

FOOD CONSUMPTION PATTERNS IN ROMANIA – SUSTAINABLE APPROACHES

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Abstract

Consumer behavior puts pressure on natural resources of the Earth and it has an impact on environment estimated using ecological footprint. This article answers the question how sustainable is food consumption pattern in Romania. In pursuing this question, the ecological footprint has been estimated to see whether it is over the carrying capacity. Food has been chosen, because it has the highest ecological footprint of other products and services: clothing, housing, health, personal mobility, communication, recreation and culture, education etc. Data referring to food consumption and food expenditure are gathered and results of previous reports are analysed. The outcome shows that food consumption pattern in Romania is over the carrying capacity, even if it has lower footprint per capita than in other countries. These results should reveal the need of immediate changes required to consumer behaviour, including the ways in which consumers choose and use products and services.

Keywords

Food consumption, consumer behaviour, sustainable consumption, ecological footprint

Introduction

Consumer behaviour represents the key element for explaining the impact that society has on environment, because the way people consume products and services affects direct and indirect both the environment and individual and collective welfare.

The sustainable consumption challenge emerged as a key issue in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro. Ten years latter, the 2002 World Summit for Sustainable Development in Johannesburg called for a comprehensive set of programs focusing on sustainable consumption and production (United Nation, 2002). It was noticed that not only production of agricultural and industrial products affects the environment, but also their consumption and the way people act within consumption and purchasing process. World leaders recognized that it is necessary to “change unsustainable patterns of consumption and production”. They call for “fundamental changes in the way societies produce and consume” and resolve to “encourage and promote the development of a 10-year framework of programs in support of regional and national initiatives to accelerate the

shift toward sustainable consumption and production”.

The sustainable consumption concept is defined by United Nation Commission on Sustainable Development (United Nation, 1994): “The use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations.”

Nowadays, sustainable consumption is a top issue on policy agenda of many governments and international organisations. The need for policies that foster sustainable consumption has been recognized as a priority at national and international levels.

This article tries to answer the question how sustainable is food consumption pattern in Romania. Food has been chosen among other products and services, because it has the highest ecological footprint, according to previous research (World Wildlife Fund, 2006).

For pursuing this question, facts, figures and outcomes of different papers and reports have been consulted, including food consumption statistical data from National Institute of Statistic of Romania, results on surveys and reports about ecological footprint.

The objectives of this paper are to identify the level of food consumption’s sustainability in Romania and compare it to those of EU27 and USA, for having an overview of the phenomenon.

Prior works (World Business Council for Sustainable Development, 2008, World Wildlife Fund, 2006) discuss about sustainable consumption and measure the ecological footprint world wide, but none of these particularize consumption patterns and their effects on the environment in Romania. This article brings up to light the food consumption patterns in Romania, focusing on how sustainable are they.

Material and method

Considering the objective of this paper of estimating the level of consumption sustainability, first, food consumption is analysed. Statistical data expressing it reveal different trends in 1995-2009 periods (Table 1). Consumption fell for vegetal origin products: cereals, fats, wine and alcohol. Potatoes, fruits, milk and eggs’ consumption slowly increased in the period 1995-2009. People usually consume the same quantities of sugar, vegetables, and meat. Sharp increases manifest for soft-drinks (475%), beer (211%), fish and fish products (171%).

Table 1: Growth indices of annual per capita consumption of food products

| Group of products | Growth index 2009/1995 (%) |
|--|----------------------------|
| Cereals and products of cereals (in equivalent flour) | 93.4 |
| Potatoes | 131.1 |
| Vegetables and vegetable products (equivalent fresh vegetables), dried pulses and melons | 119.8 |
| Fruit and fruit products (equivalent fresh fruit) | 136.0 |
| Sugar and confectioneries (equivalent refined sugar) | 109.8 |
| Vegetal fats | 163.3 |
| Milk and dairy products in equivalent milk 3.5% fat (butter excluded) | 123.6 |
| Eggs | 123.4 |
| Fish and fish products (fresh fish equivalent) | 171.4 |
| Meat, meat products and edible offals (equivalent fresh meat) | 131.8 |

| | |
|--|-------|
| Animal fats (gross weight) | 88.6 |
| Soft-drinks | 475.3 |
| Beer | 211.5 |
| Wine and wine products | 87.7 |
| Distilled alcoholic beverages (in equivalent alcohol 100%) | 60.0 |
| Income of households | 161 |

Source: authors' calculations based on statistical data referred to annual food consumption per capita (National Institute of Statistic of Romania, 2011)

Data related to annual per capita consumption are needed to forecast consumption in 2011, using different models: simple regression model, polynomial functions (Table 2). Several attempts were used to identify the correct model, until the factor showing the influence of other variables (food prices, culture, tradition etc.) upon food consumption had the lowest value. For some basic food items consumption falls: cereals, fruits, milk, and meat. For occasional food, like soft-drinks, consumption increases.

Table 2: Predictions of annual per capita consumption of food products and expenditure for daily basket of households

| Group of products | Food consumption in 2010 (kg, pieces, l / capita / month), c_i | Predictions of food consumption in 2011 (kg, pieces, l / capita / month), c_i | Prices of food items* (US\$/kg, piece, litter), p_i |
|--|--|---|---|
| Cereals and products of cereals | 10.8 | 10.5 | 0.53 |
| Potatoes | 7.8 | 6.2 | 0.71 |
| Vegetables and vegetable products, dried pulses and melons | 12.8 | 9.7 | 1.06 |
| Fruit and fruit products | 4.0 | 2.0 | 1.41 |
| Sugar and confectioneries | 2.0 | 2.0 | 1.06 |
| Vegetal fats | 1.3 | 1.3 | 1.06 |
| Milk and dairy products (butter excluded) | 15.8 | 11.9 | 1.41 |
| Eggs | 13.4 | 10.3 | 0.18 |
| Fish and fish products | 0.2 | 0.3 | 3.53 |
| Meat, meat products and edible offals | 5.0 | 3.4 | 4.24 |
| Animal fats | 0.3 | 0.3 | 4.24 |
| Soft-drinks | 12.3 | 14.0 | 0.71 |
| Beer | 7.2 | 7.1 | 1.77 |
| Wine and wine products | 2.0 | 0.5 | 3.53 |
| Distilled alcoholic beverages | 0.3 | 0.3 | 5.30 |
| Expenditure for food daily basket (US\$/capita/month), E | 111.7 | 87.5 | - |

* Authors' estimations

Source: authors' calculations

Predictions of food consumption enable estimation of food expenditure. They can be

expressed as follows:

$$E = \sum_{i=1}^{15} c_i \times p_i$$

where: E = expenditure for food; c_i = monthly per capita consumption of i food item;
 p_i = price of i food item

Considering that prices are relatively constant from 2010 to 2011, as seen in Table 2, one spends around 87.5 US\$ per month to buy food products. People spend less money on food in 2011 compared to 2010, as a result of declining consumption of expensive items like dairy products and meat and meat products.

Results and discussions

Prior studies (World Wildlife Fund, 2006) state that each US\$ 1 million spent by consumers on food has an ecological footprint (a measure of the pressure on Earth from human consumption of natural resources) of approximately 1,500 hectares and each US\$ 1 million spent by consumers on drink has an ecological footprint of 1,000 hectares. Food and drink are reported to have the highest footprint per dollar spent, followed by household equipment and housing. Food is described as the most important ecological footprint because of great impacts at both the production and consumption stages (World Business Council for Sustainable Development, 2008). Housing is reported to use both the most materials and the most energy, contributing to its high footprint.

In Romania, one spends 87.5 US\$ per month for food and drink, which means 1050 US\$ per year. The population is 21469959 persons (National Institute of Statistic, 2011), who spend 22,553.669 million US\$. As a result, the ecological footprint of food and drink consumption in Romania is 28,192,087 hectares (Table 3). Total area of the land fund is 23,839,000 hectares. It means that the ecological footprint of food and drink consumption in Romania is slightly higher than total area of the land fund.

Table 3 – Estimations of ecological footprint of consumption per capita in different regions of the world (hectares/cap)

| Country/Region | Ecological footprint of consumption/cap |
|---------------------------------|---|
| Europe – EU | 5 |
| Europe – non EU | 4 |
| North America | 9 |
| Middle East and Central Asia | 2 |
| Latin America and the Caribbean | 2 |
| Asia-Pacific | 1.2 |
| Africa | 1 |
| Romania | 2.5 |
| Romania* | 1.3 |

Source: World Wildlife Fund, *Living Planet Report*, 2006,

* only food and drink consumption's ecological footprint (authors' calculations based on statistical data and estimations for 2011)

According to World Wildlife Fund, humanity's ecological footprint has increased to 125% of global carrying capacity and could rise to 170% by 2040 (World Wildlife Fund, 2006). The most important direct drivers of biodiversity loss and ecosystem service changes are: habitat change (such as land-use changes, physical modification of rivers or water withdrawal from rivers, loss of coral reefs, and damage to sea floors due to trawling), climate change, invasive alien species, overexploitation and pollution (World Bank, 2005). For this reason, economic activity and population density tend to be correlated with the size of the ecological footprint. North America, the EU and the Asia-Pacific region currently consume at rates well beyond their natural resources (Table 3).

To have a detailed picture of food and drink consumption's level of sustainability in Romania, comparisons to other countries patterns are made. In 2003, the ecological footprint of total consumption in Romania was 2.5 hectares/capita less than the ecological footprints of all consumption in the EU, Europe – non EU countries, and USA, where they are 5 hectares/capita, 4 hectares/capita, respectively 9 hectares/capita.

These results are only estimations and serve to have an overview of the impact of food consumption on environment. They may be biased, because, in comparing the ecological footprint in Romania to other regions, different database and years were used. Another methodological aspect that biases the outcomes consists in comparing ecological footprint of food and drink consumption in Romania to ecological footprint of total consumption in other regions.

As a feed-back to these challenges, some consumers are increasingly concerned about environmental, social and economic issues, and increasingly willing to act on those concerns. In this context, a new type of consumer emerged – the green consumer (known as “ethical consumer” or “sustainable consumer”), who is a person concerned about environment and who consumes organic food or less-packaged food.

Market segmentation research reveals the existence of six segments of green consumers. The UK Climate Group, in Association with Sky and Lippincott, compared US and UK consumers, and proposed optimum approaches to engage them in sustainability. The consumer typology is: campaigners (18%), who are deeply committed but require supporting evidence to trust; optimists (21%), who are committed and want to feel good; followers (8%), who are partially committed and want to look good; confused (25%), who are undecided and need clarity of why and how; unwilling (10%), who accept climate change as an issue but not prepared to act; rejecters (18%), who actively reject both the issue and taking action (UK Climate Group/Sky & Lippincott, 2007).

Nevertheless, despite significant shifts in levels of awareness, concern and general attitudes to environmental and social issues, many consumers have not made the same shifts in general behaviours, lifestyles and purchasing decisions. Consumers are more likely to adopt environmentally responsible behaviours if both cost-efficient and convenient.

The reasons why there is a difference between what people say they are willing to do, and the decisions that they make in real life are reported by surveys (National Geographic Society, 2008). The three most significant factors were felt to be: lack of understanding; selfishness; and associated costs and taxes. The fourth factor, “tragedy of the commons”, refers to the tendency of consumers to be more willing to act if they see their peers acting as well; it reflects an “I will if you will” mentality (World Business Council for Sustainable Development, 2007).

Conclusions

Current food consumption patterns in Romania are not sustainable, because the ecological footprint of food and drink consumption is slightly higher than total area of the land fund. Nevertheless, consumption pattern in Romania is more sustainable than its average level in EU27 and in USA.

Based on the figures outlined in this paper, it comes obvious that technological advances alone will not be sufficient to bring global consumption to a sustainable level. Changes will also be required to consumer behaviour, including the ways in which consumers choose and use products and services.

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