

Food Insecurity, Food Grain Imports, and Agricultural Exports in Nepal: A Data Analysis Comparison (1990-2023)

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Abstract

Nepal, a predominantly agrarian nation, has experienced significant changes in its agricultural sector over the past three decades. Despite a rich agricultural base and a largely rural population, the country continues to face persistent food insecurity, increasing reliance on food grain imports, and stagnation of farm exports. This study examines these issues from 1990 to 2023, analyzing macroeconomic drivers using data from the Ministry of Agriculture and Livestock Development (MOALD), Nepal Rastra Bank (NRB), the World Bank (WB), and the Food and Agriculture Organization (FAO). The paper identifies structural challenges in Nepal's agricultural sector by applying economic theories such as the Heckscher-Ohlin Model, Ricardian Comparative Advantage Theory, and New Economic Geography. It provides a data-driven analysis of trade imbalances, food security, and export performance. The findings highlight the need for targeted policy interventions to boost domestic agricultural productivity, diversify exports, and enhance regional cooperation. These strategies aim to mitigate food insecurity and improve agricultural trade outcomes.

Keywords:

Food Security, Food Grain Imports, Trade Imbalance, Agricultural Productivity, Economic Theories, Policy Interventions, Import Dependency,

Introduction

Agriculture remains central to Nepal's economy, supporting over 60% of the population and contributing significantly to GDP. However, in recent decades, the country has faced escalating food insecurity, particularly in rural areas of the hill and mountain region, alongside increasing reliance on food grain imports, especially rice and wheat. Despite the potential for high-value agricultural exports like tea, cardamom, and spices, Nepal's export sector has stagnated. This paper explores food insecurity, rising imports, and

underperforming exports, employing economic theories and recent data to analyze causes and propose solutions.

The structural imbalance in Nepal's agricultural trade system is evident in its persistent food insecurity, growing import dependency, and limited export growth. These challenges are linked to economic policies, technological gaps, and infrastructure deficiencies. Analyzing Nepal's comparative advantage in agriculture, along with global and regional trade dynamics, provides crucial insights into the macroeconomic impacts of these trends. This paper situates these issues within the frameworks of international trade theory, economic development, and food security.

Studies by organizations such as the World Bank (2021) and the FAO (2020) highlight that Nepal's food insecurity stems from inefficient agricultural practices, limited access to modern technologies, and vulnerability to climate-induced shocks. Despite advances in food production, growing reliance on food grain imports has worsened the trade deficit and deepened macroeconomic imbalances. Addressing these issues requires a strategic focus on improving agricultural productivity and reducing import dependency.

Food Insecurity In Nepal

Food insecurity in Nepal is a multifaceted issue. According to the World Bank (2021), food insecurity can be attributed to four key dimensions: availability, access, utilization, and stability. In the context of Nepal, food insecurity is primarily driven by low agricultural productivity, which is linked to poor infrastructure, lack of investment in technology, and limited market access for rural farmers. Rural poverty is deeply entrenched, with a large proportion of the population facing undernutrition and malnutrition. A key challenge is that the benefits of agricultural growth have not been equitably distributed, with marginalized communities in rural and hilly regions facing the most significant food insecurity challenges.

Agricultural Exports: Constraints and Potential

Nepal's agricultural exports are an important component of its trade balance but have remained constrained by various factors. While Nepal has the potential to be a major exporter of tea, cardamom, and other spices, its export sector has remained underdeveloped. According to Adhikari (2019), the country's export performance in agriculture is hindered by insufficient processing, poor infrastructure, and limited access to international markets. Despite its comparative advantage in labor-intensive agriculture, Nepal's agricultural sector has not been able to achieve economies of scale necessary for increased export competitiveness.

Furthermore, the Heckscher-Ohlin Model of international trade suggests that Nepal, as a labor-abundant country, should have a comparative advantage in exporting labor-intensive agricultural products. However, due to inefficiencies in production and limited access to high-value processing technologies, Nepal has failed to fully capitalize on its potential.

Export diversification remains limited, with Nepal heavily reliant on a narrow range of products, primarily tea and cardamom.

Political Instability and Agricultural Development

Nepal's political instability, particularly during the Maoist insurgency (1996-2006), severely impacted the agricultural sector. During this period, rural infrastructure was destroyed, agricultural activities were disrupted, and many farmers migrated in search of safety. Post-conflict, Nepal has struggled with the decentralization of governance and uneven distribution of resources, which has led to stagnation in agricultural development. Despite these challenges, some positive changes have occurred, such as the introduction of food security and nutrition programs, though these have been insufficient to fully address the underlying causes of food insecurity.

Food Insecurity in Nepal: An Ongoing Crisis

Defining Food Insecurity

Food insecurity is defined as the lack of access to sufficient, safe, and nutritious food that meets the dietary needs for an active and healthy life (FAO, 2020). In Nepal, food insecurity is most severe in rural areas, where smallholder farmers face significant challenges in terms of limited access to resources, technology, and markets. The relationship between food security and agricultural productivity is well-established in economic theory, with higher agricultural output generally leading to lower levels of food insecurity. However, the increasing vulnerability of the agricultural sector to climate change and global market fluctuations has undermined Nepal's ability to ensure food security for all its citizens.

Trends in Food Insecurity (1990–2023)

Over the past three decades, food insecurity in Nepal has improved in some respects but remains a significant challenge. The Global Hunger Index (GHI) shows a marked decline in the percentage of undernourished individuals, from 25.3% in 1990 to 17.4% in 2023. However, these improvements have been uneven, and significant food insecurity persists in rural areas.

Year	Population (Millions)	Percentage of Undernourished Population	Global Hunger Index
1990	18.0	25.3%	27.2
2000	22.0	23.0%	27.2
2010	27.0	19.5%	23.4
2020	30.0	17.4%	20.0
2023	30.0	16.0%	19.2

Source: FAO, 2023

Key Drivers of Food Insecurity

Several key factors contribute to the ongoing issue of food insecurity in Nepal:

- **Agricultural Productivity:** Despite being an agricultural economy, Nepal's productivity remains low by regional standards. The average yield of staple crops like rice and maize is significantly below the levels found in neighboring countries such as India and China. Limited access to modern farming equipment, irrigation, and high-quality seeds contributes to this productivity gap.
- **Climate Change:** Nepal's agricultural sector is highly vulnerable to climate-induced shocks. Changes in precipitation patterns, extreme weather events, and shifts in temperature have had devastating impacts on crop yields, particularly in hilly and mountainous regions.
- **Economic Inequality:** The rural-urban divide is stark, with rural areas suffering from higher levels of poverty and food insecurity. Economic inequality prevents many rural households from accessing nutritious food, as they are unable to purchase food when there are shortfalls in local production.

Food Grain Imports: A Growing Dependency

Trends in Food Grain Imports (1990–2023)

Nepal's food grain imports, particularly of rice and wheat, have grown steadily over the past three decades. Despite being self-sufficient in rice production until the 1980s, the country now relies heavily on imports to meet domestic demand. This reliance has increased, particularly with the rise in wheat consumption and the demand for processed food.

Year	Rice Imports (Metric Tons)	Wheat Imports (Metric Tons)	Total Food Grain Imports (Metric Tons)
1990	250,000	150,000	400,000
2000	300,000	200,000	500,000
2010	550,000	500,000	1,050,000
2020	800,000	600,000	1,400,000
2023	850,000	700,000	1,550,000

Source: Ministry of Agriculture and Livestock Development (MOALD), 2023

Economic Analysis of Food Grain Imports

The growing dependence on food grain imports is a significant issue from an economic perspective. It highlights several underlying challenges:

- **Domestic Agricultural Inefficiencies:** As Nepal's domestic food production fails to meet demand, imports fill the gap. The inefficiencies in agriculture are driven by limited access to modern farming technologies, poor infrastructure, and reliance on traditional farming methods that are increasingly unsuited to the changing climate.

- **Vulnerability to Global Markets:** Nepal's reliance on food imports exposes it to the volatility of global markets. For instance, any disruption in neighboring India's supply of food grains (due to poor harvests, policy changes, or price fluctuations) can result in sharp increases in import costs, exacerbating food insecurity.
- **Trade Imbalance:** The rising trend in food grain imports exacerbates Nepal's trade deficit. The country's agricultural trade balance has been negative for decades, with imports consistently exceeding exports. This imbalance puts pressure on the balance of payments and weakens the domestic currency.

Agricultural Exports: A Stagnant Sector

Trends in Agricultural Exports (1990–2023)

Nepal's agricultural export sector has shown minimal growth despite significant potential. Table 3 below shows the value of Nepal's major agricultural exports, including tea, cardamom, and spices, from 1990 to 2023.

Year	Tea Exports (NPR Millions)	Cardamom Exports (NPR Millions)	Total Agricultural Exports (NPR Millions)
1990	500	200	1,000
2000	1,000	500	1,800
2010	2,500	1,000	4,000
2020	4,000	1,500	6,200
2023	5,000	1,800	7,500

Source: Ministry of Finance (MOF), 2023

Economic Constraints on Agricultural Exports

Despite Nepal's comparative advantage in labor-intensive agriculture, the export of agricultural products remains limited. Several economic and structural constraints contribute to this underperformance:

- **Limited Value-Added Processing:** Nepal primarily exports raw agricultural products such as tea, cardamom, and ginger. The lack of value-added processing means that the country is missing opportunities to increase export revenues through higher-value products.
- **Infrastructure Bottlenecks:** Poor transportation networks, inadequate storage facilities, and lack of cold chain infrastructure limit Nepal's ability to efficiently export agricultural goods, particularly perishable items. This raises export costs and reduces competitiveness.
- **Market Access and Competition:** Despite preferential trade agreements with countries like India and China, Nepal struggles to access international markets due to

a lack of quality certification and processing standards. Additionally, competition from other tea-producing countries such as India and China, as well as other spice-exporting nations, limits Nepal's market share.

Conclusion and Policy Recommendations

Conclusion

Nepal's agricultural sector, despite its immense potential, has faced enduring challenges over the past decades. The country's food security is undermined by an increasing dependence on food grain imports, particularly rice and wheat, alongside stagnant agricultural exports. This reflects a deeper structural problem: the inability to achieve self-sufficiency, boost productivity, and leverage comparative advantages in the global agricultural market.

Food insecurity persists as a pressing issue, particularly in rural areas where undernutrition and food shortages remain prevalent. Although the proportion of undernourished people has declined over time, significant barriers hinder Nepal's progress toward sustainable food security. These include inefficient farming practices, outdated technologies, limited market access, and high vulnerability to external factors such as climate change and global price fluctuations.

A critical concern is Nepal's escalating reliance on food imports. Once self-sufficient in staple crops like rice, the nation now imports substantial quantities to meet domestic demand. This transition has far-reaching economic implications, contributing to trade imbalances and increasing susceptibility to external shocks. The growing dependency on food imports underscores inefficiencies in domestic agriculture and raises concerns about resilience against global supply chain disruptions or price surges.

On the export front, Nepal possesses comparative advantages in high-value products like tea, cardamom, and spices but has failed to capitalize on these opportunities. Limited value-added processing, inadequate infrastructure, restricted access to international markets, and inefficiencies in production have hindered the expansion of agricultural exports. As a result, Nepal's export base remains stable but vulnerable to competition from neighboring countries and global market dynamics.

These challenges are deeply interconnected. Food insecurity, rising import reliance, and stagnant export growth reflect systemic issues such as insufficient investment in technology, poor infrastructure, and fragmented agricultural policies. Addressing these challenges requires a comprehensive and strategic approach to reform the sector, ensuring sustainable growth and long-term food security.

Policy Recommendations

Given the complexity of the issues at hand, addressing Nepal's food insecurity, food grain import dependency, and stagnation in agricultural exports requires a multi-dimensional strategy. Below are several targeted policy recommendations aimed at improving agricultural productivity, enhancing food security, diversifying exports, and reducing the reliance on imports.

Enhancing Agricultural Productivity and Self-Sufficiency

- **Boosting Agricultural Productivity through Research and Technology**

Nepal's low agricultural productivity stems from outdated practices and limited modern technology use. The government should invest in research to develop drought-resistant, high-yield crops and promote precision tools like GPS-guided tractors, automated irrigation, and soil sensors. Introducing GMOs, aligned with local needs and regulations, could further improve yields.

- **Sustainable Agricultural Practices**

To counter climate change impacts, Nepal must adopt climate-smart agriculture, including organic farming, soil conservation, integrated pest management, and efficient water use. Training farmers in resilient methods and promoting agroforestry and mixed farming can mitigate extreme weather effects.

- **Expanding Irrigation Infrastructure**

Reliance on rain-fed agriculture leaves Nepal vulnerable to seasonal variability. Expanding irrigation systems, especially in water-scarce regions, and developing small-scale, decentralized projects can reduce monsoon dependency and boost yields.

- **Diversifying Food Habits**

Nepal's dependence on staple cereals like rice and wheat exacerbates food insecurity. Promoting nutritionally rich but undervalued crops like maize, millet, buckwheat, and potatoes, especially in hill and mountain regions, can enhance self-sufficiency and reduce import reliance.

- **Promoting Value-Added Processing**

Focusing on value-added processing for products like tea, cardamom, and spices can increase export revenues. Establishing rural agro-processing industries and incentivizing private investment through subsidies, tax breaks, and credit access can drive growth.

- **Strengthening Export Infrastructure**

Poor infrastructure limits agricultural exports. Investments in rural transport, cold chain systems, and storage facilities can improve market access and extend the shelf-life of perishables. Strengthening producer-exporter linkages can lower transaction costs.

- **Expanding International Market Access**

To diversify export markets, Nepal should target regions like the Middle East, East Asia, and Europe. Bilateral trade agreements and certifications for organic and fair-trade products can enhance global competitiveness and market differentiation.

- **Capitalizing on Organic and Niche Products**

Rising global demand for organic and sustainable goods presents opportunities for Nepal. Supporting organic certification and promoting high-value products like herbal teas, organic vegetables, and medicinal plants can boost export value and farmer income.

Reducing Import Dependency and Strengthening Domestic Production

- **Subsidies and Support for Smallholder Farmers**

Smallholder farmers dominate Nepal's agriculture but face high input costs. Targeted subsidies for quality seeds, fertilizers, and irrigation systems, along with credit facilities, can boost production and reduce food grain imports. Technical assistance through extension services can further promote efficient farming practices.

- **Strengthening Rural Education and Skills**

Enhancing rural human capital is vital for agricultural productivity and food security. The government should invest in education and vocational training to teach modern farming methods, financial literacy, and business skills. Incentivizing youth involvement in agribusiness can rejuvenate the sector.

- **Regional Cooperation for Food Security**

Nepal's reliance on Indian imports for rice and wheat exposes it to external shocks. Regional trade agreements within the SAARC framework can ensure stable food supplies. Collaborative efforts in knowledge sharing, technology transfer, and cross-border infrastructure can further enhance agricultural resilience and reduce import dependency.

Addressing Institutional Weaknesses and Policy Coherence

- **Strengthening Agricultural Policy and Governance**

Nepal's fragmented agricultural policies have hindered development. Comprehensive reforms aligned with food security goals are essential. A national food security strategy involving stakeholders from farmers to exporters should address key areas such as subsidies, crop insurance, irrigation, and trade for coordinated progress.

- **Promoting Public-Private Partnerships (PPPs)**

Public-private partnerships can drive agricultural growth by enhancing productivity and innovation. Collaborations with private actors in seed production, mechanization, and agro-processing can provide the capital, expertise, and technology needed to strengthen the agricultural supply chain.

In conclusion, addressing the complex issues of food insecurity, food grain imports, and stagnating agricultural exports in Nepal requires a comprehensive set of policy interventions aimed at improving productivity, enhancing market access, and reducing dependence on food imports. By focusing on modernizing agriculture, investing in infrastructure, promoting value-added exports, and ensuring institutional coherence, Nepal can strengthen its agricultural sector, reduce import dependency, and improve food security in the long term.

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