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## FACTORS AFFECTING THE FOOD SECURITY IN AGRICULTURE OF DEVELOPING COUNTRIES

**Abstract:** The world's population is growing, and with it, so is the demand for food. According to the Food and Agriculture Organization of the United Nations (FAO), grain production will reach 2.1 billion tons by 2030, while global grain consumption will climb to 2.7 billion tons. However, despite a decrease in population growth, food production must increase by at least 50% by 2050 in order to keep up with the rising population. There are many internal and external factors impacting food security in agriculture of developing countries. This paper studies the factors affecting food security of developing countries.

**Key words:** food security, agriculture, FAO, food production, developing countries.

**Language:** English

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### Introduction

It is possible for governments to increase their agricultural output through increasing investment and aid for domestic farmers; promoting climate-friendly technologies; rehabilitation of damaged farms; expanding postharvest storage and delivery networks. In spite of the fact that agricultural output has become more unpredictable, issues including soil degradation, groundwater depletion, and climate change are all to blame.

Concerned about feeding the world's population in a way that is both environmentally and socially responsible, governments are looking for ways to do this. When foreign and domestic factors are combined, a country's food security may be threatened at any time. To live a healthy and active life, everyone must always have access to enough food that is both safe and nutritious. Reconstruction efforts produced a global food regime, and commercial measures such as trade liberalization and economic market opening were sought after. Emerging countries are becoming net consumers of food, rather than producers. In recent years, food security has become a key concern for a number of countries. Because of this, they are re-evaluating their intentions to achieve food self-

sufficiency rather than food security, and they are looking at ways to defend their domestic food markets from rising imports.

A country is said to be self-sufficient in food if it is able to meet its own dietary needs only through the use of local resources

The FAO's approach to food security goes beyond domestic production and trade, in contrast to food self-sufficiency. Access to food is intertwined with the other three pillars that make up this system's stability. Governments that want to lessen their reliance on food imports have enacted policies that restrict the availability and accessibility of food. Millions of people have been forced into poverty as a result of rising food prices, which has exacerbated income inequality and placed food security at danger. If living conditions get worse and food becomes scarce and riots ensue, price volatility is a major problem for the world's poorest. In poor countries, 2 billion people spend up to 70% of their disposable income on food. Both importers and exporters are anxious about the volatility of the worldwide market for their products, despite the importance of international trade in maintaining food prices and supplies. Even wealthy nations are concerned about

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the volatility of the food market and want to assure long-term food security.

### Literature review

These conditions necessitate a deeper knowledge of the volatility of the global food market and its impact on food supply and food security. Food insecurity is impacted by a variety of factors, including population growth, water scarcity, and climate change (Premanandh, J). Food insecurity was exacerbated by natural disasters and extreme weather events in 2016, particularly in nations with limited capacity to respond, according to Nkunzimana. Global demand and uneven supply contribute to food insecurity, but domestic agricultural output determines a country's ability to meet its own food demands rather than physical factors (Tiwari, P.C.; Joshi, B.). Based on their research of the state of food security in Nigeria, Abu and Soom have concluded that larger rural families are more productive and, as a result, more protected against food shortages. According to a research by Saravia-Matus et al., low agricultural output is just one of many reasons limiting food supply in low-income countries. According to Anderson, this might be characterized as either a scarcity of food on the domestic market or an inability to secure appropriate food at home.

There are occasions when a country's volume of domestic production has no influence at all. Food insecurity can exist in addition to a lack of availability to food or a lack of purchasing power. When it comes to food security, according to Smith et al, the dynamics of income and purchasing power are crucial (Smith, L.C.; El Obeid, A.E.; Jensen, H.H.) According to Eicher and Staatz's study on food security in Sub-Saharan Africa, many of the hungry in the region are malnourished not because of a scarcity of food, but rather because they lack the money to acquire it. "Food security" is the ability of a country to ensure that its food system provides timely, stable, and nutritionally acceptable supply of food for all its population over the long term, as per Eicher and Staatz. Considering aspects such as domestic production and imports, as well as economic variables like purchasing power, food price inflation, and distribution networks when analyzing food supply in developing markets is a must. Smith asserts that both

supply and demand factors (such as weather, production, and governmental incentives) have an impact on food security (population growth, income growth and distribution, and export revenue) ( Smith, L.C.; El Obeid, A.E.; Jensen, H.H.) It was observed that macroeconomic (volume and dynamics of GDP, agricultural production, level of employment, real wages for individuals) as well as subjective (market components) criteria describe food markets in developing nations (Ulezko, A.; Pashina, L.). It is determined by elements such as the volume of agricultural commodity production and sales, whereas Kostrova analyses demand and supply, price, market infrastructure and market rules to determine the food market potential in emerging nations.

At the macro-level, the macroeconomics of a developing country's consumption, production, stock, and trade policies all play a part in food security assessment. International trade and market stability, according to Saravia-Matus et al., are crucial to food security on the macroeconomic level. According to Nkunzimana, rising food prices have harmed food security by making it harder for people to buy food. According to Reeves et al., the combination of rising food prices and stagnating income is one of the key drivers of food insecurity. When food prices fluctuate, volatile market dynamics affect the domestic food market. Food security is very vulnerable as a result of this influence and the lack of coordination in the policy actions taken by many nations to ensure adequate food supplies in their local markets (Restuccia, D and et.al).

### Analysis and results

Food security and food self-sufficiency have recently been studied in relation to numerous aspects in developing countries, and many efforts have been made to capture this link (Table 1). Regression analysis can be used to study food security, which is a common tool for this purpose. There have been a number of studies studying the elements that influence food security on a global level, but the majority of them have focused on micro or meso levels of security. Almost never are regression analyses used to find out why farmers export their products and how this affects food security and self-sufficiency in the country they are studying. (table 1.)

**Table 1. Approaches to assessing factors influencing food security in developing economies**

Authors	Countries under Study	Methodology Employed	Variables Considered
Hentschel et al.	Ecuador	Small-area estimation method	Nutrient intake, consumption of the primary products, and socioeconomic characteristics.
Lekashvili	Georgia	Dynamic economic rows approach	Minimum living wage, average per capita income, expenditures for

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			food, domestic food prices, share of agriculture in GDP, food exports, and food imports.
<b>Yao et al.</b>	China	Evaluation indexes system	Food production resources, food availability and stability, food access, and food utilization.
<b>Zou and Guo</b>	China	Factor analysis	Arable land area per capita, degree of agricultural mechanization, agricultural labor force, and an inflation rate of grain price.
<b>Sharma et al</b>	India	Analytic hierarchy process approach and sensitivity analysis	Success factors in sustainable food supply chain management, and food safety.
<b>Babu et al</b>	Africa, the Middle East, and India	Factor analysis	Food-related indicators (staple food left in storage and expenditure by the household on food), assets, technology indicators, market access indicators, and household characteristics.
<b>Mori-Clement</b>	Uzbekistan	Autoregressive integrated moving average models	Water inflow, oil prices, market exchange rate, and international prices of imported commodities.

Immediate causes of food insecurity, underlying factors in a community (affecting poverty, food production, and ability to respond to shocks), and the impact of these shocks are what define food insecurity.

***Causes of hunger in the short term***

*Agricultural output rates that are too low*

It's been decades since agricultural productivity in Sub-Saharan Africa has kept pace with population growth, and the continent currently imports 25% of its grain needs. Large advances in food production (the "green revolution") in Asia were thwarted by inherent disparities in agricultural systems (Table 1). High-yielding rice and wheat cultivars were widely introduced in the 1960s-70s, along with increased fertilizer use and irrigation.

*Access to food is difficult to come by.*

All individuals are not guaranteed food security even if there is enough food available at the national or local level. People's food consumption is affected by a variety of factors, including poverty, a lack of access to good drinking water, health care, and education. There are more underweight children than there are in food shortage countries in some cereal-surplus countries. For example, despite the fact that India produces enough food, the country has a high rate of underweight children because of poor earnings, household food distribution inequities, and weak social ties.

***Determinants of community health and well-being***

*Local markets and infrastructure*

As a result of poor infrastructure, food costs rise and markets fail to adjust to changes in demand. Transporting goods and inputs (such as fertilizer) and

storing food are made more affordable with the development of infrastructure. In addition to providing farmers with access to new technologies, it facilitates the exchange of information between producers and the market. Only 13% of the roads in SSA are paved.

*International trade and markets*

International trade patterns are distorted by subsidies, tariffs, and trade obstacles. Farmers in developing countries depend heavily on agriculture for a large portion of their income, but the low prices in the market make it difficult for them to sell their products abroad. Subsidies for farming in affluent nations currently total more than six times the aid budgets of rich countries, despite World Trade Organization agreements to reduce trade barriers. Agricultural protection and commerce have been a contentious topic in the most recent round of trade negotiations (at Doha). Inter-African trade and regional trade obstacles were to be reduced by the African Union in 2006.

*Investment power and finance gap*

For the most part, poor farmers have no or limited recourse to short-term seasonal credit. Investing and inventing can be hampered significantly if money lenders are unable to support the financial needs of small farms.

*Natural disasters and climate change*

The food insecure are particularly vulnerable to natural catastrophes and climate change. This is especially true for individuals who live in nations where rain-fed agriculture is the norm and for those who are heavily reliant on agriculture. Climate shocks and fluctuation have a greater impact on the poor.

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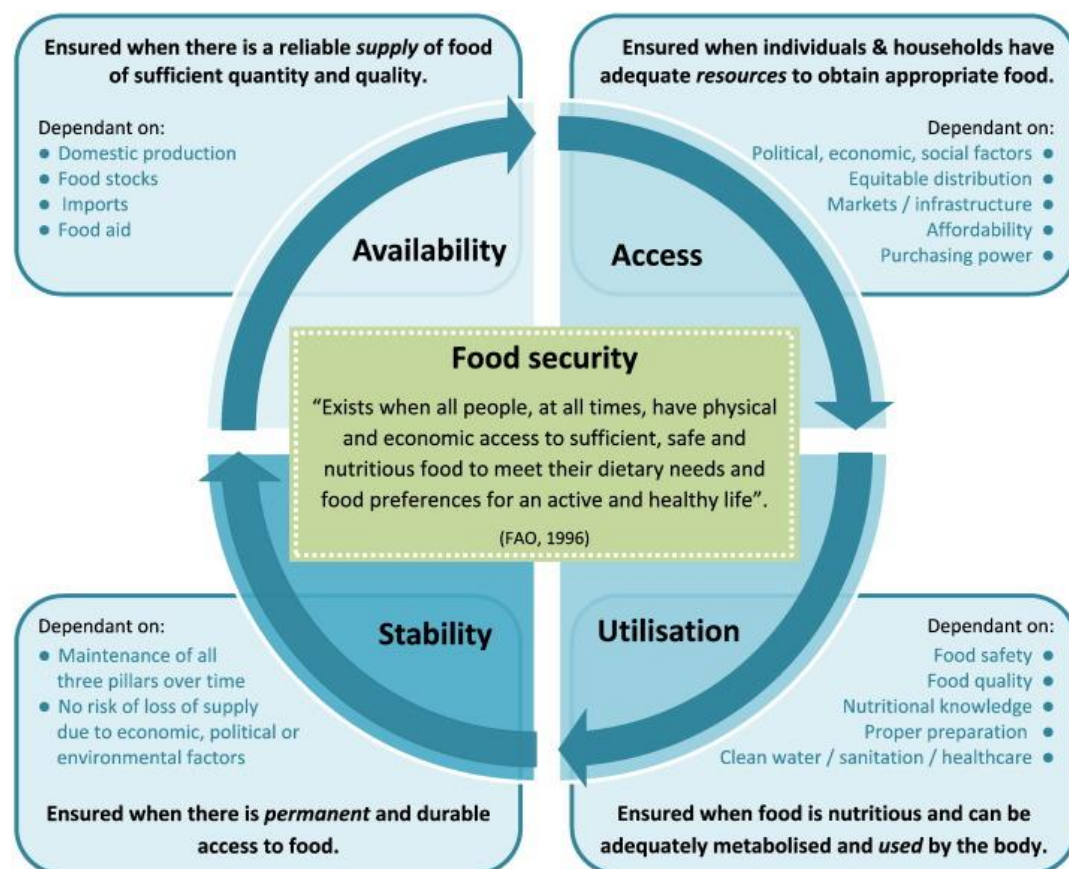
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*Securing our food supply with science and technology*

As a result of new crop varieties, better storage and marketing techniques and labor-saving technologies; as well as better communication; food security can be improved through the use of science-

based solutions. It's also important to examine who technologies are designed for and how their use affects society, according to some. Access to and understanding of contemporary technologies and privately funded research should be improved as well.



**Figure 1. Pillars of Food security**  
 Source: Authors' compilation

According to this widely accepted definition, food security includes the following aspects:

**Food availability.** The ability of an individual to obtain adequate resources (entitlements) so that they can eat a healthy diet (e.g. through money). The term "entitlements" refers to a person's total access to all of the resources available to him or her as a result of the legal, political, economic, and social systems in the community in which they reside (including traditional rights such as access to common resources).

**Food access.** A proper diet, clean water, sanitation, and health care is needed to ensure that all of a person's physiological demands are being addressed. In order to ensure food security, non-food inputs must be taken into consideration.

**Utilization.** For a population, home, or individual to be considered food secure, they need to always have access to enough food for their needs.

**Stability.** Sudden shocks (such an economic or climate disaster) or cyclical events shouldn't put them

at risk of going hungry (e.g. seasonal food insecurity). As a result, food security's availability and accessibility can also be referred to as aspects of "stability."

### Conclusion

Food insecurity can be defined by the immediate causes of food insecurity, the underlying conditions in a community (which affect poverty, food production, and the ability to adapt to shocks), and the consequences of these shocks. Even if there is an adequate supply of food on a national or local level, this does not mean that all individuals are guaranteed to have access to it. A range of issues, such as poverty, limited access to clean drinking water, inadequate medical care, and inadequate education, all have an impact on the amount of food that people consume. Minimum living wage, average per capita income, expenditures for food, domestic food prices, share of agriculture in GDP, food exports, and food imports.



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Food production resources, food availability and stability, food access, and food utilization. Arable land area per capita, degree of agricultural mechanization,

agricultural labor force, and an inflation rate of grain price are the common significant factors for food security.

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