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***Abstract:*** *Food security is affected by various interconnected global challenges. There is the interdependency of many challenges such as political economy, environment, technology, and health. In this respect, the following sections will focus on the current situations of food systems and agricultural production by examining Economic and Market challenges to food security.*

***Key words:*** *agricultural production, food prices, economic crises*

Agricultural production symbolizes activities that involve direct usage of nature to meet one of the basic needs of humanity. It symbolizes a living structure as agricultural activities have occurred over and over again. People reproduce their wide range of agricultural products in accordance with the most accurate growing conditions and regions continuously. However, agricultural production is not only crops and lands but a bunch of systems indeed. Furthermore, as the population continues to increase day by day, producing enough food for all people and proportionally accessing the food by everyone emerges as a difficulty. It is aimed to boost the existing food production capacity and protect the current ecosystem balance without deteriorating with the steps to be taken and preventive policies to meet the food needs of the future population. By 2050, the agricultural sector will face the challenge of producing 60% more than the current supply of food to maintain the global population, which is estimated to become 9.3 billion<sup>1</sup>.

Production in the agricultural sector is the cultivation of a crop within a certain time and condition and then harvesting. There are following stages such as distribution and packing but can differ according to the food product. These

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<sup>1</sup> FAO. "Building a common vision for sustainable food and agriculture: Principles and Approaches". (2014)

stages create a food system from seed to putting food on the plate. Moreover, all sovereign countries have the responsibility to supply food to their population, so they need to be prepared for crises and increasing food prices on the economic side of food security and agriculture. The several types of levels and actions by countries to increase agricultural production and ensure food security can vary. As consumption of food continues to rise, elimination of trade barriers, expansion of croplands, and early prevention of economic crisis on agricultural and food products have become key instruments to meet increasing demands. Additionally, some countries are eager to displace arable land or cropland for housing or destroy natural areas such as forests to have croplands<sup>2</sup>.

Importantly, food prices and economic crises are crucial elements for food security and agriculture because accessing food also has a close connection with prices. Thus, this connection can be linked to volatility in food prices and instability in market dynamics which can further deeply problems of poverty and hunger. The volatility and instability raise global concerns over the food market. Especially in the developing countries and poorer areas in the parts of the world, lots of households are the owner of agricultural lands, so they produce to sell agricultural goods for income. Hence, the volatility and instability can make worsen the situation and endanger developments. These developments are closely related to the economy of a country with better infrastructure and better technologies for agricultural production. Moreover, using harvesting machines in cropland cannot fully function in a lack of infrastructure or people to use them. The lack of better conditions in agriculture can lead countries to be left behind them in the global market. Thus, less integration in the global market and low productivity conduce to a frequency of increase in domestic food prices. In addition, when domestic food prices start to increase, the purchasing power of households gets affected as well. According to Jayasuriya et al., people who suffer from poverty spend more than half of their incomes on food<sup>3</sup>. They are the net

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<sup>2</sup> FAO, IFAD, IMF, OECD, UNCTAD, "Price Volatility in Food and Agricultural Markets : Policy Responses," 2011. World Bank, Washington, DC.

<sup>3</sup> Sisira Jayasuriya, et. al, "Food price spikes, increasing volatility and global economic shocks: coping with challenges to food security in Asia". (Bangkok: FAO, 2012).

buyers, so volatility in food prices - directly affects them and leads to the worsening of the household level of food security. It is stressed that the primary need is to have access to food in the poorer areas. However, other needs such as education and health can be posed a danger. In this respect, states need to take responsibility for eliminating this danger.

Furthermore, the agricultural sector and food security are quickly affected by an economic crisis, resulting from both internal and external problems. Both have connected with other sectors in economic terms. However, there are major elements that separate the agriculture sector from others in economic terms. According to John Weeks, this sector lies in the wide range of economic activities such as purchasing and marketing. Hence, this creates close relations among the other sectors that have interactions. If producers decide to sell their maize after harvesting, they need to follow the food systems' chain: production to consumption. In every stage, there are several types of interactions that have been made to sell the maize through economic activities. For instance, the producer needs a source of fuel to transport the maize to another market. The economy lies fundamentally in the food system chain, and economic activities can affect the whole chain<sup>461</sup>. Considering the relationship between supply and demand, seasonal and year-to-year movements play a role in determining prices. Attention is drawn primarily to the prices of basic crops such as wheat, maize, and rice because price increases in basic foods may affect price increases in other foods and, subsequently, the purchasing power of households in a country. For this reason, volatility in food prices, which are also politically important, is not the desired situation for governments and the global food market. This volatility can be explained by how much a particular food price rises or falls from what is expected over a period and how often it happens. In 2007 - 2008, global food prices rose considerably, and volatility created concerns. These concerns continued in the following years, as basic food prices, which had fallen in 2009, rose again in 2011 and fell again in 2016. Furthermore, Clapp underlined the volatility of food prices and how the global economy was affected while creating vulnerability for food availability. The scholar mentioned that the macroeconomic

factors had a significant role in the 2007-2008 crisis. The slowdown in the global economy caused a rise in food prices, and it ended in more trade limitations and a global recession. In addition, foreign producers may raise prices to compensate for the declining dollar because agricultural commodities are priced in dollars. During this crisis, The US Federal Reserve continued to reduce interest rates as a precaution because it was intended to prevent food increases by keeping the dollar weakened against other currencies. In addition, as the value of the dollar decreased, it led to an increase in investments in agricultural commodities. As early as 2008, almost US\$70 billion had been invested in agricultural commodities – a total of four hundred billion from 2005<sup>4</sup>. In addition, oil can be mentioned as an important input involved in the transportation and harvesting of crops. In terms of economic costs in the food system, oil prices play a vital role in crises. Increases in oil prices directly affect many areas of the food system, which in turn affects food price crises. It triggers economic policies both in domestic and foreign markets. This can cause inflation and economic stagnation in the country, especially for oil-exporting countries, as increases in oil prices will indirectly affect food prices. It also inflicts a major blow on the purchasing power of households. Naturally, this continues to broaden the negativity of food security in many ways. It would be proper to give Turkey as an example for this case. Turkey, which is an oil exporting country, is affected by the increases in terms of both agricultural production and transportation costs. The country has already been suffering from the climate crisis, the volatility in the currency, the refugee crisis, and, thus, any increase in oil prices will affect Turkey. It needs to be mentioned that fossil fuels, especially oil and gas, increase dependency on exporters. Any increases can affect not only the economy but also the socio-political balance in a country from a net exporter of fossil fuels. In that regard, the governments regulate their political economy in the food market and food prices to get rid of any volatility. The governments keep figuring out the equilibrium between politics and the economy.

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<sup>4</sup> FAO, IFAD, IMF, OECD, UNCTAD, "Price Volatility in Food and Agricultural Markets : Policy Responses," 2011. World Bank, Washington, DC.

They need to maintain food policies during economic crises to reduce societies' concerns. Hence, it is important to reach the straightest line for volatility in countries. Additionally, the supply and demand of food are subject to volatility. The effects of economic shocks can turn into volatility, but the extent of degree is ruled by reactions of the production and consumption side. The equilibrium of supply and demand shows the volatility in a better way<sup>5</sup>. The need is to balance supply and demand. People still need to reach the same amount of food as usual. For this reason, the decrease in the production of food products triggers volatility in the prices of products in the food market, and eventually, it jeopardizes food availability and access via economic crises. FAO highlights that trade has a huge part in balancing the supply and demand of food in terms of production and consumption patterns. Trade is especially involved as a fundamental part of food supply and demand. It, therefore, has many implications for food availability. These effects vary from the access of agricultural products to other markets to shaping the economies of countries. It has a key place in terms of providing the basic income of the countries and the producers. Likewise, attention should be drawn to the issue of access to food for populations suffering from hunger and malnutrition. Yet, trade does not fully ensure access to food in every corner of the world. However, it needs to be noted that the impacts of trade on countries also can be diverse. In the case of China, it has become an importer of many food products and has grown its economy even though the 2007 food crisis created negative effects globally. On the contrary, North Africa started to import many products as they could not meet the increasing demand in food production, and the volatility in food prices caused major economic problems in the region. It can enhance the quantity and several types of food with import and, thus, it can lead other countries to compete in global markets based on types of food. The developing countries can become involved in the global market and attract investors' attention to the region for more production. As a result of market access by exports, the incomes of people who depend on agricultural production for their

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<sup>5</sup> Adam Prakash and Christopher L. Gilbert, "Rising vulnerability in the global food system: beyond market fundamentals". In Safeguarding food security in volatile global markets (2011): 42–63.

livelihood are likely to increase. It also helps boost employment and increases the incomes of the household. For instance, Madagascar's rice production levels started to reach about 70 percent right after its exports to Europe. Nevertheless, if food prices remain volatile in the global market, producers can go for more export which can damage food availability in the domestic market. The domestic producers can also diminish agricultural production as they cannot compete with imports. In some regions, producers can leave their agricultural livelihood and try to find a new job for better income. Accordingly, producers who cannot provide an income due to the abandonment of agricultural activities can migrate to the cities and cause irregular population growth in cities. Furthermore, the integrated global market is easily affected by any trade limitations or barriers. For example, while India was trying to restrain the price volatility in the domestic market, the export restrictions it applied revealed the volatility in the global market. Considering that India's rice export share is in the first place, the instability caused by trade barriers in exporting countries, especially low-income countries, is inevitable. In these countries, the agricultural sector is characterized by more small producers with less access to finance, limited technological capacity, and a low level of investments. By comparison, in developed countries where investment in agricultural R&D is more than 50 percent on a private-sector basis, the same investments are seen at only 8.1 percent in developing countries. They have fragile economies that are even more vulnerable to volatility. According to Lanfranchi et al., the developed countries have been affected in a lesser way by economic problems. Even if most populations in developed countries spend half their budget on food, economic action is taken quickly to adjust for the unexpected times, and their sphere of influence is quite flexible. These countries also have mechanisms that can enable them to manage economic problems more functionally.