PRICE VOLATILITY IN CONTEXT OF FOOD SECURITY FOR SUSTAINABLE DEVELOPMENT

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Abstract
This article presents a series of interesting aspects regarding the price volatility, as component of food security in direct connection with the sustainable development. We will analyses and demonstrate all the factors that can influence the sustainable development and the connection between agriculture potential and the possibility of creating food security in our region. Sustainable development is a new type of human strategy that meets current needs, without compromising the ability of future generations to meet their own needs. This process incorporates immediate and long-term purposes, economic and environment problems, agro food potential and all these elements being in tight connection. Basic commodity prices are particularly volatile in the short term; sometimes they vary even more than 50% - 60% in one year. Clearly, this problem of the economy - lower commodity prices will lead to lower incomes for farmers and thus fewer jobs for workers in rural agro-industry.
Keywords
sustainable development, price volatility, food security, agriculture potential, agriculture.

Introduction:
Sustainable economic development requires intensive agricultural production, new technology, co-operation between public and private actors in the agricultural innovation system, a higher recovery of agriculture potential but with a constant protection of the environment. All these elements will ensure the agricultural production quantity and also all the elements that can ensure the rear security for our nutrition. Food security refers to food availability and access. As the UN FAO define, food security exists when all over the world, all the people, at all times, have a real physical, social and economic access to sufficient, safe and nutritious food. The first step to a sustainable development understands the fact that a country's economy means more than the sum of its elements, that modifying a subsystem or another and will bring major changes to the final result. Due to the latest previsions, it is forecast that the global production of cereals from 2013 to balance the total storage of cereals and, that storage to exceed its level with at least six million of tones (Bazga, 2013). If we are taking into consideration the major impact that the vulnerability of food products prices has over the global market, it is necessary to emphasis the state of Robert Zoellick, the president of World Bank, who made the next affirmation: 'It is time to be aware of an emergency given by the general tendency of raising the prices, which provides sufferance among pours over the entire world. 'He warned the international community to be aware of that risk and not to worsen the problem by embargos, banning the exports and setting administrated accounts. On the same field of food issues, Angel Gurria, General Secretary of The European Organization for Economic Cooperation and Development, made the next statement: The agrarian markets have always been volatile, but if the governments cooperate, the extreme variations of prices can be diminished and the vulnerable consumers and producers may be protected. Since the principle worked out,

it has been connected with other definitions, every time expressing the unicity of the concept, according with the economic growth that should depend on the availability of the planet resources and of their regenerative rate (Manole et al., 2011).

1. Sustainable

The humanity still continues to consume very fast the natural riches –water, energetic resources, minerals, plants, animals, etc, regardless of their recovery. Massive exploitations produce damages that will be hard to weigh and we have already begun to pay for the first consequences. The fact asserts the growing of people consciousness and of the responsibility of rethinking an economic pattern for the development of the society, and for the consumers as well, a way that consists with the rhythms we live. The sustainable development has become a priority for many economists, who remind us that at the bottom of the strategy must be considered, as one of the main issue, the actual economic crisis. The viability of social economic development is one of the main principles that route the strategies, on the basis of principle that being sustainable today means to guarantee a better future for the next generations. Actually, the society is involved in enterprising new ideas to assure the safeguard of the environment, health and the willing of consumers to buy among their activity, of information and of choosing their own directions of production (EC) tainable production and consuming.

Any people that has the consciousness of his own social role, has the possibility to lead the market in daily choosing of a good or another, activating a 'virtuous chain', inside which every author of the system is called to bring his own contribution. When a product is more agreeable than another, the choice is memorized and the consumer is now able to insert changes to the new ones. The companies show no indifference to the choices that consumers do, because what is sold influences the future trade politics.

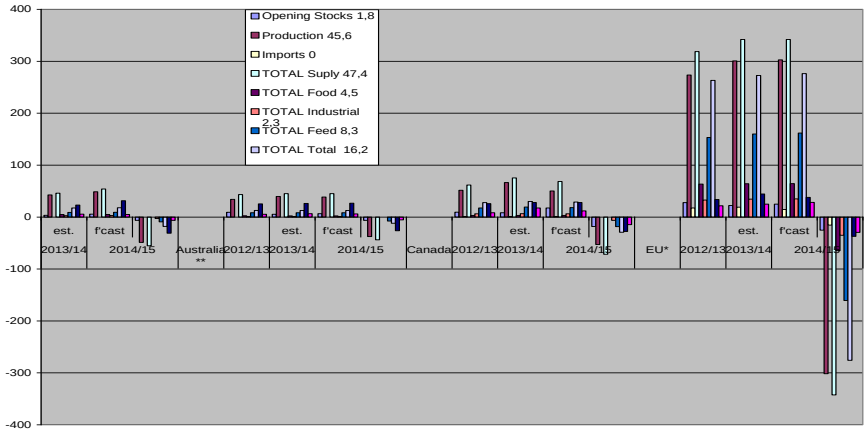
The sustainable consuming means, before anything, to promote goods and services which assure the preservation of natural resources (water, wood, soil safeguard/fertilization, etc), the energy saving, the reduction of contamination and of waste/trash storage (EC). Any consuming good that is bought, has only one circle of live. The major impact appears when the good has been exhausted and gone down with the soil in a way or another, or after it spreads in the atmosphere. Before making any choice of a good, it is involved a certain obligation to control whether this good represents a popular brand to certify its eco-viability, with the references to another good less virtuous. An important aid given to the consumers comes from the certification brands/genesis certifications, which provide clues about the goods manufacturing and guarantee precise quality criteria for the people health and the environment protection. All these credits do not constitute an absolute successful guarantee, because a real certification brand/genesis certification must be the result of scientific researches lead by specific methodologies that guarantee comfort and utility (Policy Responses, 2011). In accordance with the circle of life of the good, it is pointed out that a product has an impact over the environment, not only during its usage or after that, but during the previous stages of producing, transportation, storage, sell and its safeguard. Only this way, all the goods may have a real circle of life. The waste cuts are the necessary condition for a sustainable growth. The European Union has defined some directions for growth prevention of waste, used goods and packages. One of the main measures, in accordance with the international requirements for environment safeguard is recycling and other means of recovering the waste/packages under the 3R formula: Recovering, Recycle, Rework.

2. Price volatility indicators – a real key for a sustainable agriculture economy

Volatility of commodity prices is a serious problem especially for countries of the world which are dependent producers of raw materials. About 2 billion people, almost 1/3 % of the global population, depend on the production of primary goods such as grain, sugar, rice, meat, metals, ecc.

The EU statistical office of the European Union (EUROSTAT) conclude and also explained in Rapport "EUROSTAT Regional Yearbook 2013" published on 4th of February 2014, that the "Economic significance of agriculture in 2012, for the EU-27 agriculture generated around EUR 159.4 billion of value added, aproximatly 1.4 % of the added value for the whole EU economy (World Committee on Food Security). The contribution of agriculture fell from 1.8 % a decade earlier (2002), to a low of 1.2 % in 2009, before increasing each year through to 2012. The regional analysis of agricultural accounts is based on data for 2010, when agricultural value added was EUR 145.3 billion, equivalent to 1.3 % of the whole economy. The economic importance of agriculture, in value added terms, was generally much greater in the east and south of Europe than in the west and north. The relative economic weight of agriculture was highest in the Bulgarian regions of Severen tsentralen and Severozapaden, where it reached 14.1 % and 12.2 % respectively of total value added; no other regions in the EU-27 reported double-digit shares — although this was the case in the former Yugoslav Republic of Macedonia (10.8 %)"(Eurostat indicators). But price volatility itself is not the most serious problem, is rather national and individual income volatility obstructing medium and long term planning of governments, depending on the cargo units, and thus widens inequality between countries and lead to further degradation business (8).

For Europe, second part of 2013 and first part of 2014, at the most important commodities, were the lowest productions compare to 2012. (figure 1.)

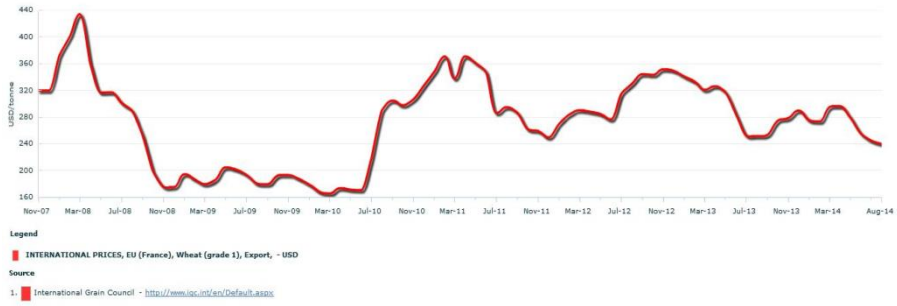


Source: International Grain Council. http://www.igc.int/en/

Fig. 1 Grain productions in Europe

The same announce was made also by the Food and Agriculture Organization of the United Nations (FAO) in his monthly Food Index Price, where is presented and explained the measure of the monthly change in international prices of a basket of food commodities (OECD, 2011). The FAO Food Commodity Price Indices show changes in monthly international prices of major food. The *OECD-FAO* Agricultural Outlook 2013-2023,

published in march 2014, for global cereal supplies in the period 2014/15 booth organizations present the same situation but in different views (OECD, 2011). (fig. 2)



Source: www.ocde.org; Global cereal supplies in the period 2014/15 .

Figure 2 Global cereal supplies

The European Union has to bring together the employment objectives and growth of long-term environment objectives, as a Commission document works out, which evaluates the strategy of sustainable development of the Union that has been set almost a decade ago (OECD, 2012).The global requirement of natural resources has a blowing growth, the European fish storage is almost ending and the forests and soils are endangered by climatic changes. Having a legislative package adopted in accordance with the environment and the energy, The European Union considers itself at the top of the fighting against climatic changes and for sustainable development. Regarding to biodiversity, the EU Executive forecasts that the annual loss from the services field of ecosystem amounts to 50 billion euros, meanwhile the loss of natural riches being estimated at 7% GDP, until 2050.The strategy for Sustainable Development, started by EU in 2001 at Gothenberg Summit, had been renewed in June 2006, during another Summit. It is dedicated to a specific number of seven challenges such is: climate changes and energy; sustainable consuming and production; natural resources preservation and management etc.

3. The dynamic of prices

The complexity of dynamic prices on the staples has become more urgent in the context of actual tendencies. In contrast with the previous years, when the economic agents concentrated just on the outwards price, now they need to face with a large area of complex factories, including derivate financial instruments „*futures*" contracts and „*options*", phenomina of normal „*backward* ", maturity effects, as well as the link between futures contracts and outwards prices. The term of „*staple*" may reffer to a variety of goods, which can be very different in production (or extraction), in their usage (as elements or final goods for consumers) or in the storage period. Thereby, it seems to be logical the conclusion that, for the explanations of the extremely different stuffs will be required different theories. There is one theory referring to the behaviour of staples prices, which inclines to rule: *the storage type*. The storage type studies the way how scalpers will engage themselves in staple tranzactions, being based on their expectations according to prices

future changes (OECD, 2013). When the current price is under the level that scalpers hoped to tower above next period, they will storage the stuffs, with the purpose of selling them at a higher price next time. Nevertheless, when the current price is over the scheduled amount for the next period,the scalpers won't keep the staff. Supposing that there will be no stimulants for storaging (so called stock-out), the prices dynamic merely follows the path of basic offer blows.

That is why the storage type theory is the most appropriate for the basic products, which are easily to storage, their production being so unpredictable (as the ones depending on the wheather conditions). The best way to storage the metals is, for instance, to extract not at all the product. Hence, the essential economic decision which is about to be taken regarding to metals is referring to the extraction rate, more than to the storage level.

One of the first theories for the metals prices approach is the theory of *lease shortage*. This theory claims that, as far as the resources are not regenerative, the owners ask for a bigger price and so, they will get a rent shortage. A distinctive characteristic is represented by *the way how the animal products* prices are set.

That is the fact for which is has to be mentioned a conclusive model for prices evaluation for the animal products, known as *„spider web model"*. This model, which has been brought in by Ezekiel, claims that the price fluctuations are endogenous, moreover than exogenous. The storage model rises the next question: how the exogenous offer blows will be passed over the prices movements? In contrast, the spider web theory explains the fact that the price fluctuations are the result of the market participants behaviour.

In accordance with the spider web model, the production decision of the economic agents will be based on the prevalent price, although for the next period of time they will know that the presumptive price declines.

Nevertheless, the type of naive expectations has been considered unlikely and it received little attention in the specialized literature. However, it hasn't been completely ignored in the study made for prices setting of the agrarian staples. A reason for the continuous interest is its capacity of setting out the prices that oscillate, which have appliance in dynamic description of animals unions.

Like other assumptions, mentioned above, are not based on the cycle behaviour,this is coming up, due to the spider web model, with an interesting candidate in helping the prices forecast of bovines unions.

It is more than obvious that the prices stability and of trade politics may have impact over the prices behaviour of the staples. Moreover, there are some theories which put the accent on the importance of the macroeconomic environment, where the monetary spreading defines the staples inflation on short term.

The properties of the staple prices are made with the aid of four index numbers, which represents *„the moments"* of one distribution of prices: its average, volatility (variance), asymmetry and flattening. An interest key-point is given by those moments variation in time and specifically, namely: the average hypothesis and the volatility alignment. One of the main characteristics of one batch of the price is its persistence, in other words its rate of self-correlation. The persistence has a basic impact over the batch behaviour, as itself indicates, in large amounts,the way how the past changes will influence the path of future changes (OECD, 2013). The storage model theories seem to accept that the agrarian prices must be stationary. The storage model tries to show how, under the influence of a demand and of an offer necessitarian character, the goods storage induces the corelation prices. But, if this self-correlation leads to steady or unsteady process, that is not directly forecast by the theory.

The theory of financial market efficiency considers the unsteady process a fact. This theory, advertised by Fama, in 1960, claims that for an efficient market,the prices should not be predictable and they would follow otherwise an aleatory unsteady course (more specific, a martingale whose aleatory movement is a model). The reason is that the predictibility of the price can only be temporary, because the predictibility reveals unexploited models of the prices that atract the investitors. Even if the theory of the efficient market has been rejected, in the last years, through the results of the finances behaviour studies, the conclusions indicate the fact that in the majority of financial markets, the prices have a behaviour at least closer of the unsteady process. While this tow theories are based on the real expectations, one of them forecasts stationarity, meanwhile another predicts non-stationarity (EC).

The prices of basic agrarian goods seem to be characterized by a high rate of persistance, which is hard to distinguish among an aleatory course, leading to uncertainty in the next variations of prices. Another important factor which is added to this uncertainty is the high volatility of the price, which is specific to agrarian markets.

Theoretically speaking, the presence of volatility may be easily to explain by the inherent configuration of the demand and the offer in agriculture. The offer can't be easily adjusted on short term and it is subdued under a major wheather uncertainty, while the demand is also low on short term. Referring to those configurations, one simple wheather blow may lead to a price blow, significantly higher.

It is very interesting how the situation tends to reverse when we speak about the staples prices: growing prices leads to a higher volatility. This phenomenon can be explained by the storage model, the prices boost shows a tendency in reducing the supplies, which therefore rises the volatility.

The usage of future prices instead of the prices on the spot, creates further difficulties in shaping the volatility. The first mark which emerges is the seasonal characteristic, where, for instance, the volatility is higher in certain periods of the year, usually in the pre-harvesting season. The volatility is about to grow as the deadline of *the futures contract* is getting closer (15).

There are important characteristics which make the difference between agrarian and financial markets. An astounding difference is that in the agrarian markets, the unexpected rises of prices incline to increase the volatility.

Conclusions

It is important to have the instruments and the information helpful in recognizing the authenticity of sustainable products and to be known which guarantees should be available to the consumer, in order not to be deceived by the advertised messages, which have no probation.

The volatility may be defined in many ways for a complete description. In the traditional way,the volatility refers to unexpected price movements. Is there indeed a part from the price movement which can be expected, be it the periodicity or the tendencies. The volatility concept would rather refer at the unexpected price movements. Often, the volatility measures imply two stages: one stage of penetration, lead by a rating stage.

The processed analysis and the investigated literature sugest that a basic understanding of staple prices - particulary between theory and experimentalism - is missing, as it should be taken into consideration in politics making process. First, it can be seen that many of the empirical results are not in the same line with the storage model prediction. Moreover, that was a challenge in finding common properties for the time range, even between good

assemblies, which are sharing many of their production qualities. The second issue is about the price persistance.
It actually can be seen that many prices seem to be unsteady, or at least very persistent, which is a contradiction with the main type of the storage model. This carries out from the politics making process a difficult duty, as the forecast of persistent prices leads to large ranges of the predictive error, which have little usage in practice.

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