

DEVELOPING FOOD SUPPLY IN ACCORDANCE TO CUSTOMERS' NEW EXIGENCIES

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Abstract

Food security and safety are emblematic for well-being, social and economic progress. Considering the limited resources of land and water, in order to attain this goal can be possible only through an increase productivity and a proper technological progress. The food system is under continuous pressure of change, new regulations and different requirements for commodities and trade efficiency, which is the second important pillar of food security. This paper aims to highlight the trends in the last 50 years in terms of food supply and preferences on the Romanian market in comparison with the European evolution. The analysis revealed some important changes in the consumption behaviour of Romanians in the last decades with an important increase in product as milk, dairy and vegetables and decrease in the quantity of supplied meat. Compared with other European regions, Romania has an important supply of cereals and vegetables, and a weak supply of fish, seafood, sugar and sweeteners.

Keywords

food security, food safety, food balance, food supply and demand, food import and export.

JEL Classification

L66, Q17, Q18

Introduction

Food Safety is a relevant aspect which countries and organisations should consider thanks to its important contribution to good health and to the opportunities of economic and development growth of regions or countries (Fung, Wang and Menon, 2018; Hu et al., 2019). Maintaining food safety can be achieved only through a proper food containing resources to ensure the entire food demand. In this regard, food supply should keep up with the increase population worldwide. An important component of food supply is the agricultural food production, directly influenced by the area of cultivated agricultural fields and its exploitation efficiency (Chavas, 2017). Having in mind that land and water availability for agriculture is limited, increasing food supply can be done only by increasing productivity (Popp et al., 2012).

Literature review

Food security refers not only to the immediate supply of protein and energy, but also to the sustainable provision of a healthy diet, including accessibility (as a price) and the

availability (as quantity) of food, as part of our diet (Martindale, 2015). It is clear in this case that food security do not refer only to quantity, but also to quality of life and food safety factors (Martindale, 2015).

By its nature, agriculture, production, processing and distribution of food cannot be “*absolutely controlled*” processes; Consequently, extending more to companies which adopt strategies of reducing any risks, as much as possible (Roberts, 2018), is more important. The relevant elements of a food safety culture are described in Fig. no.1.



Fig. no. 1 Food safety program

Source: Wallace, Sperber and Mortimore, 2018, p.154

Even if a company manages to create a solid food safety culture, there are many other challenges once with the growing complexity of global food supply chains, new variations in food safety regulations appears and there is always a lack of uniform requirements between different commodities or countries (King et al., 2017).

Especially when discussing about meeting customer requirements in terms of food quality, we should consider „*any dimension, chemical or organoleptic property that gives the product the attribute to be suitable for use*”, according to J.M. Juran (Dima et al., 2004). Quality characteristics are categorized differently in the literature, according to Oprean & Kifor (2002) quality is: satisfaction, utility, purpose; satisfying internal and external clients; compliance with standards and specifications; availability of goods at the requested time, place, quantity, price; using a quality management system for production; obtaining the merchandise with an appropriate profit; obtaining a competitive advantage; or according to Olaru (1999) quality means: economic characteristics; aesthetic aspects; security attributes; construction complexity and ecologic dimension.

Within the current highly dynamic economic environment, the technological progress evolved so much, that in many situations the difference in the buying decision is made by small differences in terms of aesthetic aspects, ecological impact, etc. Thus, the symbolic dimension gained an increased importance, buying goods and services not only for their utility, but also for the associated feelings as freedom, comfort, performance, power etc. (Dima et al.,2006). Particularly, when it comes to food quality, there are three main dimensions that should be considered: (1) safety features, (2) composition and (3) quality characteristics, each one with several dimensions, as described in the following figure:

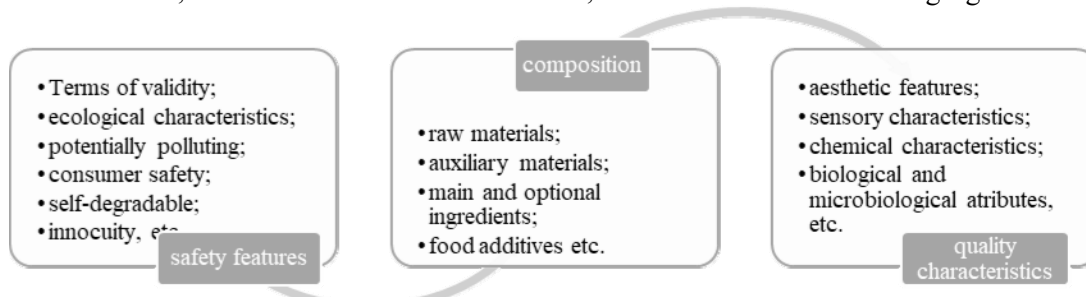


Fig. no. 2 Quality characteristics of food

Source: Adapted from Dima et al., 2004

These are the main characteristics considered by users when they compare products and take

the decision to buy. At the same time these characteristics are used by companies to select their products on the market.

The importance of trade in the supply of food

Trading food commodities is needed to meet the differences between internal production and the demand on the market in terms of quantity, quality and price. Along with the growing distribution, more efficient transport methods and new technologies in the food processing industry, the trade with food commodities has grown significantly over the past decades. At the same time, the population got access to a wider range of products, their choices and preferences have evolved, leading to an increase in imports, especially of meat, fruit and vegetables. The increase in demand for a larger category of products, required improved methods for consumer protection, also to adapt to national food and nutrition policies. Consumer preferences became increasingly complex in terms of nutritional, toxicological, organoleptic and aesthetic characteristics of food. Moreover, consumers are mainly interested in the production method, searching for bio/organic products, in the origin of food, asking for more local products as part of the slow food trend to support the economy assigning food as an important role for health, but also to encourage the local economy (Dima et al., 2006). Increasing food quality is needed in satisfying the consumer needs and also in increasing of the international trade.

The relation between the economic and metabolic market

A particular aspect of food products is that, apart from their economic value (quantity, price, quality, etc.), their metabolic contribution (nutrients, energy, etc.) is important in terms of the consumers health and well-being. Thus, a difference between an economic and a metabolic market for foodstuff can be noticed. On the metabolic market the balance between demand and supply of nutrients - structure requirements - is more difficult to reach, compared to the relation on the economic market in terms of food demand and supply - quantity requirements (Dima et al., 2006). Customer requirements in terms of quantity and structure of food don't often meet the metabolic necessities, thus reflecting in the overall quality of life.

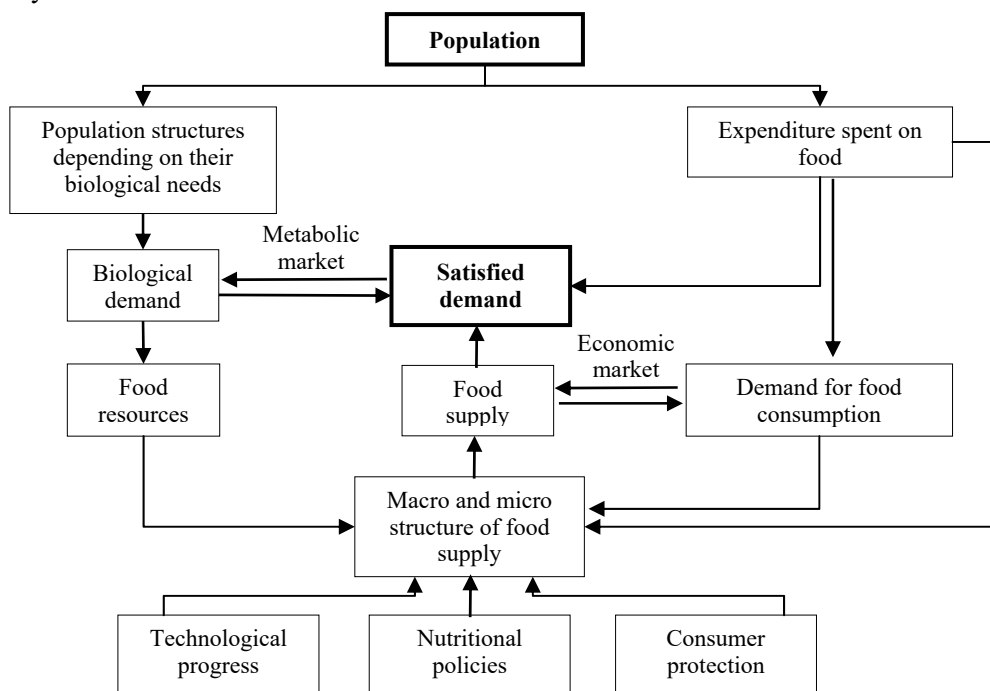


Fig. no. 3 Correlation between the metabolic and economic food market

Source: Dima et al., 2004

Improving the balance in supply and demand on the metabolic market is also an important goal of the national and world-wide policy towards consumer protection. The relation between the economic and metabolic market also is described in Fig. no. 3.

Population access to food in terms on quantity and quality (structure) depends on internal production and imports. Lately, we can notice an important change in terms of food options from *what raw materials we have* to *what raw materials we need for a certain receipt*. Thus, the customer is more in control of what he likes to eat, gaining access to a much more varied and affordable range of raw materials.

Research methodology

In order to fulfill the objective of our research, we used a secondary data analysis to study the tendency in the supply and demand of food in Romania. We used the latest data available on the website of Food and Agriculture Organization of the United Nations. We especially focused on food production quantities, import and export quantities for each of the main important categories of food. We also aimed to identify changes in the structure of food supply which is well connected with the demand on the market. In the second part of our analysis we studied the food balance in terms of food supply kg/capita/year and kcal/capita/year. In some case the most recent data available was between 1961-2017, in others only between 1961-2013 were available.

Results and discussion

Based on the available data on Food and Agriculture Organization of the United Nations, we performed an analysis of food production, imports and exports for each of the following categories: (1) cereals, (2) meat, (3) fruits and vegetables and (4) milk and dairy products. Depending on the availability we identified for each category the evolution in the last 50 years.

In the case of cereals it can be seen an important increase in the internal production, exceeding 27 billion of tonnes in 2017.

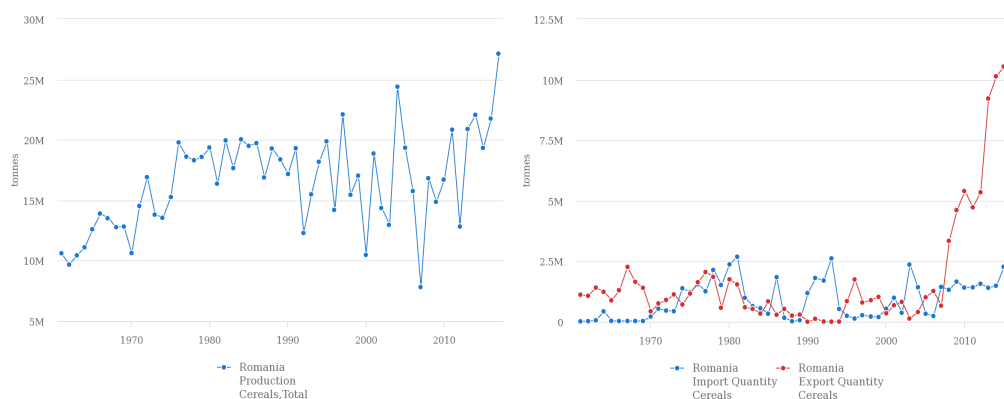


Fig. no. 4 Romanian cereals production, imports and exports

Source: FAOSTAT, 2019

This can be explained by policies which support the agriculture by significant founding in countries, in order to increase productivity. In 2017 the production of cereals in EEC (296 billion of tonnes) was more than double compared to Western European Countries (WEC) with a production of 120 billion tonnes of cereals.

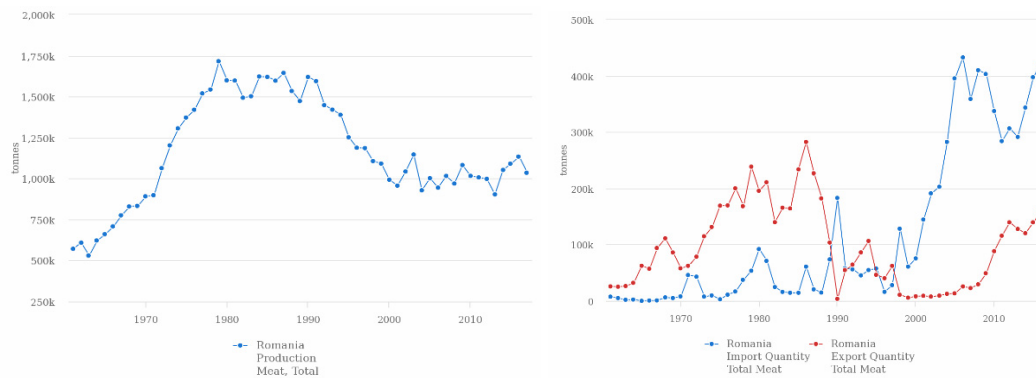


Fig. no. 5 Romanian meat production, imports and exports

Source: FAOSTAT, 2019

This increased production combined with a low processing capacity in terms of food industry explains high exports of 11,8 billions of tonnes compared to imports of 2,5 billion tonnes in 2016. When it comes to meat, things are different. Romanian production of meat, reached around 1 billion of tonnes in the last years, declining sharply between 1990 and 2000 along with an increase of imports for this category of products. This growth is also reflected in the high amounts of meat imports in Romania after 2000, most probably because of better prices and significant contracts with large supermarket chains.

As can be seen in the Fig. no. 5, Romania registered an amount of 422 thousand tonnes imports and only 158 thousand tonnes export of meat. The analysis of fruits and vegetables production revealed that Romania produced in 2017 around 3,2 billions of tonnes vegetables and 2,6 billions of tonnes of fruits. The vegetable production can be differently noticed according to Fig. no. 6.

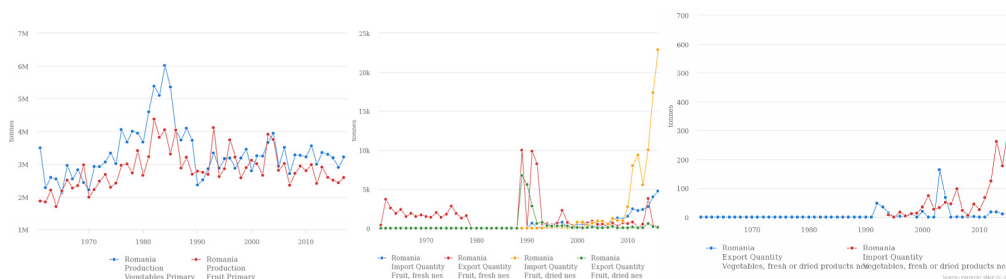


Fig. no. 6 Romanian fruits and vegetables production, imports and exports

Source: FAOSTAT, 2019

Exploring the imports and exports of fruits, it can be noticed an substantial increase for dried fruits, reaching 23 thousand tonnes in 2016, while fresh fruits recorded 5 thousand tonnes. In this case, exports of fruits are irrelevant, around 0,2 thousands of tonnes for fresh fruits and 0,1 thousand tonnes for dried fruits in 2016. Also, an impressive growth was recorded by vegetables imports in Romania, with more than 100% increase from 2015 to 2016 with a volume of 626 tonnes imports and an unimportant volume for exports of vegetables 21 tonnes in 2016.

In case of milk and dairy products, Romania recorded a decrease in production reaching a value of 4,3 billions of tones in 2017. For this category of products EEC had a constant performance while WEC increase their production, surpassing EEC performance.

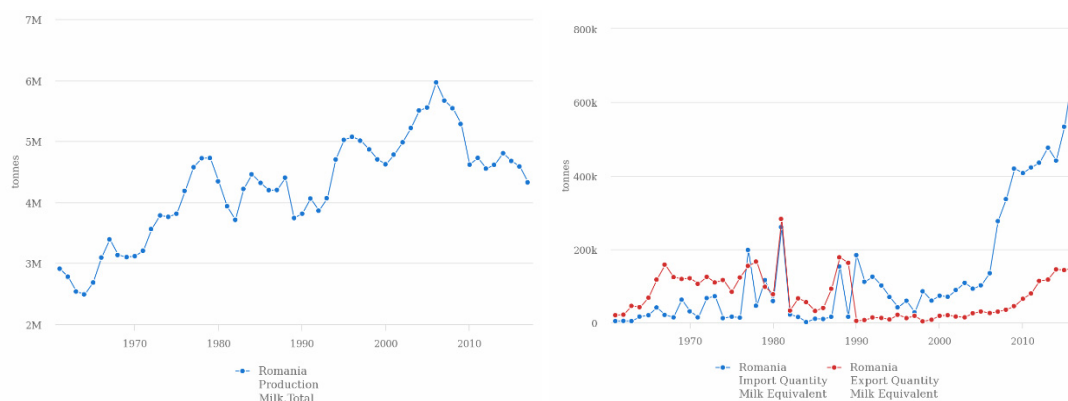


Fig. no. 7 Romanian milk & dairy production, imports and exports

Source: FAOSTAT, 2019

Romanian imports of milk and dairy products grew more than three times, up to 670 thousands of tonnes in 2016. For this category of products, there was also an increase in the export volume, registering 148 thousands of tonnes of milk and dairy products exported. To better understand changes in consumer preferences and food diet in Romania, an investigation in the supply quantity (kg/capita/year) was performed. Besides the most important four categories explored so far, we added fish and sugar. In the last 50 years, the following major changes can be observed in food supply which are directly related to food demand:

- the quantity of milk and dairy products has doubled, becoming the most important category of food demand on the market;
- cereals remains the second most important food product, with a decrease of 25% in present, compared to 50 years ago;
- vegetables are as equally important as cereals but, in their case a positive evolution can be observed, as their quantity doubled during the last decades;
- fruits also doubled their quantity in Romanian food supply;
- meat production recorded a completely different tendency, with an important increase until 2005 and, after that, with a constant decrease, with a share of 20% less in the last year;
- the last two categories: sugar and sweeteners and fish & seafood have the smallest share in the overall food supply, but these categories have doubled in size compared to 50 years ago;
- the same tendency was also recorded in the case of alcoholic beverages, their quantity being doubled, compared to previous times.

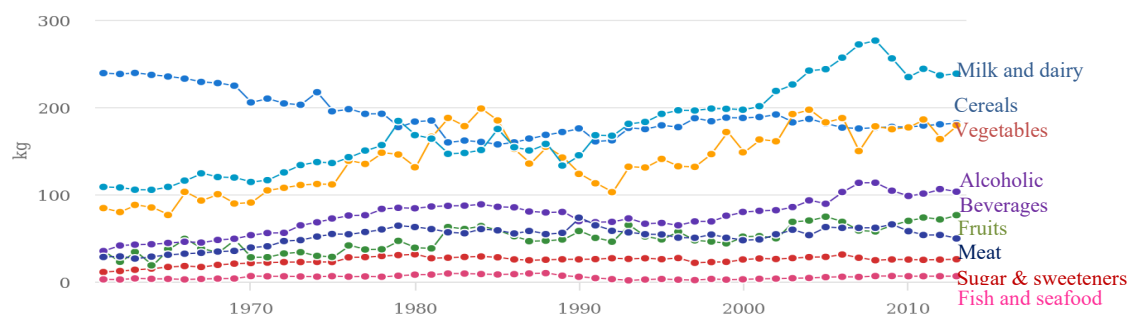


Fig. no. 8 Romania food supply quantity (kg/capita/year)

Source: Adapted from FAOSTAT, 2019

Price increases are closely linked to rising demand for milk and dairy products (187%), followed by fruits and vegetables (172-174%), cereals and meat, respecting the exact order as in Fig. no. 8. Price increase can be explained also by an important increase in imports of milk, dairy products, fruits and vegetables. Even if meat imports was pretty high, for this category the price increase was more moderated given the declining demand.

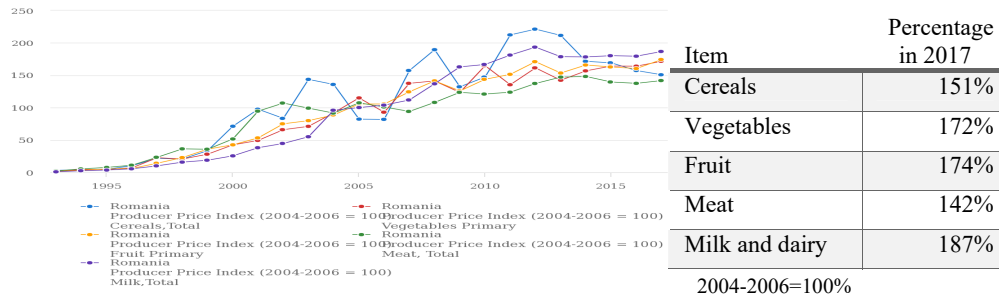


Fig. no. 9 Romania Producer Price Indices – Annual

Source: FAOSTAT, 2019

A more detailed comparison for food supply quantities between Romania, Eastern Europe, Western Europe and the entire European region is summarized in the following table:

Table no. 1 Food supply quantity (kg/capita/year) in 2013

Item / Region	Romania	Eastern Europe	Western Europe	Europe
Milk and dairy products	238.33	171.05	261.29	215.11
Cereals - Excluding Beer	181.72	145.92	114.85	132
Vegetables	179.19	121.46	97.5	115.1
Meat	49.4	68.75	85.28	77.34
Fruits - Excluding Wine	76.17	67.79	107.64	94.93
Sugar & Sweeteners	25.59	44.43	45.64	41.75
Fish, Seafood	6.22	17.08	21.45	21.85

Source: FAOSTAT, 2019

The data proof that in Romania there is a much higher supply of cereals and vegetables than in the rest of Europe, a much lower meat, fish, sugar and sweeteners supply compared to EEC or WEC. In case of milk and fruits we have a better supply than EEC but smaller than WEC. All these facts are influenced by population purchasing power and our culinary cultural heritage.

Conclusions

Current food security and safety requirements refers not only to immediate supply of protein and energy, but also to an accessible and sustainable healthy diet. There are new challenges and factors that could affect food safety, and the culture of food safety developed at the organization level which becomes more and more important.

We need to clarify the quality characteristics of food in order to obtain a balance between the metabolic and economic market of food products. There is often a higher difference between demand and supply of nutrients (on the metabolic market) compared to the balance between food demand and supply (on the economic market). Population access to food, both in terms on quantity and quality (structure) depends on the internal production, imports and exports and also by the purchasing power of the population and price of food commodities. Studying the trends in demand and supply quantity of food in Romania, compared to other European regions, and also changes in the structure of food supply revealed some important behaviour and food preferences of our population. An important increase in the production

of cereals leads to an increase of exports for this category of products and an increase of their supply on the market, more than the European average (both in EEC or WEC). The opposite was recorded in the case of meat, the production decreased, the imports had an important increase but, still the supply on the market of this type of products is smaller than the European average. In case of fruits and vegetables their production remained almost constant, but their imports recorded high values and this fact led to an important supplied quantity (kg/capita/year) on the Romania market, for vegetables more than the European average and for fruits better than the EEC average but under the WEC average. National production of milk and dairy products slightly decreased but, it was offset by a significant increase of the imports of this category with a supply quantity (kg/capita/year) over the European average, between EEC and WEC values. Fish and seafood are still rare products in the Romanian diet possible because of its price. These changes are mainly determined by the development of our country, the increase in the purchasing power of the population but, at the same time, the food cultural heritage is still influencing the current demand on the market, being not so exposed to multiculturalism and migration.

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