



RESEARCH ARTICLE

An Economic Analysis of Food Insecurity and Sustainable Development Goals in India

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ABSTRACT

Food insecurity remains one of the major socio-economic challenges in India despite significant progress in agricultural production and economic growth. This study examines the economic dimensions of food insecurity and its relationship with the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 10 (Reduced Inequalities). The paper analyses the causes, regional disparities, and socio-economic consequences of food insecurity using secondary data from government reports, national surveys, and international development databases. Factors such as poverty, unemployment, inflation, unequal income distribution, climate change, and inadequate access to nutritious food are identified as key determinants of food insecurity in India. The study further evaluates government initiatives including the Public Distribution System (PDS), National Food Security Act (NFSA), Mid-Day Meal Scheme, and other welfare programs aimed at improving food access and nutritional security. The findings indicate that while policy interventions have contributed to reducing hunger and malnutrition, significant gaps continue to exist across rural and urban populations, gender groups, and economically weaker sections. The study concludes that achieving sustainable food security in India requires inclusive economic growth, effective policy implementation, agricultural sustainability, and strengthened social protection measures aligned with the Sustainable Development Goals.

Keywords: Food Insecurity, Sustainable Development Goals, Economic Analysis, Poverty, Hunger, Nutritional Security, Public Distribution System, National Food Security Act

INTRODUCTION

Food insecurity is a major global challenge that affects the social and economic development of nations. It refers to the lack of access to sufficient, safe, and nutritious food required for a healthy and active life. In India, food insecurity continues to remain a serious issue despite significant progress in agricultural production and economic growth. A large section of the population, especially people living in rural areas, economically weaker sections, women, and children, still faces problems related to hunger, malnutrition, and poverty. Rising food prices, unemployment, climate change, unequal distribution of resources, and population growth have further increased the vulnerability of food insecurity in the country. The Issue of food insecurity is closely connected with the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015. Particularly, SDG 1 aims to eliminate poverty and SDG 2 focuses on achieving zero hunger and ensuring food and nutritional security for all people.

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India has implemented several welfare programs such as the Public Distribution System (PDS), National Food Security Act (NFSA), Mid-Day Meal Scheme, and Integrated Child Development Services (ICDS) to improve food accessibility and reduce malnutrition. However, challenges related to implementation, regional disparities, and economic inequality continue to affect the effectiveness of these schemes. In this context, the present study attempts to analyze the economic dimensions of food insecurity in India and examine its relationship with Sustainable Development Goals. The study also focuses on evaluating government initiatives and suggesting sustainable measures to achieve long-term food and nutritional security in India.

Pérez-Escamilla (2017): This article explains that food security is closely linked with the achievement of the United Nations Sustainable Development Goals (SDGs). This study food insecurity affects physical health, mental well-being, child development, and environmental sustainability across the world. It also emphasizes that poverty, inequality, climate change, and poor governance are major causes of food insecurity. The author suggests that sustainable agriculture, reduction of food waste, nutrition-focused policies, and improved food security governance are essential for achieving global sustainable development.

Hiranya and Joshi (2024): This article examined food security in India through a multidimensional framework that includes availability, access, utilization, stability, agency, and sustainability. The researcher collected data from FAO and NFHS reports. The findings reveal that despite improvements in food production and government interventions such as the Public Distribution System and National Food Security Act, India still faces serious challenges related to malnutrition, affordability of healthy diets, and climate change impacts. The authors conclude that sustainable development in India requires responsible food consumption, efficient resource utilization, and strong food security governance.

Fahmida, et al., (2022) This article explained Climate Change and Food Security: Steps towards Sustainable Development Goals to effects of climate change on food security in Asian countries. The study finds that rising temperatures and population growth negatively affect food availability, while economic growth and agricultural land improve food security. It highlights that climate change is a major challenge to achieving SDG 2 (Zero Hunger). The author suggests sustainable agricultural policies and climate-resilient farming practices for better food security.

Kaur, S. (2023) This study provides *Achieving Sustainable Food Security in India: Vision 2030* discusses the major challenges and opportunities related to food security in India. It highlights issues such as population growth, climate change, food wastage, poverty, and unequal food distribution. The study emphasizes the importance of sustainable agriculture, technological innovation, efficient supply chains, and government policies like NFSA and PDS. It also suggests climate-resilient farming, crop diversification, and improved nutrition programs to achieve Sustainable Development Goal 2 (Zero Hunger) by 2030.

Saxena, N. C. (2011) The article explained *Hunger, Under-Nutrition and Food Security in India*. It's the serious problem of hunger and malnutrition in India despite economic growth. The study highlights declining calorie intake, child malnutrition, poverty, and unequal food distribution among vulnerable groups. It emphasizes the need for stronger government programmes such as PDS, ICDS, and rural employment schemes to improve food security. The article also suggests sustainable agricultural development, nutrition awareness, and better public service delivery to achieve food security and reduce hunger in India.

Jambor, A.,et al., (2024) This study provides determinants of Food Security: A Comprehensive Analysis Across East, South, and Southeast Asia examines the major factors affecting food security in Asian countries between 2001 and 2021. The study analyzes the impact of population growth, GDP, agriculture, climate change, trade, and crises on undernourishment levels using regression analysis. The findings show that agricultural productivity and food policies play an important role in improving food security, while conflicts and economic shocks increase undernourishment. The article emphasises the importance of long-term, region-specific policies for achieving food security and reducing hunger in Asia.

1. Background of the Study

Food insecurity is one of the most critical socio-economic challenges affecting developing countries, particularly India. Although India is one of the world's largest agricultural producers, a significant section of the population still faces inadequate access to sufficient, safe, and nutritious food. The rapid population growth, poverty, unemployment, rising food prices, climate change, and unequal distribution of resources have intensified the problem of hunger and malnutrition across rural and urban areas. Food insecurity not only affects physical health and nutritional status but also influences economic productivity, education, and overall human development.

The concept of food security has gained global

Importance through the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015. SDG 1 aims to eliminate poverty, while SDG 2 focuses on achieving zero hunger and improving nutrition. In India, several welfare measures such as the Public Distribution System (PDS), National Food Security Act (NFSA), Mid-Day Meal Scheme, and Integrated Child Development Services (ICDS) have been introduced to address food insecurity and support vulnerable populations. However, regional disparities, income inequality, and implementation issues continue to impede the success of these initiatives.

Therefore, this study attempts to examine the economic dimensions of food insecurity in India and analyze its relationship with the Sustainable Development Goals. The study also highlights the need for sustainable economic policies and inclusive development strategies to ensure long-term food and nutritional security in the country.

2. Objectives of the Study

1. To examine the major economic causes and dimensions of food insecurity in India.
2. To analyze the relationship between food insecurity and Sustainable Development Goals, particularly SDG 1 (No Poverty) and SDG 2 (Zero Hunger).
3. To evaluate the effectiveness of government policies and welfare schemes in reducing hunger and improving nutritional security in India.
4. To suggest sustainable economic and policy measures for achieving long-term food security and inclusive development in India.

3. Research Method

This study is based on a descriptive and analytical research design using secondary data. The researcher data collected from sources such as Government reports, NFHS, NSSO, FAO, World Bank, NITI Aayog, journals, and research articles. The study analyzes the economic causes and impacts of food insecurity in India and its relation to Sustainable Development Goals through qualitative and quantitative methods. Statistical tools such as tables, percentages, and trend analysis are used to interpret the data.

4. Conceptual Framework of Food Insecurity

The relationship between socio-economic conditions, food insecurity, and sustainable development outcomes. The concept explains that factors such as poverty, unemployment, low income, inflation, unequal distribution of resources, climate change, low agricultural productivity, gender inequality, and limited access to education and healthcare significantly influence food insecurity in India. These socio-economic determinants affect the four major dimensions of food security, namely food availability, food accessibility, food utilization, and food stability. When these dimensions are weak, households experience hunger, malnutrition, child stunting, poor health conditions, and reduced labour productivity, which negatively impact economic growth and social welfare. The food insecurity directly affects the achievement of major Sustainable Development Goals (SDGs), particularly No Poverty, Zero Hunger, Good Health and Well-being, Decent Work and Economic Growth, Reduced Inequalities, and Climate Action. Government interventions such as the Public Distribution System (PDS), National Food Security Act (NFSA), and employment generation programs are considered important mediating mechanisms that help reduce food insecurity and support sustainable development in India.

5. Status of Food Insecurity in India

Food insecurity in India remains a major socio-economic challenge despite improvements in agricultural production, poverty reduction, and government welfare programs. Food insecurity refers to the lack of regular access to sufficient, safe, and nutritious food necessary for healthy living. It's reflected through hunger, undernourishment, malnutrition, child stunting, child wasting, anemia, and poor dietary quality in India.

India has improved food grain production and strengthened welfare schemes such as the Public Distribution System (PDS), National Food Security Act (NFSA), Integrated Child Development Services (ICDS), and Mid-Day Meal Scheme. However, challenges such as poverty, unemployment, inflation, climate change, and unequal food distribution continue to affect nutritional security and sustainable development.

Table 1: Global Hunger Index (GHI) – India

Sl.no	Indicator	Status (2025)
1	Global Rank	102 out of 123 countries
2	GHI Score	25.8
3	Hunger Severity	Serious
4	Undernourished Population	12.0%
5	Child Stunting Rate	32.9%
6	Child Wasting Rate	18.7%

7	Under-five Mortality Rate	2.8%
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Source: Global Hunger Index India Report

The table indicates that India continues to face a serious hunger situation despite gradual improvements over the years. High child wasting and stunting rates show persistent nutritional deficiencies among children. India's rank reflects ongoing challenges in ensuring equitable access to nutritious food.

Poverty in India has declined significantly over the past two decades due to economic growth, employment opportunities, welfare programs, and improvements in education, healthcare, sanitation, and infrastructure. India measures poverty not only through income levels but also through the Multidimensional Poverty Index (MPI), which includes health, education, and living standards.

6. Poverty Trends in India

Table 2: Multidimensional Poverty Trends in India

Sl.no	Year	Poverty Rate (%)	People in Poverty (Crore)
1	2005–06	55.1	64.5
2	2013–14	29.17	37.0
3	2015–16	24.85	29.9
4	2019–21	14.96	20.5
5	2022–23	11.28	15.8

Source: NITI Aayog Multidimensional Poverty Index Reports.

The table shows a continuous decline in poverty in India from 55.1% in 2005–06 to 11.28% in 2022–23. This

indicates improvements in living standards, healthcare, education, sanitation, and welfare delivery systems.

Table 3: Trend of Hunger Situation in India

Sl.no	Year	GHI Score	Hunger Category
1	2000	38.1	Alarming
2	2008	34.6	Serious
3	2016	29.3	Serious
4	2024	27.3	Serious
5	2025	25.8	Serious

Data Source: Global Hunger Index

The table shows that India's hunger score has improved steadily from 38.1 in 2000 to 25.8 in 2025. This improvement reflects better food availability, welfare

measures, and healthcare services. However, the country still remains in the "serious" hunger category, indicating that food insecurity is not fully resolved.

Table 4: Child Malnutrition Indicators in India

Sl.no	Indicator	Percentage
1	Child Stunting	32.9%
2	Child Wasting	18.7%
3	Underweight Children	Around 32%
4	Anaemia among Women	More than 50%
5	Anaemia among Children	High prevalence

Source: NFHS-5, WHO, GHI Reports

Child malnutrition remains one of the most serious dimensions of food insecurity in India. High levels of stunting and wasting imply chronic malnutrition and inadequate nutritional intake. Anaemia among women and children reflects inadequate nutrition and healthcare access.

Food grain production plays a vital role in ensuring food security and achieving the Sustainable Development Goals (SDGs) in India, particularly SDG 2 (Zero Hunger). India has achieved significant growth in agricultural production due to improved irrigation, high-yield seeds, mechanization, and government support policies.

7. Food Grain Production in India

Table 5: Food Grain Production in India

Sl.no	Year	Total Food Grain Production (Million Tonnes)
1	2021–22	315.6
2	2022–23	329.6
3	2023–24	332.2

Source: Ministry of Agriculture & Farmers Welfare, Government of India

The table shows a continuous increase in food grain production in India from 315.6 million tonnes in 2021–22 to 332.2 million tonnes in 2023–24. This growth indicates improvements in agricultural productivity and government initiatives supporting farmers. Higher production strengthens national food availability and contributes to reducing hunger and poverty. However, despite record production, unequal distribution, inflation, and regional disparities continue to create food insecurity among vulnerable populations. Therefore, sustainable agricultural policies and effective food

distribution systems are necessary to achieve long-term food security and SDG goals in India.

8. Economic Determinants of Food Insecurity

Food insecurity in India is influenced by several economic factors that affect the availability, accessibility, and affordability of food. Although India has achieved significant growth in food grain production, many households still face difficulties in accessing nutritious food due to economic inequalities and poverty.

Major Economic Determinants of Food Insecurity

Sl.no	Economic Determinant	Impact on Food Insecurity
1	Poverty	Low income limits the ability of households to purchase sufficient and nutritious food
2	Unemployment	Lack of stable employment reduces purchasing power and increases vulnerability to hunger
3	Inflation and Rising Food Prices	Increase in food prices affects poor households more severely and reduces food affordability
4	Income Inequality	Unequal distribution of income creates disparities in food access between rich and poor populations
5	Agricultural Instability	Crop failure, low productivity, and climate-related losses reduce farmers' income and food supply
6	Lack of Infrastructure	Poor storage, transport, and market facilities lead to food wastage and uneven distribution
7	Low Public Investment	Insufficient investment in agriculture, irrigation, and rural development weakens food security systems

The criteria listed above demonstrate that food insecurity in India is a problem of both food availability and economic access. Poverty and unemployment are the major causes limiting household purchasing capacity. Rising food inflation further increases the burden on vulnerable populations. Similarly, agricultural instability and inadequate infrastructure negatively affect food distribution and farmers' income. Therefore, improving employment opportunities, controlling inflation, strengthening agricultural investment, and reducing income inequality are essential for achieving food security and Sustainable Development Goals (SDGs), especially SDG 1 (No

Poverty) and SDG 2 (Zero Hunger).

• Food insecurity and SDGs

Food insecurity remains a major developmental challenge in India despite improvements in food grain production. It refers to the lack of consistent access to sufficient, safe, and nutritious food for a healthy life. Food insecurity directly affects economic growth, health, education, and social welfare. The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, aim to eliminate hunger, poverty, and malnutrition through sustainable and inclusive development policies. Its link between Food Insecurity

and SDGs.

Sl.no	Sustainable Development Goal	Relationship with Food Insecurity
1	SDG 1: No Poverty	Poverty reduces people's ability to purchase nutritious food
2	SDG 2: Zero Hunger	Aims to eliminate hunger, improve nutrition, and promote sustainable agriculture.
3	SDG 3: Good Health and Well-being	Malnutrition and undernourishment negatively affect public health
4	SDG 4: Quality Education	Hunger reduces children's concentration, attendance, and learning outcomes
5	SDG 8: Decent Work and Economic Growth	Employment and income generation improve food accessibility
6	SDG 10: Reduced Inequalities	Reducing income inequality improves equal access to food resources
7	SDG 13: Climate Action	Climate change affects agricultural productivity and food availability

The table shows that food insecurity is closely connected with multiple Sustainable Development Goals. Poverty, unemployment, and inequality reduce food accessibility, while climate change and agricultural instability affect food availability. Hunger and malnutrition also weaken health and educational outcomes, slowing overall economic development. Therefore, achieving SDG 2 (Zero Hunger) is interconnected with progress in other SDGs. India requires effective public distribution systems, sustainable agriculture, employment generation, and nutrition-focused welfare programs to reduce food insecurity and ensure inclusive development.

9. Government Programmes for Food Security in India

India has implemented several important food security programmes to reduce hunger and ensure vulnerable groups have access to nutritious food. The Public Distribution System (PDS) is one of the largest food security programmes in the country, providing subsidized food grains such as rice and wheat to economically weaker sections through ration shops, thereby improving food affordability and accessibility. The National Food Security Act (NFSA), 2013 further strengthened food security by making access to subsidized food grains a legal right for nearly two-thirds of India's population, while also supporting the nutritional needs of women and children. The PM POSHAN Scheme, formerly known as the Mid-Day Meal Scheme, provides free nutritious meals to school children, helping to reduce classroom hunger, improve nutrition, and encourage regular school attendance, especially among poor families. Similarly, the Integrated Child Development Services (ICDS) scheme focuses on the health and nutrition of children and

pregnant women through supplementary nutrition, immunization, healthcare, and early childhood care services. During the COVID-19 pandemic, the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) played a crucial role by supplying free food grains to poor households, protecting vulnerable populations from hunger and economic hardship. In addition, the National Food Security Mission (NFSM) aims to increase food grain production by supporting farmers with modern agricultural techniques, thereby improving agricultural productivity and ensuring long-term food availability in India.

Government food security programmes play an important role in reducing hunger, improving nutrition, and supporting vulnerable populations. These schemes contribute significantly toward achieving Sustainable Development Goals, especially SDG 2 (Zero Hunger).

10. X. Major Findings

1. India has achieved considerable growth in food grain production, contributing to improved national food availability and agricultural development.
2. Economic factors such as poverty, unemployment, inflation, and income inequality remain major determinants of food insecurity in India.
3. Government initiatives including the Public Distribution System (PDS) and National Food Security Act (NFSA) have enhanced food accessibility for vulnerable populations.
4. Malnutrition, regional disparities, and unequal food distribution continue to challenge India's food security system.
5. Sustainable agricultural development is essential for achieving Sustainable Development Goal 2 (Zero Hunger) and ensuring long-term food security.

10. Suggestions

1. Strengthen the implementation and monitoring mechanisms of food security programmes to ensure transparency and effective delivery.
2. Increase public investment in agriculture, irrigation, and rural infrastructure to boost agricultural output.
3. Promote sustainable and climate-resilient farming practices to address environmental and climatic challenges.

11. Conclusion

Food insecurity remains a significant economic and social challenge in India despite substantial food grain output has expanded, and the government has launched various welfare schemes. Factors such as poverty, unemployment, inflation, income inequality, and regional disparities continue to limit access to adequate and nutritious food for many households. Government initiatives like the Public Distribution System (PDS), National Food Security Act (NFSA), ICDS, and PMGKAY have played an important role in improving food accessibility and nutritional support for vulnerable populations.

4. Enhance employment opportunities and income-generation programmes to improve household purchasing power.
5. To eliminate malnutrition and hunger, increase nutrition and welfare programs for children, mothers, and the economically disadvantaged.

The study highlights that food security is closely linked with the achievement of Sustainable Development Goals, especially SDGs 1 (No Poverty) and 2 (Zero Hunger). Sustainable agricultural development, effective food distribution systems, employment generation, and improved nutritional policies are essential for reducing food insecurity in India. Therefore, coordinated policy measures, stronger implementation of welfare schemes, and inclusive economic development are necessary to ensure long-term food security and sustainable development in the country.

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