FOOD PRICE VOLATILITY - AGRICULTURAL OUTLOOK

VOLATILITATEA PREŢURILOR BUNURILOR ALIMENTARE - PERSPECTIVE AGRICOLE

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Abstract: *International concern has been increasing about the levels and volatility of food commodity prices. High and volatile prices attract the most attention but low prices and volatility are also problematic. Volatile prices create uncertainty and risk for producers, traders, consumers and governments and can have extensive negative impacts on the agriculture sector, food security and the wider economy in both developed and developing countries.*

Key words: *volatility, food commodity*

INTRODUCTION

Volatility indicates how much and how quickly a value changes over time, for example the price of a commodity. While this concept may seem obvious, a precise definition of volatility is elusive and measurement prone to subjectivity. In economic theory, volatility connotes two principal concepts: variability and uncertainty; the former describing overall movement and the latter referring to movement that is unpredictable.

Price fluctuations are both a normal attribute and a necessary requisite for competitive market functioning. The essence of the price system is that when a commodity becomes scarce its price rises which induces a fall in consumption and more investment in the production of that commodity. However, the efficiency of the price system begins to break down when price movements are increasingly uncertain and subject to extreme swings over an extended period of time.

Historically, bouts of such extreme volatility in agricultural commodity markets have been rare. To draw the analogy with natural disasters, they typically have a low probability of occurrence but bring with them extremely high risks and potential costs to society.

MATERIAL AND METHOD

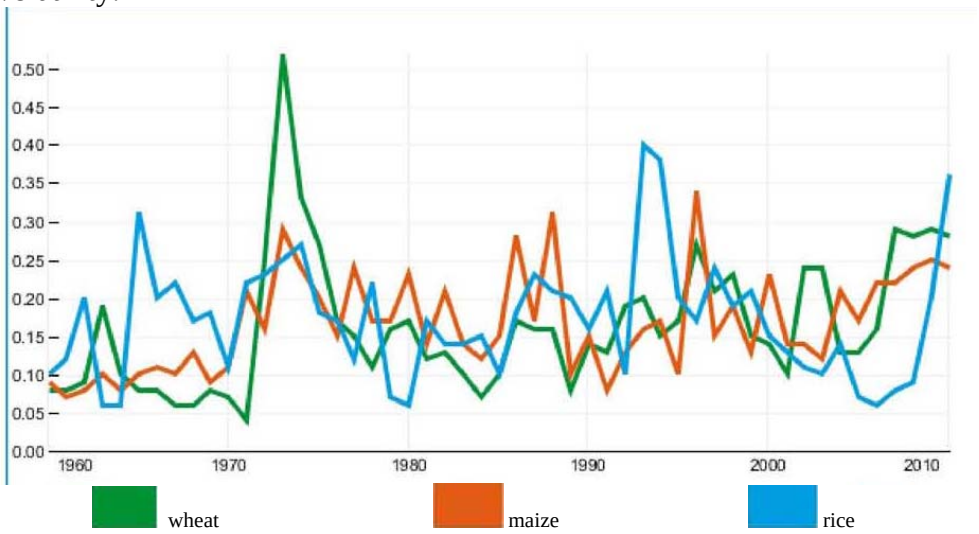
The analysis of the trend was performed in serveral steps:literature review, factors identification and selection and their analysis.

RESULTS AND DISCUSION

Many factors determine price volatility. Its perspectives regard the main factors susceptible to influence price volatility which creates uncertainty and risk for the manufacturers, traders, consumers and governments. Price volatility can lead as well to negative consequences on the agricultural sector, food and economy safety, both in well developed countries and in countries in progress.

- **Weather and climate change** - The most frequent and significant factor causing volatility is unpredictable weather conditions. Climate change is altering weather patterns, but its impact on extreme weather events is not clear.
- **Stock levels** - Stocks have long played a role in mitigating discrepancies in short term demand and supply of commodities. When accessible stocks are low relative to use, as they currently are for coarse grains, price volatility may be high.
- **Energy prices** - Increasing links to energy markets through both inputs such as fertilizer and transportation, and through biofuel feedstock demand, are transmitting price volatility from energy to agricultural markets.
- **Exchange rates** - By affecting domestic commodity prices, currency movements have the potential to impact food security and competitiveness around the world.
- **Increasing demand** – If supply does not keep pace with demand, there will be upward pressure on commodity prices. With per capita incomes rising globally and in many poor countries expected to increase by as much as 50%, food demand will become more inelastic such that larger price swings would be necessary to affect demand.
- **Resource pressures** - Higher input costs, slower technology application, expansion into more marginal lands, and limits to double-cropping and water for irrigation, are limiting production growth rates.
- **Trade restrictions** – Both export and import restrictions amplify price volatility in international markets.
- **Speculation** - Most researchers agree that high levels of speculative activity in futures markets may amplify price movements in the short term

although there is no conclusive evidence of longer term systemic effects on volatility.



Source: OECD and FAO

Figure 1. Annualised real historical price volatility

Sources: maize (US No. 2, yellow, US Gulf); rice (white rice, Thaï 100 % B second grade 2, FOB Bangkok); soybeans (US No. 1, yellow, US Gulf); Wheat (US No.2, soft red winter wheat, US Gulf).

Note: Historical price volatility is calculated following the method used by the Chicago Board of Trade (CBOT) from the following formula:

$$\sigma = \sqrt{\sum_{i-1}^{n} [r_t - \mu]^2 / n - 1}$$

Where

r_t are the logarithmic returns on prices P_t: $r_t = \ln(P_t) - \ln(P_{t-1})$

μ is the average return, and *n* is the number of sample observations

In annualized terms, multiplied by the inverse of the square root of time, $1/\sqrt{T}$, T represents the frequency of the observation (e.g. daily, monthly).

There is emerging consensus that the global food system is becoming more vulnerable and susceptible to episodes of extreme price volatility. As markets are increasingly integrated in the world economy shocks in the

international arena can now transpire and propagate to domestic markets much quicker than before.

CONCLUSIONS

The main policy challenge for governments is to promote productivity growth, particularly for small producers, that improves market resilience to external shocks, reduces waste and increases supplies to local markets at affordable prices.

Public sector investments are required in agricultural research and development, institutions and infrastructure to increase sector productivity and resilience towards weather/climate change and resource scarcity. Investments are required to reduce post harvest losses.

Recognising that volatility will remain a feature of agricultural markets, coherent policies are required to both reduce volatility where possible and to limit its negative impacts.

Mitigating volatility – Enhanced market transparency can reduce price volatility. Greater efforts are required to improve global and national information and surveillance systems on market prospects, including better data on production, stocks and trade in sensitive food security commodities. Removal or reduction of policy distortions such as restrictions on imports and exports or biofuel subsidies and mandates can also reduce price volatility.

Managing volatility – Social safety nets can assist the most vulnerable consumers when food prices rise while producer safety-nets can offset low incomes, thereby maintaining their ability to purchase inputs and maintain production. Emergency food reserves for targeted assistance to poor people are useful to lessen the impact of high prices.

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