results are disaggregated into 'market' and 'non-market' components in Tables 5 and 6. Such a disaggregation implies that part of the change in consumer surplus remains with the producers (Quaim, 2001), and so actually the minimum amount of money which the household should receive for the effect of food price changes on real income is diminished by the amount of non-market compensating variation. Therefore, the households for which home consumption represents a significant share of total consumption (e.g. urban and rural farmer households, rural pensioner and unemployed households) deserve less in terms of compensated income. Urban unemployed households then become the most affected group (with a 5 per cent increase in total income), followed by the rural unemployed, urban pensioner and rural employee households.

## 5. Concluding Remarks

The analysis presented in this paper is an attempt at estimating for the first time the distributional impacts on Romanian households of changes in food prices due to the adoption of the CAP. Using the Slutsky technique, based on construction of Laspeyres indexes, we calculated the (total) Compensating Variation in income for each type of

Romanian household, and disaggregated the welfare effects into market and non-market demand components. The results show that an increase in real terms of 10 per cent in Romanian food prices once Romania joins the EU will affect welfare differently for different categories of households. A higher impact is estimated for low-income groups, in particular on those groups for which food expenditure represents an important share of total income. However, the high share of home-produced consumption diminishes the impacts, in particular for rural households, due to the lower price response of non-market demand.

Food prices are always regarded as important indicators for policy-makers. Thus, the estimates of income adjustments for each type of Romanian household in order to maintain them at a particular level of welfare may represent a useful tool for planning of an “effective safety net” before accession to the European Union. However, the research carried out here has its own limitations. The actual impacts will depend on the magnitude of food price changes and their distribution across products. Higher or lower assumption about food price changes would give rise to proportionately similar aspects. In turn, these features depend on the configurations of the EU’s CAP and domestic Romanian policy at the time of accession, and, equally important, developments in the farm-to-retail food processing chain which determines the margins between supported farm-gate prices and consumer food costs. In addition, the policy significance of the calculated welfare effects will depend on GDP growth in Romania, and domestic demographic and social changes, aspects with which we do not deal here. However, as Bergson (in Just *et al.*, 1982) has pointed out, the Compensating and Equivalent Variations represent the “true magnitude of real income variations” and their calculation should play an important role within applied welfare economics.

## References

- Alecsandri, C. (2000). Cererea si consumul de produse alimentare in Romania, in Gavrilescu, G. & Giurca, D.,(eds). *Economia agroalimentara*, Bucuresti, Expert, 523-535.
- Balcombe, K., Davidova, S. and Morrison, J.A. (1999). Consumer Behaviour in a Country in Transition with a Strongly Contracting Economy: The Case of Food Consumption in Bulgaria, *Journal of Agricultural Economics*, **50** (1), 36-47.
- Banse, M. (2000). Macroeconomic Implications of EU Accession, in Tangermann, S. & Banse, M., (eds). *Central and Eastern European Agriculture in an expanding European Union*, CABI, Wallingford.
- Brown, C. (1990). Distributional aspects of CAP support, *European Review of Agricultural Economics* **17**, 289-301.
- Comisia Nationala pentru Statistica (2000). *Veniturile, cheltuielile si consumul populatiei in anul 1999*, Bucuresti.
- Comisia Nationala pentru Statistica (2000). *Aspecte privind calitatea vietii populatiei in 1999*, Bucuresti.
- Currie, M. J., Murphy, J.A. and Schmitz, A. (1971). The concept of economic surplus and its use in economic analysis, *Economic Journal*, **81**, 741-799.
- Deaton, A. and Muellbauer, J. (1980). *Economics and Consumer Behaviour*. Cambridge University Press, Cambridge.
- European Commission (2001). *The Economic Impact of Enlargement*, Directorate General for Economic and Financial Affairs, Enlargement papers, no. 4; [http://europa.eu.int/economy\\_finance](http://europa.eu.int/economy_finance).

- European Economy. (1997) *The CAP and Enlargement: Agrifood Price Developments in Five Associated Countries*. Reports and Studies 1997, No.2. Luxembourg.
- Georgakopoulos, T.A. (1990). The impact of accession on food prices, inflation and food consumption in Greece, *European Review of Agricultural Economics*, **17**, 485-495.
- Hicks, J.R. (1956). *A Revision of Demand Theory*. Oxford University Press, Oxford.
- Just, R. E., Hueth, D.L. and Schmitz, A. (1982). *Applied Welfare Economics and Public Policy*. Englewood Cliffs, Prentice-Hall.
- Kola, J. (1993). Efficiency of supply control programmes in income redistribution, *European Review of Agricultural Economics*, **20(2)**, 183-198.
- Kol, J. and Kuijpers, B. (1998). The Common Agricultural Policy of the European Union: Effects and Reforms: an Economic Evaluation with Special Reference to the Position of Developing Countries, *EU/LDC News*, **5(2)**, Erasmus University, Rotterdam.
- Laidler, D. (1981). *Introduction to Microeconomics* (2<sup>nd</sup> edition), Camelot, Southampton.
- Mansfield, E. (1982). *Microeconomics: Theory and Applications*. Fourth Edition, Norton.
- Miller, R.L. (1978). *Intermediate Microeconomics. Theory, Issues and Applications*, McGraw-Hill.
- McCorrison, S. and Morgan, C.W. (1998). The Reform of the CAP and its Impact on Consumers, in Ingersent, K.A., Rayner, A. J. and Hine, R.C. (eds) *The Reform of the Common Agricultural Policy*, Macmillan.
- Nielsen, A.C. (2000). *A Report into International Price Comparisons*, Department of Trade and Industry, London. <http://www.dti.gov.uk/cp/ipc/>
- Pattichis, C.A. (1999). Cyprus in the EU: a Quantitative Analysis of Adopting CAP, *European Review of Agricultural Economics*, **26(4)**, 511-532.
- Petrovici, D.A. and Gorton, M. (2000). Food Demand, Rural Poverty and Welfare in Romania, Department of Agricultural Economics and Food Marketing, University of Newcastle, unpublished paper.
- Renwick, A.W. and Hubbard, L.J. (1994). Distributional Aspects of the UK Costs of the Common Agricultural Policy, *Food Policy* **19 (5)**, 459-468.
- Ritson, C. (1997). The CAP and the Consumer, pp. 241- 264 in Ritson, C. and Harvey, D.R. (eds.) *The Common Agricultural Policy* (2<sup>nd</sup> edition), CAB International, Wallingford.
- Quaim, M. (2001). A Prospective Evaluation of Biotechnology in Semi-Subsistence Agriculture, *Agricultural Economics* **25(2-3)**, Elsevier, IAAE.
- Thomson, K.J., Leonte, J., Firici, C., Burtea, V., Preda, M. and Balanica, S. (1998). Costs and Benefits of EU Accession by Romanian Agriculture. Phare Programme "EU Alignment and Policy Reform "(RO 9505-04-01), Ministry of Agriculture, Bucharest.
- Thomson, K.J., Danilowska, A., Zawojcka, A., Jarka, S., Straszewski, S. and Was, A. (2000). Model of EU Agricultural Accession Costs and Benefits for Poland, in Majewski, E. and Dalton, G. (eds), *Strategic Options for the Polish Agro-Food Sector in the Light of Economic Analysis*, Wies Jutra Sp.zo.o, Warsaw.
- Willig, R.D. (1976). Consumer's Surplus Without Apology, *American Economic Review*, **66 (4)**, 589-597.
- Yew-Kwang, Ng (1983). *Welfare Economics. Introduction and development of Basic Concepts*. Macmillan.

Nom du document : 086-firici-thomson  
Dossier : C:\Documents and Settings\gilles\Bureau\EAAE  
Modèle : C:\Documents and Settings\gilles\Application  
Data\Microsoft\Modèles\Normal.dot  
Titre : Distributional impacts of CAP adoption on Romanian households  
Sujet :  
Auteur : Department of Agriculture  
Mots clés :  
Commentaires :  
Date de création : 07/03/2002 18:13  
N° de révision : 2  
Dernier enregistr. le : 07/03/2002 18:13  
Dernier enregistrement par : GILLE  
Temps total d'édition : 1 Minute  
Dernière impression sur : 07/03/2002 18:13  
Tel qu'à la dernière impression  
Nombre de pages : 13  
Nombre de mots : 4 744 (approx.)  
Nombre de caractères : 27 042 (approx.)