

# The Economics of Millets in India

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## ABSTRACT:

The article presents a compelling argument for reevaluating the role of millet production in India's economy. Millet, with its historical significance dating back to ancient civilizations and its inherent environmental resilience, indeed offers a promising avenue for sustainable agriculture in regions with limited water resources. The fact that millets require minimal inputs underscores their potential as economically efficient crops. However, despite these advantages, millets have fallen into obscurity in the 21st century. Understanding the reasons behind this downtrend and analysing the potential for revitalizing millet production is crucial. The economic rationale presented in the article sheds light on the opportunities and scope for leveraging millets to drive economic development, particularly in the Indian context. By conducting a theoretical and economic analysis based on secondary data, the article aims to uncover the underlying economic dynamics of millet production. This analytical approach provides insights into the challenges and opportunities associated with reintegrating millets into India's agricultural landscape, the article highlights the importance of reassessing the role of millet production in India's economy. By recognizing the economic potential of millets and addressing the barriers to their cultivation and consumption, policymakers can harness this ancient grain to foster sustainable agricultural practices and drive economic development.

**Keywords:** Millet, Economic Development, Green Revolution, Agriculture, Sustainability

## INTRODUCTION

Millet, often regarded as one of the world's oldest cultivated grains, holds a rich history deeply intertwined with human civilization and is well known for its environmental and nutritional benefits. Praised for its remarkable environmental resilience and exceptional nutritional value, millet thrives in arid and semi-arid regions, requiring significantly less water than other crops. Its adaptability to diverse climates, particularly evident in the Indian subcontinent with diverse geography, underscores its importance in sustainable agriculture. Additionally, millet is renowned for being a rich source of protein, vitamins, minerals, dietary fibre, and antioxidants, while also being gluten-free with a low glycaemic index. However, despite these remarkable

attributes, the economic dynamics of millet production present complexities, particularly in developing economies heavily reliant on agriculture.

The Indian economy has a peculiar nature, being the 5th largest in the world. It remains the only economy where the primary sector contributes the most among its peers. While traditional economic theory warns against excessive dependency on primary goods due to their inelastic nature, India's economic trajectory presents a nuanced perspective. Despite this reliance, the Indian economy exhibits positive growth indicators. With the primary sector employing nearly 40% of the workforce, it becomes clear that dismissing its significance would be imprudent. Instead, there is a need to reframe the narrative

surrounding the primary sector. Rather than viewing it as a hindrance to economic development, there should be a concerted effort to foster its sustainable growth. By doing so, the primary sector can play an instrumental role in furthering economic development initiatives.

The Green Revolution was one such initiative to boost the primary sector of the economy by increasing the productivity of with the introduction of high yielding varieties of staple crops such as wheat and rice that led to significant increase in food production. Although Green Revolution Green Revolution brought significant benefits in terms of increased food production, alleviation of hunger, improved rural employment but it also had unintended consequences such as the decline of traditional crops like millet, Prior to Green Revolution 40% of the crops that were cultivated were millets which is reduced to 20% over the years ( PIB, International Year of Millets: India leading the way) the reason could be assigned to shift in focus to major cereal crops like wheat and paddy Which were seen as key factors for addressing the food security of the economy. Since the inception of the Green Revolution, the cultivation of millet has steadily decreased, primarily due to farmers' prioritization of profit-maximizing crops such as wheat and paddy. The Green Revolution not only generated a surge in market demand but also established an organized market structure for crops like wheat and paddy, overshadowing the economic viability of millet production. Consequently, farmers shifted their focus towards these lucrative crops, leading to a decline in the cultivation of millet.

The Global food diversity has dwindled significantly, with wheat, rice, and maize dominating approximately 89% of total cereal production worldwide, In response to this concerning trend, the United Nations, in collaboration with India's recommendations, designated 2023 as the International Year for Millets. This initiative aims to revitalize millets and raise awareness about their environmental and nutritional advantages.

Considering the above Situation the revival of Millets becomes imperative from a diverse perspective and here we analyse the interaction of millets and the economy.

## **PRIOR LITERATURE**

Saradha (2024) in study finds that although pearl millet consumption has significantly decreased nationally, it is still considerable in the states that produce the grain, particularly for the impoverished in rural and urban areas. In several states, consumption rose while per capita consumption reached a plateau between 2000 and 2004. Alternative uses such as animal feed, dairy, poultry, alcohol, starch, processed food, and exports have increased significantly despite the general fall in consumption. The value and use of pearl millet can be increased by taking advantage of specialized markets and providing incentives for the food sector to use it. To achieve targeted market penetration and promote growth in pearl millet production and consumption, research into customer preferences and utilization patterns is essential. Kumari et al. (2023) in his study assist us in increasing the number of millets consumed in our country and around the world. The administration has already updated the regulations for transferring excess millets to other states to facilitate this transfer. To meet the advance requests of the consuming states before procurement commences, we also want to enhance the area under millet production, thus we should intensify our efforts to supply inter-state transportation of surplus millets through Food Corporation of India (FCI). Karthick et al. (2023) A thorough analysis of minor millets in India, namely in Tamil Nadu, from 1952–1953 to 2021–2022 demonstrates dynamic cultivation trends driven by rainfall and other external factors in addition to agricultural priorities. In order to battle lifestyle diseases and promote a diverse, resilient food future, authorities should prioritize promoting sustainable agriculture and nutrition

through programs like crop insurance, financial support, and subsidies. Sreekala et al. (2022) in his study has concluded that in light of climate change, it is imperative to replace crops that require a lot of water with millet-based agriculture to provide food and nutritional security. This study calls for more millets to be produced and consumed, as well as customized product development and awareness efforts about their advantages. For millet farming to be sustainable, it is important to improve management techniques and boost productivity in critical states to address production deficiencies. Tripathy & Vyas (2023) in his study titled a history of millets and their significance in agriculture and food security has found that because of their lengthy history and nutrient-rich composition, millets provide resilience in areas with little rainfall. Their resurgence offers hope for both the welfare of small farmers and global food security, despite recent dips. Millets stand out as a sustainable and financially viable food source due to their capacity to adapt to challenging circumstances. In general, millets show themselves to be sustainable agricultural products that are also good for the environment. Patra et al. (2023) in their paper found that With their nutritional richness and resistance to drought, millets hold out hope for sustainable agriculture, but obstacles still need to be overcome. Millets could make a substantial contribution to food security and sustainable farming with the right policies and assistance. In order to overcome the obstacles facing millet production in India, better agricultural methods, consumer promotion, and financial and technical help for smallholder farmers are all necessary.

## THE ECONOMIC ANALYSIS OF MILLETS

In terms of economic advantages, millet production offers a solution to the issue of disguised unemployment. By encouraging surplus labour currently engaged in wheat and paddy fields to shift towards millet cultivation, workers can earn rewards based on their marginal productivity rather than their average output. This transition not only leads to better resource allocation but also historically demonstrates an increase in millet yield per hectare despite a reduction in production area. While improved input utilization and farming techniques suggest progress, the continual decrease in millet production area implies that optimal millet production levels have not yet been reached. If both production area and yield were moving in tandem, the resultant output could have far exceeded current levels.

India holds a dominant position as the world's leading producer of millet, contributing nearly 41% of the global output as of 21-22 (India Data Insights, Millets in India, IYM 2023). The current millet market size is at 11.5 billion USD and with a compound annual growth rate (CAGR) of 4.60%. The projected surge in global demand for millet, estimated to reach a staggering \$14.4 billion USD by 2029 (Millet market size and share analysis – Growth trends and forecasts 2024- 29, Mordor intelligence) presents a significant opportunity for India's agricultural sector. Despite this promising scenario, India's millet exports currently stand at a mere 64 million USD in the year 2021-22 (PIB Delhi on APEDA Global Millet Conference), indicating vast untapped potential. Leveraging India's expertise in millet production to capitalize on its export potential could substantially bolster the country's foreign exchange reserves. Expanding millet production and strategically focusing on export-oriented growth initiatives not only aligns with global market trends but also presents a sustainable pathway for economic development. Thus, harnessing the untapped export potential of millet production emerges as a promising avenue for India to enhance its economic standing on the global stage, the income of the individuals associated with the exporting industry can be grown by the foreign trade multiplier, which is the change in national income brought about by a change in export and investment. The overall Aggregate Demand of the economy could also increase from

this export promotion strategy as a result farmer's income can be increased as the GDP of the economy increases.

$$GDP = C + I + G + (X - M)$$

Economic Development addresses both quantitative and qualitative dimensions of development. While quantitative aspects aim to enhance living standards through increased per capita income and aggregate demand, qualitative development is equally crucial for holistic societal progress. Achieving a balanced development requires synergy between these quantitative and qualitative aspects, as they complement each other in fostering comprehensive economic growth.

The qualitative dimension of economic development often hinges on positive externalities, wherein millets play a significant role. These positive externalities, commonly known as spillover effects, result in beneficial impacts on third parties in bilateral transactions. Millets, owing to their nutritional advantages, contribute to human capital formation by addressing nutritional deficiencies and fostering a healthy and productive workforce. While this perspective on millets' contribution to economic development and human capital formation is forward-thinking, it becomes even more pertinent considering India's status as the diabetic capital of the world and the rising prevalence of lifestyle disorders. Millets can serve as a positive variable in this context, given their low glycaemic index and potential to mitigate such health challenges.

## CHALLENGES

The perception of millet as a "poor man's grain" has contributed to its decreased demand, especially with the dominance of wheat, rice, and maize in the food market. The shift towards ready-to-eat and processed foods further challenges millet's market presence. This decreased demand creates a discouraging environment for producers to invest and increase production, which can be analysed using the accelerator effect in economics.

The accelerator effect describes how increased consumption leads to induced investment to meet the rising demand. However, in the case of millets, the cycle is lacking, as the decreased demand does not stimulate investment and production. In the context of Indian economy and millet market the accelerator effect has not been working as desired rather has been ambiguous.

When farmers decide what crops to grow, they consider various factors, including soil suitability, climate, market demand, and government policies such as MSP. If the opportunity cost of growing millet is high, meaning farmers could potentially earn more by growing rice instead, they may choose to allocate their resources to rice production.

In the agricultural landscape, farmers face complex decisions when selecting which crops to cultivate. Millet's lower yield per hectare compared to paddy rice, coupled with its potentially lower market price as indicated by the Minimum Support Price (MSP) considering the productivity per hectare, presents a significant opportunity cost for farmers. Millet indeed typically has lower productivity per hectare compared to paddy rice, and if the market price, as represented by the MSP (Minimum Support Price), is lower for millet than for rice, it can make millet farming less profitable.

Given these factors, it may not be economically viable for farmers to prioritize millet cultivation, especially when the potential earnings from rice production are higher. This underscores the pivotal role of profitability in shaping farmers' crop choices. However, this scenario also prompts policymakers to consider interventions that could support millet farming, particularly if there are broader societal or environmental benefits associated with its cultivation, or if they aim to promote agricultural diversity. This

situation also reflects broader agricultural economics where profitability often guides farmers' decisions. Policymakers might consider interventions to support millet farming if there are broader social or environmental benefits to its cultivation, or if they want to ensure diversity in food production.

The unorganised millet market poses another challenge to this scenario, millets command a higher price compared to traditional cereals, largely due to their limited availability in both traditional and modern retail markets. This scarcity not only presents obstacles for consumers seeking to purchase millets but also poses accessibility challenges, particularly for low-income individuals. The existing lack of popularity and demand for millets further compounds the challenge of encouraging their production. Moreover, producers now face the additional hurdle of cultivating millets at competitive prices to attract consumers and carve out a market presence.

The supply chain management of Millet is another concern that needs to be addressed, ensuring the efficient supply chain of millet faces hurdles due to its shorter shelf life and vulnerability to moisture. Millet grains are prone to spoilage if not stored properly, which can lead to significant losses along the supply chain. Therefore, meticulous attention must be paid to storage conditions, including temperature and humidity control, to prevent deterioration and maintain quality.

Moreover, processing millet presents its own set of challenges. Millet grains are small compared to other cereals, which complicates processing procedures. Traditional processing methods may not be suitable for millet due to its size and unique characteristics, necessitating the use of specialized machinery. However, such machinery often requires significant capital investment, which may pose a barrier for small-scale producers.

To overcome these challenges, investment in research and development is essential to develop innovative storage solutions and processing technologies tailored specifically for millet. Additionally, capacity-building programs and financial support schemes can help small-scale farmers and processors access the necessary resources and equipment to enhance the efficiency of millet supply chains.

This multifaceted challenge underscores the intricacies involved in promoting both the cultivation and consumption of millets.

## RELEVANT FIGURES

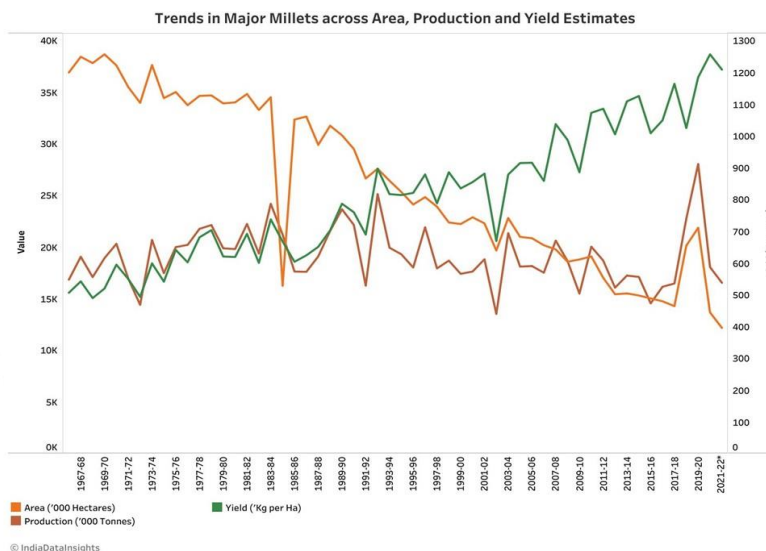


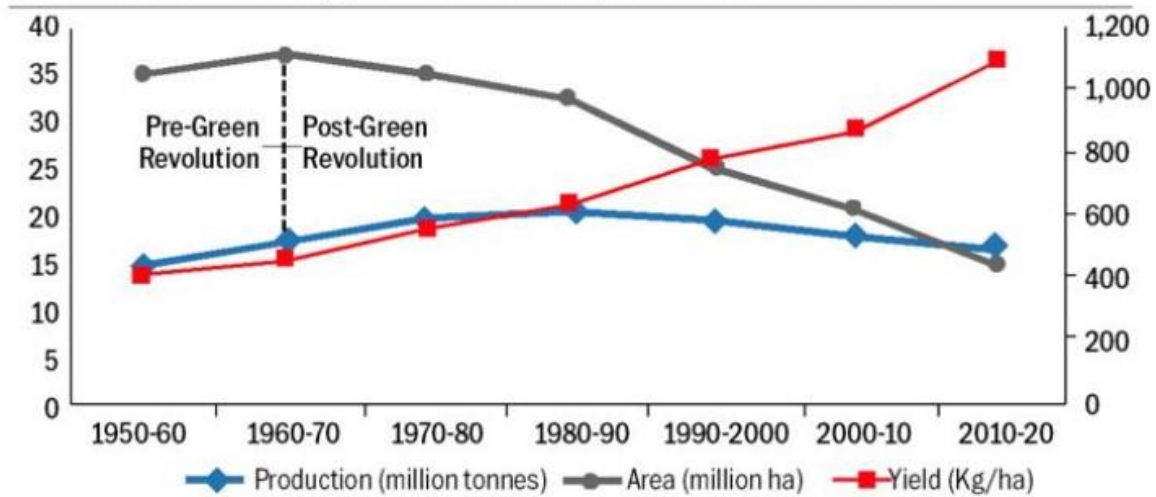
Figure 1

Source: @IndiaDataInsight



The above figures shows that while the area under millet production has been continuously but the productivity has been increasing, showing emerging sings of growth but also decreased incentives to produce.

**Decadal mean area, production and yield of millets in India**

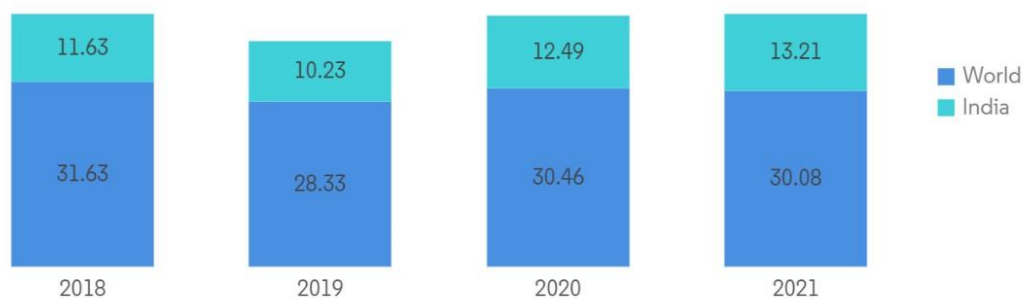


**Figure 2**

Source: The Tribune

The data shows decline in area under millet production post the Green Revolution while production has mostly remained consolidated.

Millet Market: Millet Production, In Million Metric Ton, India Global, 2018-2021



Source: FAOSTAT

**Figure 3**

Source : FAOSTAT

The Figure above showing India’s dominance in global millet production.

## LIMITATIONS

This article and its analysis are grounded in secondary data and theoretical economic frameworks, offering a comprehensive overview of the economic landscape surrounding millets in India. While insightful, the reliance on quantitative research methodologies is recommended to further strengthen the conclusions drawn. Given the novelty of millets' role in economic development, data accessibility poses a challenge for researchers seeking to delve into ground-level truths about millets in India. Therefore, promoting quantitative research methodologies can help bridge this gap and provide a more robust understanding of the economic dynamics of millets in the country.

## CONCLUSION

Considering the number of variables affecting millet production in India and the complexity of primary sector in Indian economy policy measures need to be comprehensive precise and direct to gain fruitful results. The role of government is imperative be it export promotion strategy introduction of Pigouvian subsidies in the form of incentives or increasing aggregate demand for millets in the economy. Efforts are needed to revive the demand for millets in the market. This could involve initiatives to change the perception of millets, promote their nutritional benefits, and introduce innovative millet-based products to cater to changing consumer preferences. Addressing the demand deficiency in the millet market requires strategic initiatives, such as the Odisha Millet Mission, which incentivizes farmers to grow millets and stimulates demand in retail markets. Additionally, policies that support millet production and marketing could help create a conducive environment for investment and growth in the millet sector. Other states should consider similar programs to bolster millet production. Given millets' positive externalities and spillover effects, the introduction of Pigouvian subsidies becomes crucial to align marginal social benefits with marginal social costs, ultimately benefiting society. Research and development in the field of millets should be promoted to gain more fruitful insights the implementation of grain revolution was a direct result of research and development in the field of HYV seeds such research and development should be promoted to increase the yield of millet and make it more lucrative to the farmers. Ground level research should also be promoted for better implementation of the policies. Capital investment is also necessary considering the complexities in Millet processing and for scaling of millet production given the scope for global dominance in the Millet export and its increasing demand.

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