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Constraints faced by small and marginal farmers in India

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Abstract

Agriculture remains the backbone of India's economy, with small and marginal farmers constituting the majority of the farming population and playing a crucial role in ensuring food and nutritional security. Despite their significant contribution, these farmers face multiple structural, institutional, and environmental constraints such as land fragmentation, limited access to credit and insurance, poor infrastructure, market inefficiencies, and low technological adoption. The review critically examines existing literature on the challenges faced by small and marginal farmers in India and their implications for agricultural productivity and livelihood security. It highlights the need for integrated policy interventions focusing on infrastructure development, digital inclusion, credit accessibility, and climate-resilient practices. Strengthening these areas is essential to enhance the economic viability, resilience, and sustainability of small and marginal farming systems in India.

Keywords: Small and marginal farmers, agricultural constraints, land fragmentation

Introduction

Agriculture has long been the backbone of India's economy and society, providing livelihood, food security, and income to millions of rural households. Despite significant progress in the industrial and service sectors, farming continues to be the principal source of livelihood for nearly 58 percent of India's population. The sector contributes about 17 percent to the national Gross Domestic Product (GDP), making it a crucial driver of rural development and economic stability. Among all categories of Indian farmers, small and marginal farmers hold the most crucial position, as they form the foundation of the country's food system and sustain agricultural production and rural employment. According to the Ministry of Agriculture and Farmers Welfare, marginal farmers are those cultivating less than one hectare of land, while small farmers operate between one and two hectares. Together, they account for more than 125.81 million holdings, representing about 86 percent of India's operational farms. Most depend on subsistence farming with fragmented and scattered landholdings, which limits the adoption of modern technologies and improved agricultural practices. Despite these constraints, they contribute nearly 51 percent of the country's total agricultural output (NSSO, 2019) and produce about 70 percent of high-value crops such as fruits and vegetables, which are essential for India's nutritional security (ICRISAT, 2022). Over the years, India's landholding structure has undergone a significant transformation, marked by the continuous

fragmentation of farmland. The total number of operational holdings increased from about 71 million in 1970-71 to 146 million in 2015-16, largely driven by population pressure and inheritance divisions. Consequently, the average farm size has nearly halved—from 2.28 hectares in 1970-71 to around 1 hectare in 2015-16 raising serious concerns about the economic viability of farming. States such as Kerala, Bihar, and Odisha have the highest concentration of small and marginal holdings, whereas Punjab and Rajasthan retain relatively larger farms, reflecting regional variations in land reforms, cropping systems, and resource availability.

Table 1: Classified on the basis of operational holdings.

Category	Land Size (Hectare)
Marginal	Below 1.00
Small	1.00-2.00
Semi- Medium	2.00-4.00
Medium	4.00-10.00
Large	Above 10

Small and marginal farmers—who constitute nearly 86 percent of India's operational holdings are central to the nation's agricultural economy. Despite their vital contribution to food security, high-value crop production, and rural employment, they continue to face multiple structural, institutional, and market-related constraints that limit their productivity, income, and livelihood security. The following sections review key constraints identified in the

literature that affect the growth and sustainability of small and marginal farming in India.

Constraints Faced by Small and Marginal Farmers in India

1. Land Fragmentation and Resource Scarcity

Land fragmentation and the scarcity of productive resources remain among the most critical challenges confronting small and marginal farmers in India. Ali (2025) ^[1] examined the long-term agrarian crisis by analyzing operational holdings from 1990-91 to 2020-21, revealing that the average farm size declined from 1.55 ha to 1.06 ha, with marginal holdings (<1 ha) rising to nearly 69 percent of total holdings. Such fragmentation has curtailed opportunities for mechanization and efficient resource utilization, rendering cultivation economically unviable for marginal households. Even during periods of national food surplus, many smallholders produced less than 900 kg of foodgrain annually barely sufficient for subsistence—leading to increased seasonal or permanent migration as a coping mechanism.

Similarly, Singh *et al.*, (2020) ^[14] emphasized that fragmented and scattered plots not only heighten operational inefficiencies and production costs but also constrain irrigation potential and technological adoption. Resource scarcity, particularly in land and water, disproportionately affects smallholders who already face limited access to institutional credit, modern technology, and reliable markets. Together, these studies highlight that land fragmentation and resource scarcity are deep-rooted structural barriers that continue to undermine the productivity, income stability, and long-term resilience of small and marginal farmers.

2. Access to Credit and Insurance

Limited access to formal credit and agricultural insurance remains a major constraint that restricts small and marginal farmers' ability to invest in inputs, adopt technology, and manage risks effectively. Singh (2024) ^[14] found that although institutional lending to smallholders increased from 44.1 percent in 2013-14 to 56.9 percent in 2021-22, the number of beneficiary accounts actually declined, indicating that fewer farmers accessed larger average loan amounts. Moreover, long-term capital loans for irrigation, machinery, and infrastructure remained limited, particularly outside southern India, where commercial banks dominate.

Complementing these findings, Jadhav and Shinde (2024) assessed access to crop insurance schemes such as the Pradhan Mantri Fasal Bima Yojana (PMFBY) and noted that coverage remains low due to limited awareness, cumbersome claim procedures, and delayed settlements. Many smallholders continue to depend on informal borrowing to meet urgent needs, leaving them vulnerable to financial distress in times of crop failure. Collectively, these studies underline that although financial inclusion policies have expanded, gaps in accessibility, awareness, and inclusivity persist, limiting the overall impact of formal credit and insurance on smallholder welfare.

3. Low Productivity and Technology Adoption Gaps

Low productivity and limited technological adoption are persistent obstacles to the growth of small and marginal

farms. Kumar and Kumar (2022) ^[7], studying the low hill zone of Himachal Pradesh, found that marginal farmers achieved higher per-hectare returns in maize through intensive labor use, yet their dependence on traditional methods and lack of mechanization restricted broader productivity gains.

At the national level, Maity (2015) ^[8] revealed through meta-frontier analysis that India's average agricultural efficiency is only about 51 percent of its potential, with significant disparities across states. While Punjab and Haryana performed relatively better under group frontiers, their performance dropped sharply when compared to the meta-frontier, indicating deep-seated structural and regional technology gaps. Similarly, Chaudhary, Meena, and Behera (2025) ^[2] examined the adoption of precision agriculture technologies in northern India and found that although farmers recognized the benefits such as higher yields, time savings, and subsidies—financial, infrastructural, and informational barriers severely limited adoption. These studies collectively show that bridging the productivity and technology gaps requires targeted investment, land consolidation, and better extension services to enable smallholders to adopt efficient and sustainable technologies.

4. Market Access, Price Fluctuations, and Middlemen

Market access constraints, price volatility, and dependence on intermediaries significantly affect the profitability and sustainability of smallholder farming. Patra and Sahu (2023) ^[11], in their study of Odisha, reported that inadequate market infrastructure, poor storage facilities, and weak transportation networks allowed middlemen to dominate the value chain, reducing farmers' bargaining power and income. Such structural barriers discourage smallholders from cultivating high-value or risk-prone crops, perpetuating subsistence farming practices.

In contrast, Jena *et al.*, (2022) ^[5] examined the potential of e-marketing platforms such as e-NAM, ITC e-Choupal, and Ninjacart in improving farmers' returns. Their study showed that farmers connected through these platforms earned ₹800-1,500 per ton more for maize compared to local trader sales. However, limited awareness, poor digital literacy, weak logistics, and low internet penetration hindered widespread adoption. Together, these findings suggest that while digital platforms offer promising alternatives, enabling infrastructure and capacity-building measures are essential to overcome traditional market inefficiencies and improve price realization for small and marginal farmers.

5. Climate Challenges

Small and marginal farmers in India are particularly vulnerable to the adverse impacts of climate change due to their limited adaptive capacity and heavy reliance on agriculture. Verma and Sudan (2021) ^[16] found that changing climatic conditions significantly reduce crop and livestock yields, thereby lowering farm income and increasing food insecurity among smallholders. Similarly, Talukder *et al.*, (2021) ^[15] noted a rise in heat stress and vector-borne diseases affecting smallholder farmers' health, further depleting their financial and physical resilience.

Building on this, Sahoo (2024) ^[13] reviewed the potential of climate-resilient agricultural practices, emphasizing the adoption of adaptive strategies such as crop diversification,

soil moisture conservation, and agroforestry. The study suggested that integrating these practices with localized extension services can enhance farmers' resilience to climate risks. Collectively, these studies indicate that strengthening adaptive capacity through climate-smart practices and targeted policy support is vital for safeguarding the livelihoods of small and marginal farmers under changing climatic conditions.

6. Lack of Awareness and Education

Limited access to education and agricultural information remains a major impediment to the development of small and marginal farmers. Yadav *et al.*, (2014) ^[17] pointed out that disparities in rural infrastructure particularly in education and extension services—restrict farmers' ability to acquire knowledge and training on improved farming practices. Similarly, Manogna *et al.*, (2025) ^[9] observed that inadequate awareness and digital literacy prevent small farmers from effectively using platforms like e-NAM, thereby limiting their participation in online markets and reducing their income potential.

Gautam and Mallaiah (2024) ^[3] proposed that strengthening Farmer Producer Organizations (FPOs) and leveraging Information and Communication Technology (ICT) tools can play a critical role in bridging this information gap. Together, these studies highlight that the lack of awareness and education not only limits farmers' access to innovations and government schemes but also prevents them from transitioning from subsistence farming to market-oriented, technology-driven agriculture.

7. Lack of Infrastructure

Inadequate infrastructure continues to be a critical bottleneck for improving the productivity and profitability of small and marginal farmers. Hussain (2023) ^[4] observed that the absence of adequate farm infrastructure—such as storage, processing, and transportation facilities exacerbates the impact of economic and climatic shocks, leading to post-harvest losses and income instability. Similarly, Pagare *et al.*, (2023) ^[10] found that poor transportation and storage infrastructure restrict small farmers' access to markets, forcing them to sell produce at lower prices and weakening their bargaining position.

In a related context, the report by Saanjh Punja (2025) on Punjab's straw-burning crisis noted that despite the distribution of crop residue management machinery, only a small fraction of farmers could use them due to limited accessibility and weak infrastructure. Collectively, these studies underscore that strengthening rural infrastructure especially in roads, irrigation, storage, and processing is essential to enhance productivity, market efficiency, and environmental sustainability for small and marginal farmers.

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