



Beyond Productivity: Why Chinese Farmers Earn More than Indian Farmers: Lessons from China's Agricultural Transformation for India

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India and China are the world's two largest agricultural nations, together accounting for more than one-third of the global population. Both countries began their post-independence development journeys with large agrarian populations, fragmented landholdings, widespread poverty, and recurring concerns about food security. Yet, over the past four decades, their agricultural trajectories have diverged significantly. While India achieved food self-sufficiency through the Green Revolution, China transformed its agricultural sector into a highly productive, market-oriented, and income-generating system. Today, agriculture contributes approximately 16–18% of India's Gross Domestic Product (GDP) while employing around 44% of its workforce. In contrast, agriculture contributes less than 8% of China's GDP and employs less than one-fourth of its workforce (Gulati et al., 2021). These differences reflect not merely structural transformation but also contrasting approaches to agricultural development, farmer organizations, market integration, and rural welfare. The real question is not simply why China produces more food per hectare than India. A more important question is why Chinese farmers have generally experienced faster income growth and greater participation in modern agricultural markets. The answer lies in a combination of institutional reforms, technological innovation, market integration, and long-term public investment.

Similar Beginnings, Different Outcomes

Agriculture has historically played a central role in both economies. Following independence and political restructuring, both nations faced the challenge of feeding rapidly growing populations with limited resources. India responded through the Green Revolution during the 1960s and 1970s. Improved seed varieties, irrigation expansion, fertilizer use, and minimum support prices dramatically increased foodgrain production. The country transformed from a food-deficit nation into one of the world's largest producers of rice and wheat. China followed a different path. Beginning in 1978, agricultural reforms under Deng Xiaoping introduced the Household Responsibility System, which gave farm households greater autonomy in production decisions. The reforms created stronger incentives for productivity growth and generated rapid increases in rural incomes. Agriculture became the foundation upon which China's broader economic transformation was built. The sequencing of reforms proved crucial. China reformed agriculture before accelerating industrialization, whereas India's economic reforms were largely led by industry and services. As a result, agricultural growth in China became a powerful instrument for poverty reduction and rural development.

The Productivity Advantage

One of the most visible differences between India and China is agricultural productivity. Comparative studies have shown that rice yields in China were more than double those of India during the early 2000s, with Chinese farmers producing over 6 tonnes per hectare

compared with roughly 3 tonnes per hectare in India. Similar advantages were observed in wheat, oilseeds, fruits, and vegetables (Vijaykumar, 2010).

Table 1 illustrates the broad productivity differences.

Indicator	China	India
Rice Yield (t/ha)	~7.1	~4.1
Wheat Yield (t/ha)	~5.7	~3.5
Agriculture Share in GDP (%)	<8	16–18
Agriculture Employment (%)	~24	~44
Average Farm Size (ha)	~0.6	~1.08

What makes China's achievement remarkable is that it has accomplished higher productivity despite having smaller average farm sizes. This challenges the notion that larger farms are a prerequisite for higher output. The productivity gap cannot be explained solely by input use. India has more agricultural land and comparable irrigated area, yet China's output per hectare remains substantially higher. Stronger research-extension linkages, efficient water management, improved seed systems, and rapid technology diffusion have all contributed to China's superior agricultural performance (Wong, 1987).

Research, Extension, and Innovation

Agricultural transformation depends heavily on innovation. China invested consistently in agricultural research and extension systems, ensuring that technological advances reached farmers quickly and effectively. Research institutions worked closely with local governments and farming communities to facilitate the adoption of improved technologies. This close interaction accelerated productivity growth and enabled rapid modernization. India possesses one of the world's largest agricultural research systems under the Indian Council of Agricultural Research (ICAR). However, dissemination of innovations remains uneven, especially among small and marginal farmers. Comparative studies suggest that China's extension reforms created stronger institutional linkages between research organizations and farmers, enabling more effective technology transfer (Babu et al., 2015). The growing importance of digital agriculture, precision farming, artificial intelligence, and climate-smart technologies further highlights the need for efficient extension systems. China's experience demonstrates that innovation alone is insufficient; technologies must also reach farmers in a timely and accessible manner.

The Power of Farmer Organizations

Agricultural development today is increasingly shaped by institutions rather than individual farms alone. China recognized this reality and encouraged the growth of cooperatives, farmer associations, producer groups, and agribusiness partnerships. These organizations help farmers access credit, technology, inputs, storage facilities, and markets while reducing transaction costs. They also improve bargaining power and facilitate participation in modern value chains. Studies on farmer organizations in China and India indicate that agricultural supply chains in China have become highly diversified, involving not only smallholders but also cooperatives, agricultural companies, processors, and supermarkets. Similar developments are occurring in India, but at a slower pace (Huang et al., 2015). India's Farmer Producer Organization (FPO) movement represents an important step in this direction. However, many FPOs continue to face challenges related to capitalization, management, and market access. Strengthening these institutions could significantly improve farmer incomes and competitiveness.

Market Integration: From Production to Prosperity

A key lesson from China's agricultural transformation is that prosperity depends not only on production but also on market participation. Chinese agriculture diversified rapidly into horticulture, livestock, fisheries, and high-value crops. Farmers increasingly integrated with processors, exporters, retailers, and supermarkets. This diversification reduced dependence

on staple grains and created new income opportunities. Research from rural China shows that market-oriented farming significantly improves farm profitability. Farmers participating in land rental markets, commercial agriculture, and cash-crop cultivation achieved substantially higher incomes than those focused primarily on subsistence production. In some cases, combining land rental with commercial farming increased profits by more than 150 per cent. In contrast, many Indian farmers remain disconnected from modern value chains. Inadequate storage, fragmented markets, weak agro-processing industries, and inefficient logistics often limit farmers' ability to capture greater value from agricultural production. The lesson is straightforward: producing more is not enough. Farmers must also be connected to markets that reward productivity and quality.

Farmer Welfare and Rural Resilience

China's agricultural strategy increasingly emphasizes farmer welfare, resilience, and social protection. Investments in rural healthcare, education, infrastructure, financial inclusion, and social security have complemented agricultural growth. India has also introduced several welfare initiatives, including PM-KISAN, crop insurance schemes, and rural development programs. These interventions have improved rural livelihoods, but challenges remain in implementation and coverage. The future of agriculture will be shaped by climate change, resource scarcity, and market volatility. Building resilience through insurance, climate-smart technologies, financial inclusion, and risk management systems is becoming as important as raising yields. As recent disruptions in fertilizer and food markets have shown, agricultural success depends not only on productivity but also on the ability of farmers to withstand shocks.

What India Can Learn

China's experience should not be viewed as a model to be copied wholesale. The political systems, institutional arrangements, and land tenure structures of the two countries differ considerably. Nevertheless, several lessons are highly relevant. First, agricultural policy should focus on farmer incomes rather than production targets alone. Second, investments in agricultural research must be accompanied by effective extension systems. Third, Farmer Producer Organizations should be strengthened through professional management, improved governance, and better market linkages. Fourth, diversification toward horticulture, livestock, fisheries, and agro-processing should be encouraged. Fifth, digital agriculture, climate resilience, and rural infrastructure should become central pillars of agricultural policy. Most importantly, agricultural transformation must be viewed as part of a broader strategy of rural development.

Conclusion

The story of China and India is not simply a comparison of crop yields. It is a story of institutions, incentives, markets, and public investment. China's agricultural transformation emerged from a comprehensive approach that combined technological innovation, farmer organizations, market integration, and rural development policies. India has achieved remarkable success in ensuring food security for more than 1.4 billion people. However, the next phase of agricultural development must focus on improving farmer incomes, strengthening rural resilience, and integrating smallholders into modern value chains. The ultimate lesson from China is that productivity is only the beginning. Prosperity requires institutions, markets, and policies that place farmers at the center of development. If India can successfully combine its strengths in agricultural research, democratic governance, and entrepreneurial capacity with stronger farmer organizations and market integration, it can create a more prosperous and resilient agricultural future.

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