

RESILIENCE AND FOOD SECURITY: ADDRESSING GLOBAL RISKS

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Abstract

Food security is dependent on social, economic and biological systems that are interconnected to meet people's nutritional needs. Managing risks is crucial to strengthening the resilience of food systems and ensuring long-term food security. Some of the biggest challenges are climate change, financial risks and political instability. Resilience, the ability to overcome shocks, is becoming increasingly important. To improve long-term food security, we need to build better food systems that can absorb and adapt to climate change and other risks. A proposed study aims to assess adjustments to the Global Food Security Index and provide recommendations for improving global food security policy. Identifying gaps in the index and accurately reflecting the complexity of the global food system are important findings. Access to food at reasonable prices is essential for social well-being and stability. High-income households are better able to absorb temporary price increases, while low-income households need a safety net.

Key words: food security, resilience, risks, Global Food Security Index (GFSI)

The ability of social, economic and biophysical systems to meet people's nutritional requirements is central to food security, and understanding and addressing these risks is essential to building the resilience of food systems and ensuring long-term food security.

The Global Food Security Index uses indicators to assess threats and resilience, providing a snapshot of a nation's food security. Understanding how a nation is exposed to specific risks and how resilient its food systems are is critical to creating effective policies, investments and interventions.

Resilience, the ability to bounce back and better overcome a shock or disaster, is becoming increasingly important in the current context (Teryutina M.M., 2021), so building better food systems that can absorb and adapt to climate change and other risks is key to ensuring long-term food security (Tursunov B.O., Uktamov K.F., Tukhtamuratova A., 2022).

This study aims to critically assess and analyze changes in the proposed Global Food Security Index to better understand how these changes influence the assessment and approach to food security in terms of food affordability and other global risks. In order to increase the food output required to feed a world population that is predicted to exceed 9.10 billion people by 2050, the health of the globe's freshwater, seas, and fertile land are all directly related to food security. However, urbanisation, population increase, and

shifting consumption patterns are putting further strain on these vital resources. A large amount of the world's land is used for agriculture, and as it grows, especially in emerging nations, it encounters degraded land, which puts further strain on the world's resources. The amount and quality of land are essential to the world's ability to produce food (Gavrilescu C., 2021). Because there is a limited amount of land that can be used for agriculture and soil depletion from intensifying agricultural practices is a serious problem, soil health helps food systems remain resilient by preventing erosion and nutrient loss, preserving moisture, and reducing soil erosion. As populations and incomes rise, competition for agricultural land, feed, and fuel will only increase, placing further strain on the amount and quality of land available for food production. To ensure long-term food security in the face of these challenges, sustainable agricultural practices and the preservation of natural resources are necessary (Altieri M. *et al*, 2015). Weather patterns and broader economic issues, such changes in energy prices and agricultural policies, are factors that contribute to rising food costs. Reliance on imports for supplies can make these price rises much more severe, especially in lower-income nations. Diversifying support methods, such as cash transfers, vouchers, and physical food distribution, is crucial for food security nets. As such, these programs must be attentive to the needs and livelihoods of recipients, with a focus on women's participation in decision-

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making. Investment in food security programs not only protects against food insecurity but also fosters community resilience and sustainable economic development.

MATERIAL AND METHOD

Finding and choosing indicators and sub-indicators that are used in the GFSI to evaluate various aspects of food security, as well as gathering and analysing pertinent GFSI data on food security, are all part of the suggested methodology for evaluating the effects of changes to the Global Food Security Index on the assessment and approach to food security. The proposed methodology for assessing the impact of adjustments to the Global Food Security Index on the assessment and approach to food security includes also:

The examination of the evolution of indicators and sub-indicators over time and identifying pertinent trends in food security, the 2022 edition of the GFSI is compared to earlier versions in order to identify and evaluate modifications and adjustments made.

The comparison and contrasting how various nations utilise and interpret the Global Food Security Index, it is possible to evaluate how the new GFSI changes affect how food security is perceived and managed in the particular context.

RESULTS AND DISCUSSIONS

Food security is essential for social well-being and social stability, and access to affordable food is the foundation of food security. Higher-income households that allocate a smaller proportion of their expenditure to food are more likely to cope with temporary price increases, while low-income households require short-term safety nets to ensure that food remains affordable, especially in the face of food price shocks. In terms of the global food security environment, the Global Food Security Index 2022 reveals visible differences across countries. It can be seen that in terms of food security in 2022, countries in Europe, the North American continent and Australia (*figure 1*) score over 70 points, while at the opposite pole, with less than 55 points, the vast majority of countries on the African continent are located:

In terms of food accessibility, eight of the top ten countries benefited most from the opportunity to reduce food prices, while for Oman and Cambodia, the launch of a safety net was key, and for the top six countries, improved market access was key to increasing food accessibility.

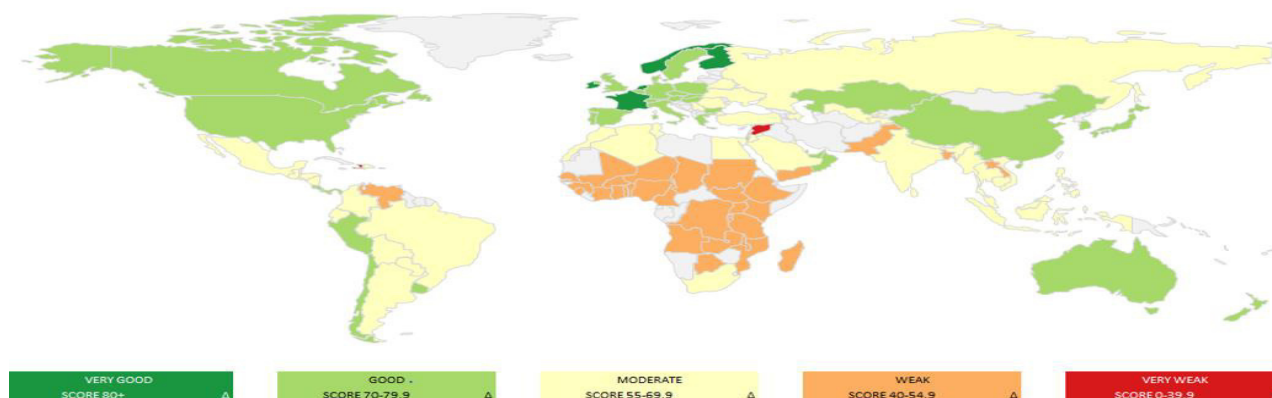


Figure 1 2022 Country score map regarding food security environment (scores are normalized 0-100, where 100=best conditions). Source: Own calculations based on GFSI 2022 Report

The United Arab Emirates, Algeria and Niger have seen the biggest increase in food availability, due to their approach to volatile food production and commitment to food security policies, with many of these countries achieving better results by strengthening infrastructure and investing in agricultural research and development. Increased food availability is associated with significant reductions in hunger in countries such as Bolivia, Ethiopia and Angola, which have gone from less than 100 per cent to more than 100 per cent adequate food supply, with these improvements being due to poverty reduction and

investment in farmer productivity, while Sudan, Serbia and Uruguay have distinguished themselves by improving food quality and safety, with the application of nutritional standards being the main reason for this development. Increased food availability has been accompanied by significant reductions in hunger in countries such as Bolivia, Ethiopia and Angola, which have gone from less than 100% to more than 100% of adequate food supply. These improvements have been driven by poverty reduction and investments in farmer productivity, while Sudan, Serbia and Uruguay stood out in improving food quality and safety,

with the implementation of nutrition standards being the main driver of this development. The shocks of 2020-2022 have highlighted the fragility of the global food system and increased concerns about food security. These events, including the COVID-19 pandemic, conflict, extreme weather events and rising costs, have exacerbated systemic problems, leading to a decline in food security and a weakening of the resilience of the system as a whole. With the invasion of Ukraine by Russia and the increase in conflict, the number of such events continues to increase, according to the Oslo Peace Research Institute. The situation is similar for climate change shocks such as droughts and floods, which have become more frequent and intense in

the 21st century, according to a 2019 report by the Food and Agriculture Organization (FAO). This confluence of shocks and their increasing frequency is putting increasing pressure on an already fragile food system, pushing more people into hunger and food prices to unprecedented levels.

In terms of global food security, the 2022 Global Food Security Index shows notable differences across countries. For example, based on GFSI data for 2022, Romania has made progress in food security. However, there are areas that require additional attention (*figure 2*):

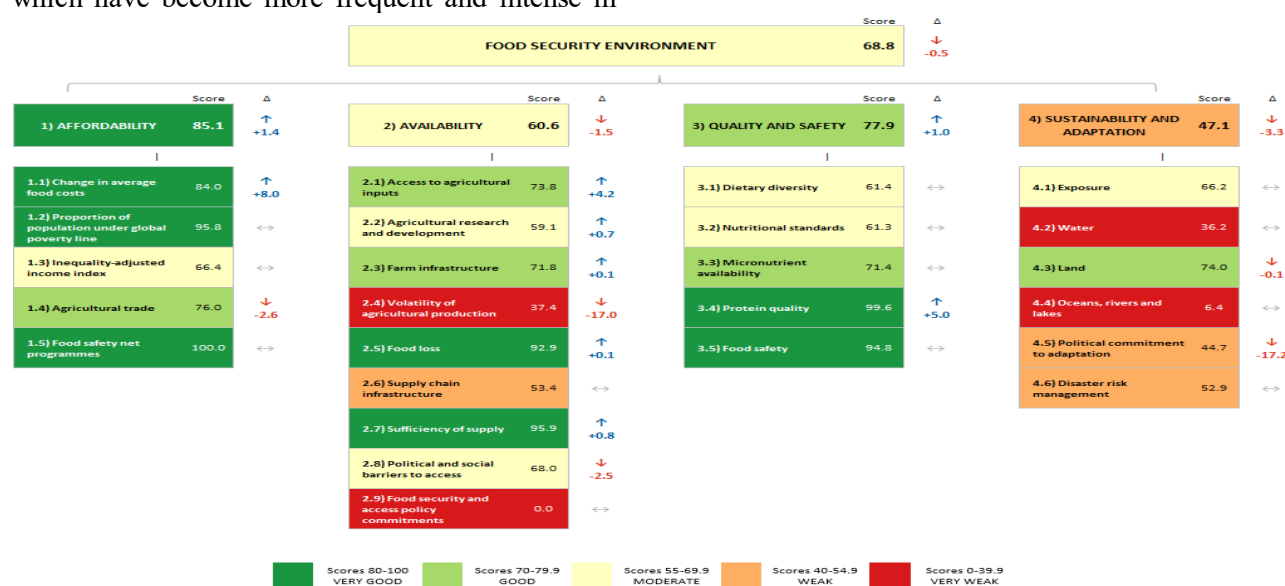


Figure 2 Romania - score regarding food security environment (scores are normalized 0-100, where 100=best conditions). Source: Own calculations based on GFSI 2022 Report

The Global Food Security Index (GFSI) in its 11th edition (2022) includes four dimensions: affordability; availability; quality and safety; sustainability and adaptation. During the GFSI analysis period (2012–2022), Romania had a good performance in food security, in the sense that all four dimensions recorded improvements, but with a slight decrease in the last three years (2020–2022) in terms of food availability, sustainability and adaptation. This is a general trend as a result of the COVID-19 pandemic and the war in Ukraine. The 11th edition of the GFSI shows a deterioration of the global food environment for the third consecutive year, which may pose a threat to food security. In a global context, the food security situation of Romania, reflected by the scores awarded four dimensions, had an overall "moderate" rating (with a score of 68.8 out of 100 points) in 2022. Italy had a score of 74.0, Poland 75.5, and France 80.2 (very good).

The "moderate" rating is the result of higher scores in accessibility ("very good" rating) and in quality and safety ("good"). These scores suggest that food security vulnerabilities in Romania may arise from these two directions, namely from food supply and environmental conditions. According to the GFSI methodology, the breakdown of scores by indicators reveals in more detail the very good and good scores as well as the weaknesses in food security. By comparison, in France, Italy and Poland, the food security situation is similar to that of Romania in terms of Affordability. The overall rating is "very good", with more than 80 points. France performs better, with over 90. Strictly analyzing Romania's situation, the weak point of accessibility is the adjusted income inequality, whose evolution is justified by the economic and social events of recent years, aggravated by the climate and health crisis.

For the availability indicator, all four Member States have a score ranging from 60 to 69,

i.e. a "moderate" rating. In this case, Romania has 60 points and France 69 points out of 100. Romania's low score has two main causes:

Volatility of agricultural production. Weather conditions and The COVID19 pandemic has caused increased volatility on an international level commodity markets, while the agricultural sector faced challenges related to the availability of grain and other agricultural commodities used both for food and fodder. Food security and political commitments on access. A food security strategy is needed (currently Romania has no food assumed security at the official level) and a government agency for implementation of this strategy.

In terms of quality and safety, Romania and Italy have a good score (above 70), while France and Poland in particular have a very good score (over 80). From this point of view, Romania has a less favorable situation regarding: food diversity, measures the weight of non-carbohydrate foods (cereals, edible roots and potatoes) in total human consumption expressed in calories. A higher proportion of foods containing fewer carbohydrates is considered a premise of greater food diversity; nutrition standards is a qualitative indicator that evaluates the existence of national nutrition programs, nutritional recommendations at national level, as well as the existence of a monitoring system a population categories with nutritional risk.

From 2022, food safety also included legislative aspects compared to 2021. Regarding the dimension of food security Sustainability and adaptation (formerly known as "Natural Resources and Resilience"), the situation is different: France has a good score, Italy and Poland have a moderate score, while Romania has a poor score, showing that he is not prepared enough to cope structural crises of the system or conjunctural socio-economic crises.

CONCLUSIONS

The research underscores the pivotal significance of addressing food security through comprehensive and scientifically informed methodologies. The FAO Food Price Index reached an all-time high in March 2022, with persistently elevated levels thereafter, demonstrating the volatility of global food prices and underscoring the necessity for resilient strategies to mitigate these impacts. The global

trend of decreasing food affordability and increasing reliance on food aid from 2019 to 2022 further reflects the adverse impacts of recent global shocks on food security, reinforcing the imperative for policies that enhance affordability and reduce dependency on aid.

The performance of countries in the Global Food Security Index, particularly improvements in agricultural inputs, policy commitments to sustainability, and nutritional standards, indicates that strategic investments in these areas can yield significant benefits. However, persistent challenges, such as low soil organic content and inadequate irrigation infrastructure, underscore the necessity for concentrated attention and resources.

The research findings collectively indicate that ensuring food security necessitates an integrated, multifaceted approach that addresses both immediate and long-term challenges. It is imperative to promote trade freedom, provide support to farmers and ensure the availability of financing facilities for countries with large food import requirements. Furthermore, it is of the utmost importance to avoid trade restrictions and minimise price volatility in order to maintain food affordability. The development of systemic resilience through sustainable land management, the increase of soil organic carbon, the adoption of sustainable sources and the reduction of food pollution and waste are vital for the adaptation to climate change and the promotion of agricultural resilience.

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