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Global Shifts and National Resilience: Rethinking Economic and Food Security Strategies

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Abstract

Economic and food security are key factors in the sustainable development of society in the context of globalization, crises, environmental challenges, and geopolitical instability. Logistical disruptions, instability of the food market price situation, and exhaustion of resources require a comprehensive and strategic approach to addressing them. The purpose of this study is to provide an analytical overview of the state of economic and food security, to identify challenges, and to develop evidence-based solutions to strengthen them. The study focuses on strengthening management, transferring innovations in agriculture, and expanding and intensifying international cooperation to enhance security and socio-economic development. Using an integrated approach, statistical and benchmarking tools, the main threats and challenges to economic and food security in the world are identified. Based on UNCCD data, the global food security index (2022) for nations of various socioeconomic levels is presented. The link between GDP and international trade, inflation, defense spending, direct investment, and political stability is demonstrated by regression analysis and an approximation equation. Specific attention was paid to the role of public policy, international cooperation, and the introduction of innovations in agriculture. The results of the study can serve as a basis for developing strategies to ensure sustainable economic development and food security in the face of current challenges. It has been established that food security requires public policies to support domestic production, investment in the agricultural sector, and protection from economic shocks. Strengthening food resource management institutions and developing sustainable agricultural technologies are necessary to reduce import dependence and increase resilience.

Keywords

Food; Economic stability; Welfare; Global challenges; Malnutrition; Food safety; Innovation

Introduction

In today's environment, economic and food security are of particular importance, as global challenges such as economic crises, armed conflicts, pandemics, climate change, and geopolitical instability pose serious threats to the sustainable development of countries. Ensuring stability, sustainable growth, and the well-being of the population largely depends on the reliability of the economic and food systems. Their importance is due to growing threats such as climate change, economic crises, armed conflicts, pandemics, and disruptions to global supply chains. Food security is seriously impacted by the cost-of-living crisis that a large portion of the world's population is experiencing. Even before Russia invaded Ukraine, a major exporter of grain and essential goods, the COVID-19 pandemic had already seriously affected the purchasing power of the world's most vulnerable populations, increasing the risk of malnutrition. At the same time, the ongoing climate crisis continues to cause population displacement from at-risk groups, exposing them to food shortages while also hindering agricultural and livestock production (Dominguez, 2023; Madugu, Elijah and Abene, 2021).

Economic and food security are fundamental factors in preventing social unrest, political crises, and migration waves (Timmer, 2022). Historically, food shortages and economic shocks have been catalysts for social conflicts and revolutions. Ensuring food security helps reduce poverty, inequality, and contributes to maintaining international peace (FAO, 2016). Economic security contributes to the development of national economies, attracting investment, creating jobs, and improving the living standards of the population. A reliable food security system supports the agricultural sector, stimulates technological innovation in agriculture, and promotes the development of international trade (IISD, 2024).

According to the UN, more than 800 million people in the world suffer from chronic malnutrition (FAO, 2022). Global food security is a key factor in achieving the Sustainable Development Goals, including ending hunger and reducing poverty (UN, 2015). Investing in sustainable food systems and supporting farmers helps reduce the dependence of vulnerable countries on humanitarian aid (CFS, 2014). Global economic security determines the stability of international financial markets and the effectiveness of trade relations between countries (Novak *et al.*, 2022; Ushenko *et al.*, 2023). Energy, currency, and food crises can destabilize the economies of even the most developed countries, affecting the global economy through chain effects.

Economic and food security are closely linked to sustainable environmental management. Overuse of natural resources, soil degradation, deforestation, and water scarcity pose threats to future generations. Investing in environmentally friendly technologies, preserving biodiversity, and adapting agriculture to climate change will contribute to the long-term sustainability of the global food system (Erkamo *et al,* 2021). Ensuring economic and food security largely depends on effective management of natural resource ownership. In the context of decentralization, the key instruments of institutional development should include corporatization, improvement of rent relations and fiscal mechanisms, as well as market valuation and capitalization of all natural resources at the local, regional, and national levels (Artyushok *et al.*, 2023).

Global challenges such as pandemics, wars, natural disasters, and economic crises require coordinated international action (Madugu, Elijah and Abene, 2021). International organizations such as the UN, the International Monetary Fund (IMF), the World Bank (WB), the World Food Programme (WFP), and the World Trade Organisation (WTO) play an important role in ensuring global economic and food security. Joint efforts allow for rapid response to crises and the development of effective strategies to overcome threats.

The relevance of this study is due to the need to adapt state policy to new global challenges, to find effective mechanisms for ensuring economic and food security, and to develop sustainable development strategies. Thorough investigation of these aspects will contribute to the development of recommendations for increasing the economic stability of states and their ability to withstand crises in the future. The article aims to analyze current challenges and threats to economic and food security in the context of global transformations, as well as to develop scientifically based approaches and practical recommendations for their strengthening.

Literature Review

Conceptualizing Food Security

The issue of economic and food security is relevant in modern conditions, given the global challenges and threats. Scientific research is aimed at identifying factors affecting food security and developing strategies to ensure it at both the national and global levels (Nasirkhodjaeva *et al.*, 2022; Drebot, Palapa and Dikhtyar, 2024). If the global community does not redouble its efforts and direct them in the right direction, achieving the goal of eradicating hunger, food insecurity, and all forms of malnutrition by 2030 will remain unattainable (Devereux, 2023). Despite the gradual recovery of the world after the global pandemic, this process is taking place unevenly both between and within countries.

Within the landscape of global concerns such as economic crises, climate change, and armed conflicts, much emphasis is placed on defining the nature and structure of food security. Food security is considered a socio-economic and environmental state in which the population is provided with safe and quality food products necessary for a balanced diet (Peng and Berry, 2019; FAO, 2023). Negative changes in external and internal factors reduce food security and pose a threat to the livelihoods of the population. In recent years, some progress has been made in overcoming global hunger, but the world is still far from creating a sustainable food security system (Baum *et al*., 2024). Extreme weather conditions increase production risks, putting an additional burden on farmers. Climate change poses a serious threat to the food security of both rural and urban communities (Fróna, 2020; Shynkovych *et al*., 2025).

Global Crises and Food Systems

In order to completely overcome hunger, ensure food security, and eliminate all forms of malnutrition by 2030, global efforts must be significantly intensified and directed in the right direction (Semchuk *et al.,* 2025; Zhu *et al.*, 2025; Wei and Zhou, 2025). Despite

the fact that the globe is slowly recovering from the pandemic's effects, this process is occurring unevenly on a global and national level. In addition, the protracted war in Ukraine continues to destabilize food and energy markets, creating additional challenges for the global economy (FAO, 2023). Considerable attention is paid to the impact of global economic crises on the level of food security in Ukraine, as well as to determining its significance and functions in the structure of economic and national security (Ivanchenkov, Glushkov and Podsokha, 2024; Pylypenko *et al.*, 2024). Current aspects of ensuring food security in Ukraine under martial law are studied; in particular, key changes in its structure and level after the start of a full-scale invasion are analyzed (Lipton, 2022). The impact of the war on the agricultural sector, export potential, and the domestic food market is assessed. The world continues to experience the consequences of the protracted armed conflict in Ukraine, which has caused serious shocks in the food and energy markets. The strategic role of Ukraine in ensuring global food security is also determined, taking into account its importance as one of the leading exporters of agricultural products (Halkin, 2024; Kostetsky, Tanska and Khaustov, 2024).

The literature review reveals a gap between economic growth (EG) and food security (FS). While 76.9% of researchers confirm this link, 19.2% do not, making it difficult to draw definitive conclusions. Most studies consider only accessibility as an indicator of FS, and research is mostly limited to the national level. More empirical evidence is needed to address these gaps, particularly when taking into account the poverty variable, as low food security is correlated with hunger and poverty (Fernandes and Samputra, 2022).

Empirical Gaps and Research Needs

In the current context of global change, there is a lack of interdisciplinary research that comprehensively assesses the impact of multifactorial crises on national economic and food security. Among the main empirical gaps are the lack of comparative data on the resilience of food systems, the absence of integrated indicators of national resilience, and the weak linkage of short-term anti-crisis measures with sustainable development goals (Stone and Rahimifard, 2018). Further research should focus on the development of adaptive management models, unified resilience indicators, and scenario analysis to ensure reliable security strategies in the face of global turbulence.

Methodology

A comprehensive approach was used to examine various aspects of economic and food security at the global and regional levels. Scientific concepts that reveal the essence of these phenomena were analyzed and systematized. A list of scientific publications on the research topic was selected using the scientometric databases Google Scholar, Scopus, Web of Science, and ScienceDirect. Based on the study of scientific sources and analytical materials, key threats and challenges affecting food and economic stability in the world were identified. The source of analytical data was information from the World Bank, UNCCD, FAO and FAOstat, OECD, Ministry of Finance of Ukraine. According to official data from UNCCD (2025) and GFSI (2022), using statistical and comparative analysis methods, an assessment of the change in the average global food security index (GFSI) in countries with different income levels as of 2022 was carried out. Benchmarking analysis and grouping of countries by low, middle, and high-income

levels allowed us to outline global disparities and challenges related to food security in the context of economic development. The time series method was used to highlight the level of malnutrition in countries with different income levels (2017-2023), which allowed us to conclude that targeted interventions are needed to address the problem of food security worldwide. A systematic approach and economic and mathematical modelling (regression analysis method) contributed to identifying the relationship between the effective factor (GDP) and factor indicators - foreign investment, foreign trade volume, inflation, political stability indices, and defense spending. The generalization method allowed us to identify the influential factors of demographic changes and the impact of social inequality on the food and economic stability of countries around the world, as well as to identify the main directions of state policy and international cooperation to ensure sustainable economic development and access to food.

Results

Economic Growth and Food Security Linkages

Food security is a key element in building a sustainable future, closely linked to economic development, social stability, and environmental sustainability. Achieving this goal requires a comprehensive, adaptive, and innovative approach involving governments, international organizations, the private sector, and NGOs. Such a strategy not only ensures adequate food supplies but also guarantees equitable distribution and sustainable production processes, contributing to a more prosperous, equitable, and sustainable world (Varadi, 2023).

Rising real incomes, in turn, allow households to spend more on quality and balanced diets, which reduces malnutrition and improves health. This process is especially important for poorer countries, where a large proportion of the population spends most of their income on food (Haider, 2021; Świetlik, 2018). In addition, economic development stimulates investment in the agricultural sector, infrastructure, and technology, which increases production efficiency and ensures the stability of food markets. In the long run, this contributes to reducing global disparities in food access and creating a more sustainable food supply system.

Food security and educational attainment are positively correlated: the more educated a nation is, the lower its risk of hunger. The development of agriculture, particularly livestock, has a significant impact on household food security. An important role is played by investment policy, strengthening international cooperation to increase direct investment and labour migration. Foreign remittances are a key factor in food security. Households that receive them spend more money on food and are 0.82 times more likely to be food secure than those that do not. The analysis shows that families that move above the poverty line significantly improve their food security. Food subsidies and nutrition programs remain effective tools to support vulnerable populations, and government support for the social and economic development of territories and citizens plays a crucial role in improving the level of nutrition, education, and health, especially in low-income regions (Rasheed, Ishaq and Akbar, 2022).

Income-Level Disparities and Food Access

The prevalence of undernutrition varies significantly between countries with different income levels (Figure 1).

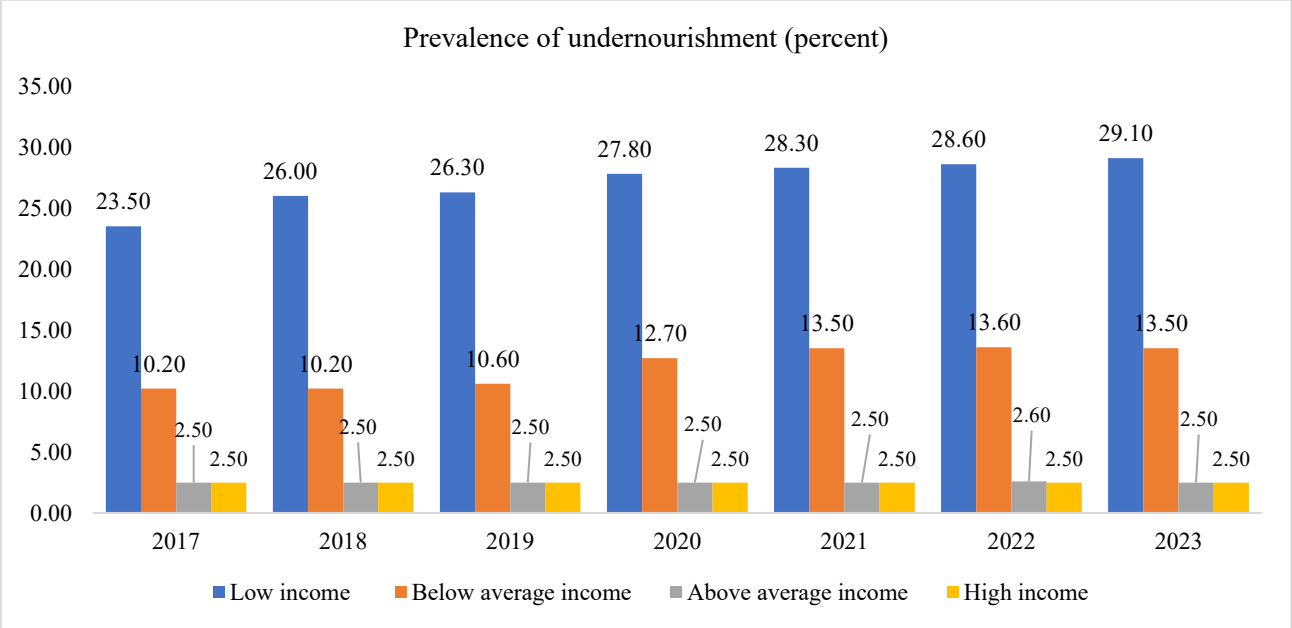

Figure 1: Malnutrition rates in countries with different income levels, 2017-2023
Source: FAOSTAT (2025)

In low-income countries, a large proportion of the population faces chronic food insecurity, and the prevalence of undernutrition is 25-29%. In middle-income countries, the situation is mixed: in upper-middle-income countries, the overall prevalence of malnutrition ranges from 10-13.5%, and in upper-middle-income countries it is almost the same as in high-income countries (2.5%). Certain population groups still face food insecurity due to economic inequalities and regional disparities. In high-income developed countries, undernutrition is less prevalent (2.5%), but there are vulnerable groups, such as the homeless, unemployed, or those with low incomes, who may have difficulty accessing quality food.

It is worth noting that during the COVID-19 pandemic, malnutrition levels in high-income countries remained stable, thanks to a combination of effective social policies, adaptive agri-food systems, and high basic food security. Anti-crisis measures played a key role: expanded social protection programmes, cash transfers, food subsidies, and support for vulnerable groups. These mechanisms helped to mitigate the economic impact of the pandemic on the population. Agri-food chains proved resilient, and the digitalisation of trade and logistics ensured uninterrupted access to food. In addition, most households had financial reserves, which reduced the risks of malnutrition. Governments also took measures to protect the most vulnerable groups, including children, the elderly, and the poor, through targeted food assistance programmes. Overall, the stability of food security in developed countries during the pandemic was

made possible by a systems approach, which provides a valuable benchmark for lower-income countries. Overall, while global undernutrition rates are gradually declining, significant disparities remain between countries with different income levels, underscoring the need for targeted interventions to address food insecurity worldwide.

Impact of Global Crises on Food Security

Rising global challenges, including economic downturns, armed conflicts, climate change, and pandemics, require a comprehensive approach to guaranteeing sustainable development and the availability of vital resources (Figure 2).

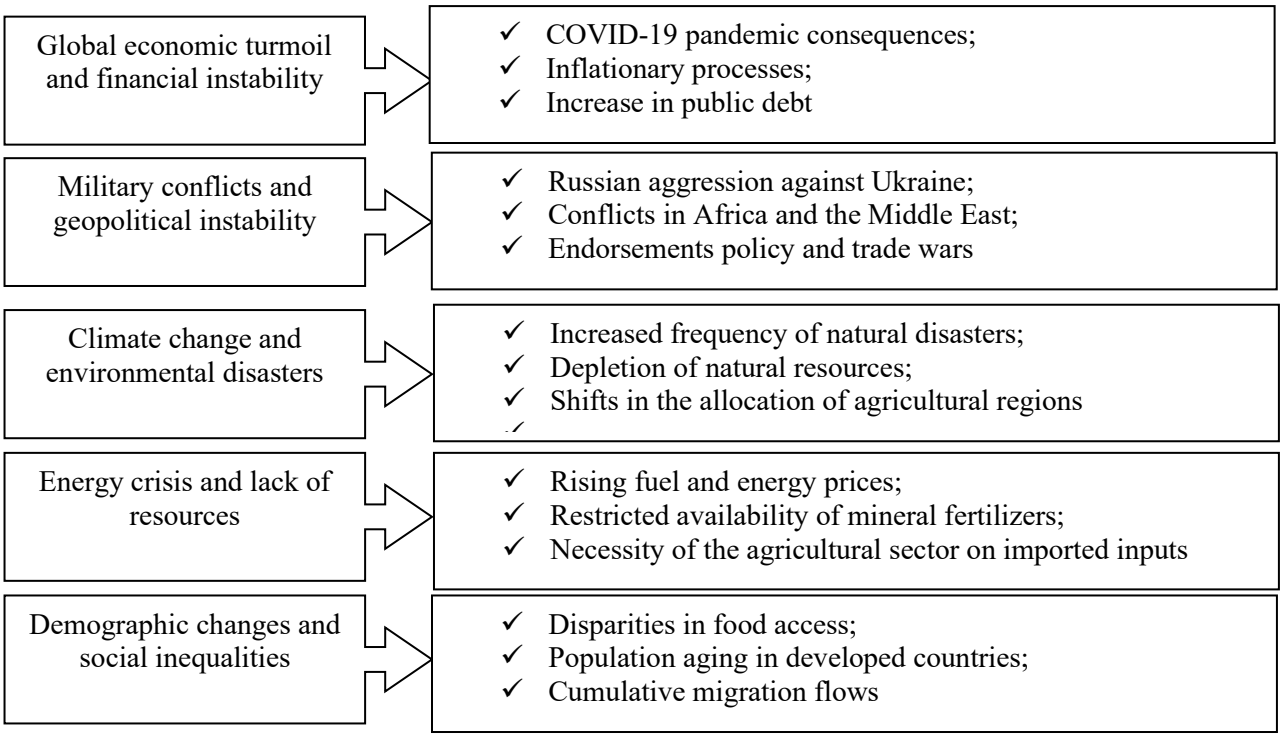

Figure 2: Main threats and challenges to ensuring economic and food security in the world [*Source:* compiled by the authors]

The pandemic has had a major negative impact on the global economy, causing a significant slowdown in economic growth, disruption of supply chains, and a crisis in the labour market. As a result, poverty levels have increased, with a particularly significant impact on the most vulnerable groups. Reduced incomes and job losses have significantly reduced people's purchasing power, limiting their access to quality food. In addition, disruptions in logistics and the closure of agricultural enterprises have led to shortages of certain types of food and increased prices, which have intensified the issue of food security in numerous countries. Economic recovery after the pandemic requires comprehensive measures aimed at supporting vulnerable groups, stimulating production, and improving food availability.

Economic and nutritional security are integral elements of stability and sustainable development of the state. Each country should become a state capable of protecting its borders and ensuring peace on its territory, and creating conditions for protecting business, citizens, investments, and private property (Oliinyk *et al.*, 2022). Their provision requires a comprehensive approach, effective policies, and ongoing enhancement of management systems in the context of modern global challenges. Each country should become a state capable of protecting its borders and ensuring peace on its territory, and creating conditions for protecting business, citizens, investments, and private property (Oliinyk *et al.*, 2022).

Despite the high level of economic development, food insecurity remains a problem even in rich countries. It manifests itself through economic and social inequality in access to quality food (Figure 3).

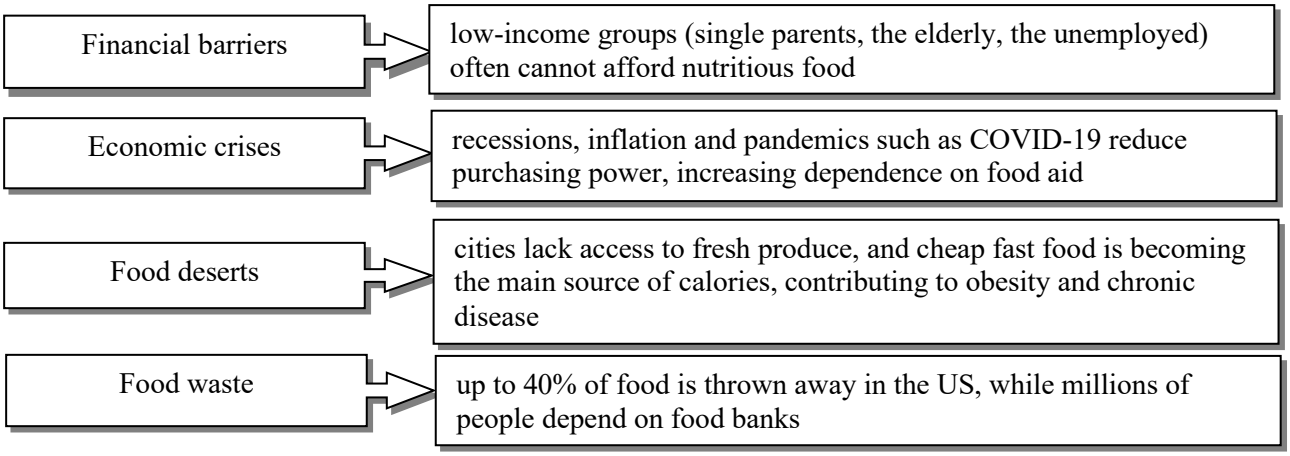

Figure 3: Main causes of food insecurity in developed countries [Ref.: Pollard and Booth (2019), Dana *et al.* (2025)]

The degree of food security is significantly influenced by a country's income level, as it determines both the government's capacity and the population's ability to maintain consistent access to adequate and nutritious food. Higher income levels typically allow governments to adopt policies that promote sustainable food production, enhance distribution networks, and ensure food affordability for all citizens. In contrast, lower-income countries encounter significant challenges in achieving food security due to constraints in resources and infrastructure.

Quantitative Analysis: GFSI and Regression Models

Empirical studies show that the GDP of countries at war decreases by an average of 9-9.6% annually (Filipowicz, Krawiec and Tokarski, 2024). Research indicates significant economic decline and reduced GDP in several countries: Afghanistan experienced a 40% decline from 2001 to 2021 (Meng, Yolchi and Ghafoori, 2024); Syria's GDP dropped by 60% from the pre-war period between 2011 and 2020 (Kešeljević and Spruk, 2023; UNDP, 2025; WB, 2023); and Ukraine faced a 29.1% decrease in 2022 due to the full-scale invasion (Grigorenko, 2024).

Military conflicts lead to a massive outflow of investment. In countries where hostilities are ongoing, the level of foreign direct investment (FDI) is reduced by 70-90%, and it takes 5-10 years to restore investor confidence. According to World Bank estimates, the recovery of economies after military conflicts requires 3-5% of GDP annually for 10-20 years (Kreimer *et al.*, 1998). Regression analysis (Schroeder *et al*, 2018) of the impact of military conflict on GDP using the example of Ukraine for the period 2012-2024 shows dependence on the following factors: foreign direct investment (x1); foreign trade volume (x2); inflation index (x3); defense spending (x4); political stability index (x5). Multiple R = 0.9306 means that there is a strong positive correlation between the independent variables (x1-x5) and the dependent variable. R-squared = 0.8661 or 86.61% (Table 1).

Table 1: Regression analysis statistics

Regression statistics	
Multiple R	0.93063
R-squared	0.86607
Normalized R-squared	0.77041
Standard error	16893.1
Observations	13

The model demonstrates high explanatory power, indicating a good fit of the model. The normalized (adjusted) R^2 = 0.7704 (77.04%) is lower than R^2, meaning that some variables may have a small effect on the dependent variable. The F-statistic (9.05) shows that there is at least one statistically significant independent variable, and F = 0.0058 < 0.05 confirms that the model as a whole is statistically significant. The regression equation is as follows:

$$Y=50051.452-3.940x1+1.176x2-373.557x3+0.838x4-799.869x5$$

The results of the regression analysis confirm that economic growth, expressed in terms of gross domestic product (GDP), is largely determined by the level of foreign trade, political stability, and the volume of attracted investments. The active development of international trade contributes to an increase in foreign exchange earnings, the expansion of sales markets, and the integration of the economy into global production chains. Political stability is crucial for fostering a favourable investment climate, creating a predictable business environment, and ensuring the trust of international partners. However, high inflation negatively affects all key economic indicators, in particular, it reduces the purchasing power of the population, increases business costs, and makes it difficult to predict economic development. Unstable prices can deter investors, as well as weaken the competitiveness of national production. Therefore, ensuring macroeconomic stability and controlling the level of inflation are critical to supporting long-term economic growth.

Country Case Comparisons

The Global Food Security Index (GFSI) evaluates the availability, accessibility, quality, and safety of food products across various countries worldwide (Figure 4).

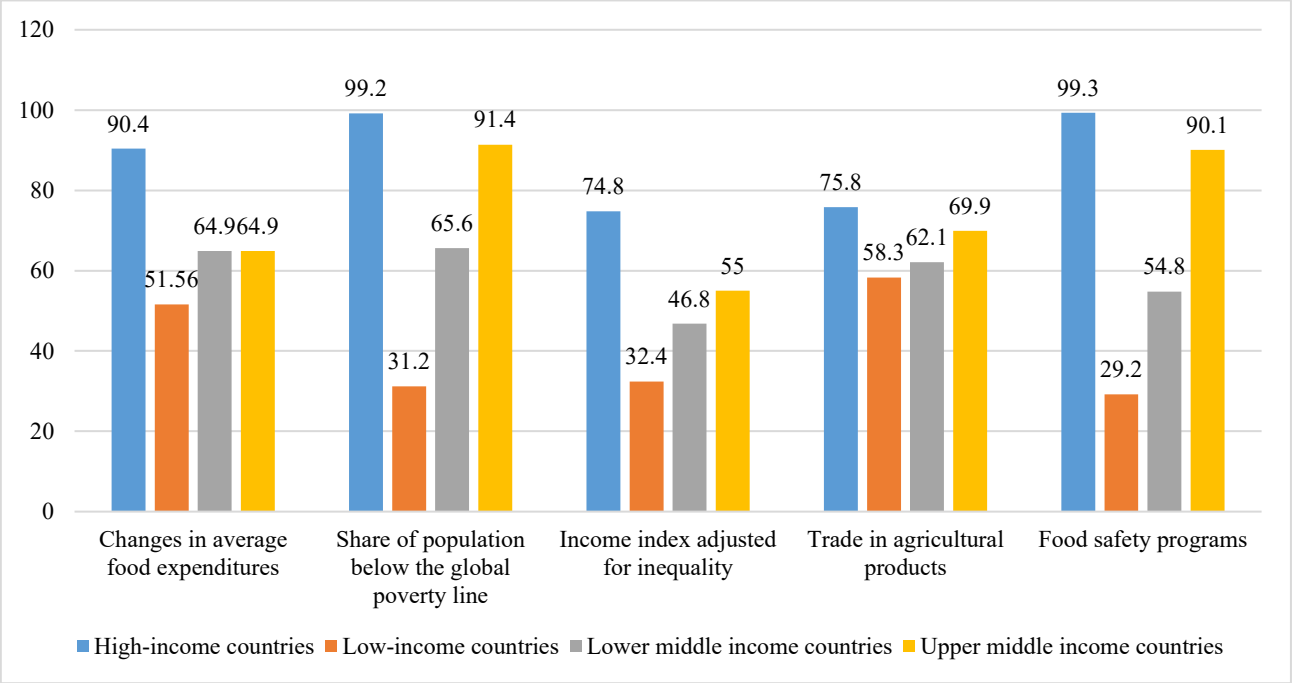

Figure 4: Average GFSI countries with different income levels, 2022 [*Source*: UNCCD (2025), GFSI (2022)]

The Global Food Security Index (GFSI) plays a key role in analyzing various aspects of food security in different countries. This assessment evaluates food accessibility, availability, quality, and safety, highlighting international inequalities and informing policies to enhance global food security. Through this analysis, the GFSI provides valuable recommendations to overcome the challenges of ensuring sustainable access to safe, nutritious, and sufficient food for all (Izraelov and Silber, 2019; Mishcihuk, 2023).

The level of food security in a country is largely dependent on its economic situation, as financial capacity determines both the ability of the government and the ability of the population to ensure sustainable access to sufficient food. In wealthier countries, public resources allow for investment in policies, infrastructure, and programs that promote sustainable production, efficient distribution, and access to quality food. At the same time, low-income countries face serious challenges due to financial constraints and underdeveloped food supply systems. Thus, the economic level of a country is a determining factor in shaping its food security (Costa, 2025). To enhance understanding of food security determinants across diverse economic contexts and to aid in developing targeted strategies, a comparative analysis of Global Food Security Index (GFSI) categories was conducted, classifying countries by income levels (Table 2).

Food security remains critically low in most low-income countries, particularly in Africa (Wakweya, 2025; Tegegne *et al.*, 2025). In East Africa alone, an estimated 61.6 million people are food insecure, while nearly 50 million people in West and Central Africa are projected to face similar challenges. The main factors exacerbating this crisis are ongoing conflicts and the worsening impacts of climate change (WBG, 2024, 2025).

Table 2: GFSI Benchmarking by Income Level (2023 Data)

Country category	*GDP per capita, thousand US dollars*	*GFSI Average (out of 100)*	*Main problems*
High-income countries	> 12.5	75-85	The elevated costs of food imports and the effects of climate change on domestic production.
Middle-income countries	4.0-12.5	55-70	Product affordability, supply chain stability
Low-income countries	< $4.0	30-50	Chronic hunger, food shortages, conflicts, and economic instability

Source: MFU (2025a), MFU (2025b), MFU (2025c), UNCCD (2025)

Food insecurity is a significant factor that negatively affects the subjective well-being of the population around the world. This impact is particularly evident in developed countries, where heightened expectations for quality food exacerbate perceptions of food insecurity. This phenomenon can be explained by hedonic adaptation: people who are accustomed to a high level of food security feel more discomfort and a decrease in well-being when it is lost. In addition, food insecurity creates significant social and economic disparities both between and within countries, increasing inequality and making it more difficult to overcome the consequences of the food crisis (Frongillo *et al.*, 2018).

Social and Demographic Influences

Analysis of the impact of demographic changes and social inequality on food and economic security in individual countries of the world showed a different impact depending on the economic level of the country, its policies, and regional characteristics (Figure 5).

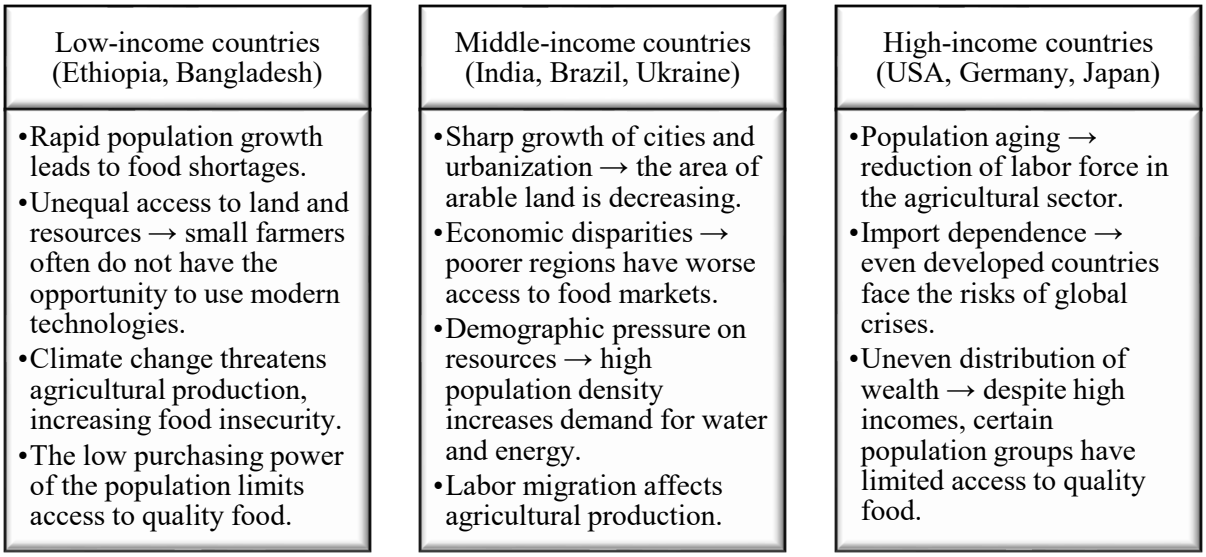

Figure 5: The impact of demographic changes and social inequality on food and economic security in selected countries of the world [*Source*: UNCCD, 2025; MFU, 2025b; Abebe, 2024; Placzek, 2021; Randall, 2024; Topon, 2024; Halkin, 2024]

Overall, successful policies for ensuring both food and economic security must consider the demographic trends and socio-economic factors unique to each country's development. These policies should be tailored to the specific challenges and opportunities that arise from the nation's population structure, income distribution, and broader economic conditions. Empirical research methods play a crucial role in evaluating market dynamics, identifying recurring patterns, and forecasting potential future shifts in these areas. By using data-driven insights, policymakers can better understand the complexities of food systems, anticipate emerging challenges, and design more effective, sustainable solutions that address both immediate needs and long-term objectives.

Discussion

The development of effective food and economic security policies requires a comprehensive approach that takes into account demographic trends, socioeconomic development, and the specifics of each country's agricultural sector. Such strategies should adapt to changes in population structure, uneven income distribution, and labour market characteristics, as well as to the unique challenges and opportunities in agriculture. In addition, it is important to take into account macroeconomic factors, technological progress, and external influences such as climate change and international trade dynamics. The combination of these elements allows for the formulation of policies that not only ensure food security in the short term but also contribute to the economic resilience and sustainable development of the agricultural sector in the future.

For low-income countries, priority actions include attracting investments in agricultural development, implementing modern irrigation technologies, establishing accessible credit systems for farmers, and enhancing technical support initiatives (Atobatele *et al.,* 2025; Eyitayo, Tochukwu and Osemeike, 2024). This approach will enhance production efficiency, reduce dependency on food imports, and ensure a more reliable and equitable food supply for the population, ultimately strengthening food security and fostering long-term economic stability.

Middle-income countries should focus on developing modern infrastructure for food transportation and storage, promote cooperation among producers, and support the modernization of agriculture through the adoption of new technologies (Kohli *et al.*, 2021). Encouraging the diversification of agricultural production is vital, as it helps to reduce the risks associated with climate change and the fluctuations in global markets. By supporting a broad range of crops and livestock, countries can strengthen their resilience to adverse environmental factors, ensure consistent food availability, and minimize the economic consequences of unpredictable shifts in both climate and market dynamics. This strategy not only improves food security but also contributes to the long-term stability of agricultural systems.

Wealthy nations should focus on creating strategies to reduce their reliance on food imports by enhancing domestic food production capabilities and improving resource management. It is crucial to align agricultural practices with evolving demographic trends while prioritizing sustainable farming methods. Emphasis should be placed on promoting organic farming, integrating innovative technologies, and optimizing the use

of land and water resources to increase agricultural efficiency and sustainability (Gamage *et al.*, 2023; Kaufmann, Kraay and Mastruzzi, 2020).

A balanced approach to food security policy development, focused on long-term sustainability and adaptability, will help strengthen economic stability, social development, and ensure access to quality food in the face of global challenges (Berry *et al.*, 2015). Public policy plays a crucial role in shaping sustainable economic development and food security, ensuring a comprehensive approach to solving current problems (Guliyev *et al.*, 2024). This involves creating and enforcing effective regulatory frameworks designed to stabilize food markets, guarantee the availability of high-quality food for the population, and foster the growth of the agro-industrial sector (Sharylo *et al.*, 2022). Priority is given to supporting vulnerable economic sectors, enhancing domestic production, upgrading infrastructure, and fostering innovation in agriculture (Yogi, Thalal and Bhandari, 2025). Furthermore, national policy aims to protect national interests by adapting to global changes, strengthening international cooperation, and establishing strategic food reserves to prevent crises (Figure 6).

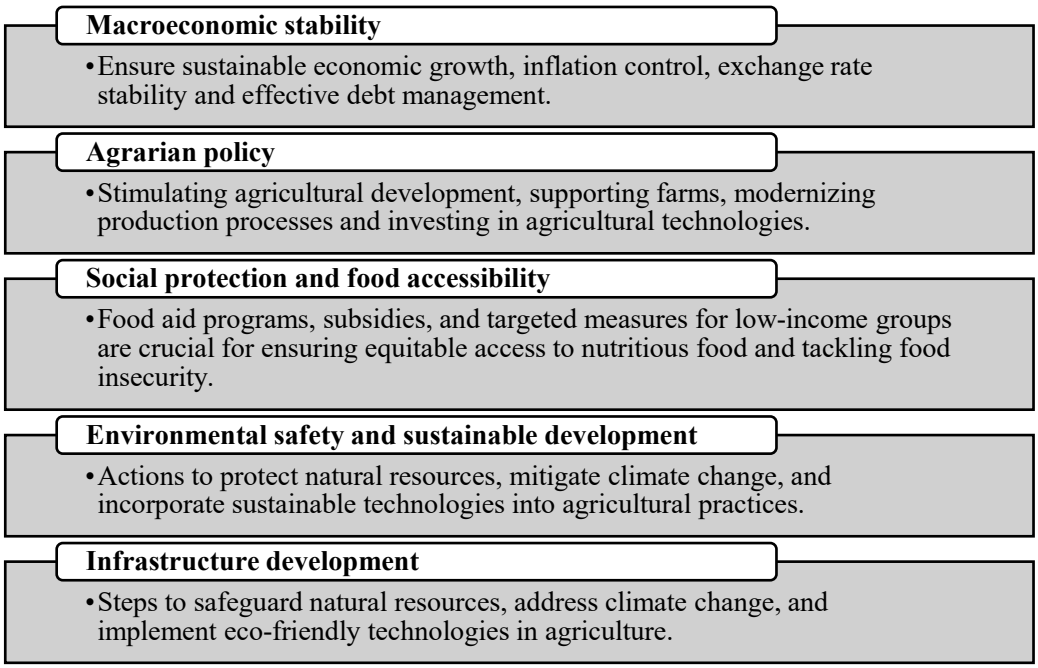

Figure 6: Strategic priorities of government policy to safeguard sustainable economic and food security

Effective public policy involves aligning national interests with global trends and developing mechanisms for adapting the economy to modern challenges (Akanle and Omobowale, 2023; OECD, 2023; Roy *et al.*, 2024). Economic and food security are directly affected by environmental risks. Their effective management requires a systematic approach: from monitoring and regulation to financial instruments and international cooperation (Stehnei *et al.*, 2018; Sumets *et al.*, 2022). To promote economic security and sustainable development, it is essential to establish ecosystems among agricultural market participants that foster an integrated environment for effective digital solutions and enhance collaboration among digital platforms. Such

ecosystems facilitate real-time data exchange, optimize supply chains, and enable risk prediction for effective decision-making based on analytics (Zghurska *et al.*, 2022).

This includes not only taking into account external factors, but also creating conditions for stable development within the country, supporting innovation, and promoting socio-economic progress. (EUR-Lex, 2021; Galanakis *at al.,* 2025). Globalisation means that economic, political, and social processes in one country can have a direct impact on other countries, making international relations and coordination essential to effectively address challenges. In particular, international cooperation in the field of food security allows countries to jointly address problems related to resource scarcity, climate change, disruptions in supply chains, and fluctuations in food prices (Figure 7).

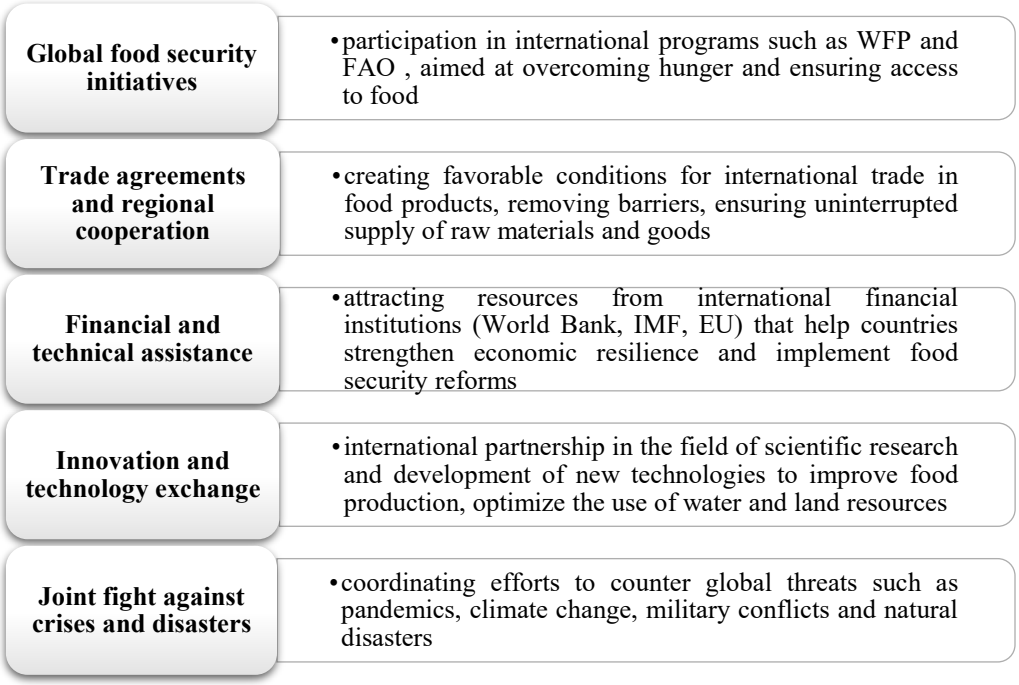

Figure 7: Key areas of international cooperation to ensure economic and food security

The sharing of technological innovations, scientific achievements, and best agricultural practices plays an important role in increasing productivity, strengthening resilience to climate change, and enhancing global food security. Economic security, in turn, is directly linked to international trade and investment, which provide access to key resources and innovative technologies necessary for sustainable development (Babic *et al.*, 2024; Novta and Pugacheva, 2020). Joint efforts, such as international economic agreements, economic support, and infrastructure improvements, contribute to strengthening economic ties between states, which ensures stability and growth at the global level (BRF, 2023). International cooperation creates the basis for ensuring the stability, development, and resilience of national economies and the global food system, which supports the achievement of sustainable development and raises the living standards of the population of different countries (Nasirkhodjaeva *et al.*, 2022).

Thus, government policy and international cooperation are interdependent components of the global system that ensures economic and food security. By integrating domestic reforms and international initiatives, it is possible to build a sustainable economy that is ready to meet modern challenges and can provide a decent standard of living for citizens.

Conclusion

Economic security is the basis for food security, as a stable economy supports agricultural development and productivity. Food security, in turn, affects economic stability through access to quality food. Global challenges, such as climate change and economic instability, increase the risks to both, in particular through supply chain disruptions and rising commodity prices. Economic growth is largely dependent on openness to international trade, political stability, and investment levels. At the same time, high inflation significantly weakens these positive factors, making economic development more difficult. Therefore, the key task remains to achieve macroeconomic stability and create a favorable environment for business and investors. The analysis has shown that ensuring food and economic security requires the implementation of a comprehensive adaptive policy based on a cross-sectoral approach and taking into account a wide range of internal and external factors. These include demographic dynamics, the specifics of the agricultural sector, socio-economic disparities, climate challenges, and global transformations in the international trade system.

For countries with different levels of economic development, an effective food security strategy should differ in priorities. In low-income countries, the main focus should be on attracting investment in agricultural infrastructure, disseminating irrigation technologies, creating accessible financial mechanisms for small farms, and strengthening technical support systems. Middle-income countries should focus on developing transport and logistics infrastructure, diversifying agricultural production, introducing innovations, and adapting to risks associated with climate change and the instability of global markets. Developed countries should implement policies to reduce import dependence, expand domestic production, introduce sustainable agricultural practices, support organic farming, and effectively management of natural resources. In addition, public policy plays a key role in creating a favorable regulatory environment, stimulating innovation, supporting vulnerable groups, and developing mechanisms for strategic food reservation. The emphasis on long-term sustainability, adaptability, and integration into global challenges is the key to building a sustainable food system that will contribute to strengthening economic security and sustainable development in the national and international dimensions.

Security requires effective policies that support domestic production, investment in agriculture, and protection from economic shocks. It is important to strengthen the institutions responsible for managing food resources. Investments in agricultural technology and sustainable agricultural development can help reduce dependence on imports and increase security. Food security also requires international cooperation and joint initiatives, particularly in research and support for rural communities. Addressing social inequalities to ensure equal access to quality food is important, as sustainable development must encompass economic, social, and environmental aspects.

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Authors' Declarations and Essential Ethical Compliances

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	*Author 1*	*Author 2*	*Author 3*	*Author 4*	*Author 5*
Conceived and designed the research or analysis	Yes	No	Yes	Yes	No
Collected the data	No	No	Yes	Yes	Yes
Contributed to data analysis and interpretation	Yes	Yes	No	No	No
Wrote the article/paper	Yes	Yes	No	No	No
Critical revision of the article/paper	No	Yes	No	Yes	No
Editing of the article/paper	No	Yes	Yes	No	Yes
Supervision	No	No	Yes	Yes	Yes
Project Administration	Yes	No	Yes	No	No
Funding Acquisition	No	No	No	No	No
Overall Contribution Proportion (%)	25	25	17	17	16

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Research involving human bodies or organs or tissues (Helsinki Declaration)
The author(s) solemnly declare(s) that this research has not involved any human subject (body or organs) for experimentation. It was not clinical research. The contexts of human population/participation were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of Helsinki Declaration does not apply in cases of this study or written work.

Research involving animals (ARRIVE Checklist)
The author(s) solemnly declare(s) that this research has not involved any animal subject (body or organs) for experimentation. The research was not based on laboratory experiment involving any kind animal. The contexts of animals were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of ARRIVE does not apply in cases of this study or written work.

Research on Indigenous Peoples and/or Traditional Knowledge
The author(s) solemnly declare(s) that this research has not involved Indigenous Peoples as participants or respondents. The contexts of Indigenous Peoples or Indigenous Knowledge were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or prior informed consent (PIC) of the respondents or Self-Declaration in this regard does not apply in cases of this study or written work.

Research involving Plants
The author(s) solemnly declare(s) that this research has not involved the plants for experiment and field studies. Some contexts of plants are also indirectly covered through literature review. Thus, during this research the author(s) obeyed the principles of the Convention on Biological Diversity and the Convention on the Trade in Endangered Species of Wild Fauna and Flora.

Research Involving Local Community Participants (Non-Indigenous) or Children
The author(s) solemnly declare(s) that this research has not directly involved any local community participants or respondents belonging to non-Indigenous peoples. Neither this study involved any child in any form directly. The contexts of different humans, people, populations, men/women/children and ethnic people were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or prior informed consent (PIC) of the respondents or Self-Declaration in this regard does not apply in cases of this study or written work.

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
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