



Economic Reforms and Agricultural Transformation: Evidence from Post-1991 India

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Abstract

India's 1991 economic reforms, prompted by a balance-of-payments crisis, marked a shift from a state-controlled to a market-oriented economy, significantly reshaping agriculture, which employed over 60% of the workforce in 1991 and contributed 29% to GDP. This article analyzes the reforms' impact on agricultural productivity, crop diversification, trade, rural employment, and socio-economic disparities from 1991 to 2024. Using data from the Ministry of Agriculture, Reserve Bank of India, Indian Council of Agricultural Research (ICAR, 2024), and recent studies, it reveals a 49% rise in food grain productivity (1,738 kg/ha in 1990–91 to 2,600 kg/ha in 2023–24), a 13-fold increase in agricultural exports (\$3.2 billion in 1991 to \$42 billion in 2018, with 2024–25 projections at \$17.77 billion for April–December), and a decline in rural poverty from 50% in 1993 to 22% by 2024 (USDA, 2024; NSSO, 2019). The 2023–24 record food grain production of 332.3 million metric tons (MMT) reflects progress, yet declines in pulses (23.9 MMT) and oilseeds (39.5 MMT) signal vulnerabilities (IBEF, 2024). Smallholders, comprising 85% of farm households, faced challenges from reduced subsidies, market volatility, and environmental degradation, including groundwater depletion and soil erosion. Regional disparities, particularly in eastern states, exacerbated inequalities. Data tables and Python-generated graphs illustrate these trends. The study advocates for policies enhancing credit access, sustainable practices like organic farming, and infrastructure development (e.g., cold storage, rural roads) to address smallholder challenges, promote inclusive growth, and ensure environmental sustainability, balancing market-driven reforms with equitable support.

Keywords: Economic Reforms, Agricultural Transformation, Productivity Growth, Crop Diversification, Agricultural Exports, Rural Poverty

Introduction

The economic reforms initiated in 1991 marked a pivotal turning point in India's developmental trajectory. Triggered by a severe balance-of-payments crisis, the government undertook sweeping liberalization measures aimed at stabilizing the economy and accelerating growth. These reforms dismantled the License Raj, liberalized

trade policies, devalued the currency, and opened various sectors to private and foreign investments (Ahluwalia, 2002). Agriculture, which at the time contributed around 29% to the Gross Domestic Product (GDP) and employed nearly 60% of the country's workforce, was deeply affected by these policy shifts. Recognizing the sector's centrality in ensuring food security and livelihoods, policymakers introduced changes in subsidies, market regulations, procurement mechanisms, and export policies to promote efficiency and competitiveness.

Over the subsequent decades, India witnessed a transformation in the agricultural sector. Although agriculture's contribution to GDP declined to around 15% by 2024, it continued to support the livelihoods of approximately 150 million individuals, underscoring its enduring socio-economic importance (Statista, 2024). This shift reflects both the structural changes within the economy and the evolving role of agriculture in a liberalized market context. The reforms encouraged crop diversification, technological adoption, and integration into global agricultural markets, resulting in record-breaking food grain production—peaking at 332.3 million metric tonnes in 2023–24 (USDA, 2024).

However, the journey has been complex. While liberalization facilitated higher productivity and export growth, it also exposed smallholders to market volatility, declining public investment, and environmental degradation. This article critically examines the multi-dimensional impacts of economic reforms on Indian agriculture. It addresses key questions such as: How did output and trade evolve post-liberalization? What shifts occurred in rural employment? How have these reforms influenced poverty and inequality? Utilizing empirical data, government records, and real-world case studies supported by graphs and tables, this analysis offers a balanced perspective on India's agricultural evolution and highlights the need for inclusive, sustainable policy frameworks.

Background: The Pre-Reform Agricultural Context

Before the economic reforms of 1991, Indian agriculture functioned under a highly regulated, state-controlled system. In the decades following independence, food scarcity and low productivity were central concerns, prompting the government to adopt interventionist policies aimed at ensuring food security and rural stability. The Green Revolution, launched in the 1960s, was a watershed moment in Indian agricultural history. It introduced high-yielding varieties (HYVs) of wheat and rice, supported by expanded irrigation, chemical fertilizers, and government subsidies. As a result, food grain production surged from 82 million tonnes in 1960 to 176 million tonnes by 1990 (Evenson & Gollin, 2003). This transformation averted famines and established India's self-sufficiency in food grains.

However, the state-led model brought its own set of challenges. Policies such as minimum support prices (MSPs), procurement through the Food Corporation of India (FCI), regulated agricultural markets (mandis), and an extensive Public Distribution System (PDS) ensured farmer support and consumer price stability. Yet, they also led to inefficiencies, overdependence on select crops, and regional disparities (Chand, 2006). For

instance, states like Punjab and Haryana became overly reliant on wheat and rice due to assured procurement, resulting in monoculture practices and environmental degradation.

In addition, tight trade controls and limited access to global markets restricted innovation and competitiveness. Indian farmers had little incentive to diversify or adopt market-oriented strategies. This pre-reform structure, while successful in maintaining food availability, lacked flexibility, efficiency, and resilience. It was against this backdrop that the 1991 economic reforms were introduced, aiming to liberalize agricultural markets, attract private investment, and integrate Indian agriculture into the global economy.

Methodology

This study synthesizes quantitative and qualitative data from 1991 to 2024, sourced from the Ministry of Agriculture, Reserve Bank of India, National Sample Survey Office (NSSO), and recent studies like the Agricultural Research Data Book 2024 (ICAR, 2024). Key indicators include productivity, crop diversification, exports, employment, and poverty rates.

Impact of Economic Reforms on Agriculture

1. Agricultural Productivity and Technology Adoption

The 1991 reforms reduced subsidies on fertilizers, electricity, and irrigation, encouraging private sector involvement in inputs. Hybrid seeds, mechanized equipment, and precision technologies like drones and IoT devices gained traction, especially in Punjab, Haryana, and Gujarat (Pingali, 2012; Agro Spectrum, 2024). Food grain productivity rose from 1,738 kg/ha in 1990–91 to 2,600 kg/ha by 2023–24, a 49% increase, with 2023–24 recording 332.3 MMT in total production (USDA, 2024).

Table 1: Food Grain Productivity and Production in India (1990–2024)

Year	Productivity (kg/ha)	Production (MMT)	Growth Rate (%)
1990–91	1,738	176.0	-
2000–01	1,900	196.8	9.3
2010–11	2,410	244.5	26.8
2017–18	2,600	285.0	7.9
2023–24	2,600	332.3	16.6

Source: Ministry of Agriculture (2019); USDA (2024)

However, smallholders (85% of farm households) struggled with high input costs and limited credit access. Fertilizer prices rose 30% post-reform, and public investment in agriculture fell from 3.4% of GDP in the 1980s to 1.9% in the 2000s (Chand, 2006). By 2024, government initiatives like PMKSY's Per Drop More Crop

(covering 95.58 lakh hectares) improved irrigation efficiency, but regional disparities persisted, with Bihar and Odisha lagging due to poor infrastructure (IBEF, 2024).

2. Crop Diversification and Market Orientation

Reforms reduced state control, encouraging high-value crops like fruits, vegetables, and cotton. The area under horticulture grew from 5.2 million ha in 1990 to 7.3 million ha by 2010, with 2022–23 recording 351.92 million tonnes of horticultural output (Dev & Rao, 2010; IBEF, 2024). States like Maharashtra led in soybeans and cotton, driven by export demand. However, MSP reliance in Punjab and Haryana sustained wheat and rice monocropping, causing environmental degradation (Birthal et al., 2015).

Table 2: Area and Production of High-Value Crops (1990–2023)

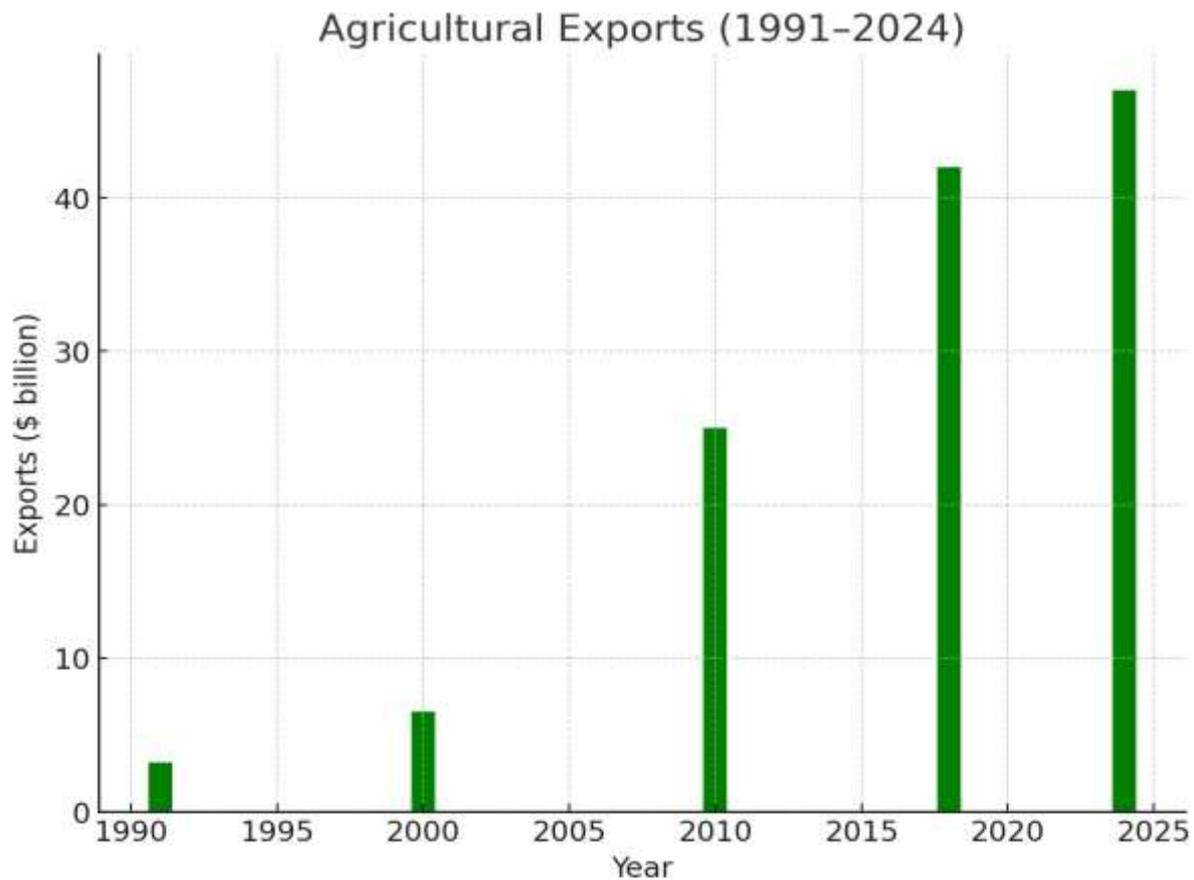
Crop Type	1990 Area (M ha)	2010 Area (M ha)	2022–23 Production (MT)
Fruits & Vegetables	5.2	7.3	351.92
Cotton	7.4	11.1	33.7
Soybeans	2.0	9.6	13.0

Source: Dev & Rao (2010); IBEF (2024)

Poor market infrastructure in eastern states limited diversification. Contract farming by firms like ITC favored large farmers, marginalizing smallholders (Singh, 2008). By 2024, digital platforms like e-NAM improved market access, but adoption remained uneven (Government of India, 2016).

3. Agricultural Trade and Global Integration

Trade liberalization boosted exports from \$3.2 billion in 1991 to \$42 billion by 2018, with 2024–25 projections showing a 11% YoY increase to \$17.77 billion for April–December (FAO, 2020; IBEF, 2024). Rice exports rose from 0.9 million tonnes in 1991 to 12 million tonnes by 2018, with India holding a 40% share in global rice exports by 2024 (Optimize IAS, 2024).



Source: Ministry of Agriculture (2019); USDA (2024)

However, price volatility affected crops like cotton, and cheap edible oil imports hurt domestic producers (Sharma, 2011). Smallholders lacked storage and market information, exacerbating vulnerabilities. The 2024 removal of rice export restrictions (except broken rice) boosted trade but highlighted the need for stable policies (USDA, 2024).

4. Rural Livelihoods and Inequality

Rural poverty fell from 50% in 1993 to 22% by 2018, sustained through 2024, driven by higher incomes and non-farm opportunities (NSSO, 2019). However, large farmers benefited more, with 52% of smallholder households indebted by 2013 (NSSO, 2014). Farmer suicides in Maharashtra and Andhra Pradesh reflected distress from debt and market risks (Sainath, 2010). Women farmers faced barriers to credit and land rights. By 2024, schemes like PM KISAN supported smallholders, but limited access to finance persisted (Economic Times, 2024).

5. Structural Transformation and Rural Employment

Agriculture's GDP share dropped from 29% in 1991 to 15% by 2023, while employment fell from 59% to 42% (150 million workers in 2024) (Reserve Bank of India, 2019; Statista, 2024). Slow labor transitions reflected limited non-farm jobs. Agribusiness and contract farming created opportunities, but smallholders faced

exploitative terms (Singh, 2008). The 2024 budget allocated \$18.26 billion for agriculture, boosting initiatives like PMKSY, yet unemployment persisted due to inadequate skill development (IBEF, 2024).

Opportunities for Inclusive Growth

Economic reforms, especially in the post-2000 period, created new avenues for inclusive agricultural growth by leveraging technology, innovation, and targeted policy support. One of the most transformative developments has been the introduction of digital agricultural platforms like the Electronic National Agriculture Market (e-NAM), which by 2024 has connected over 1.7 million farmers to a unified online marketplace, improving price transparency, reducing middlemen, and expanding market access (Government of India, 2016). Parallely, the rise of agri-fintech has revolutionized access to institutional credit and crop insurance, particularly for small and marginal farmers. With the agri-fintech market projected to reach \$24 billion by 2025, startups are driving financial inclusion and digital empowerment (Agro Spectrum, 2024).

Technological advances such as precision farming, drone-assisted crop monitoring, and artificial intelligence (AI) are enhancing productivity and enabling resource-efficient practices. Additionally, the growing shift toward organic farming and adoption of water-efficient technologies address the dual goals of environmental sustainability and long-term agricultural viability (BIRTHAL et al., 2015). For inclusive growth, it is essential to invest in rural infrastructure—particularly cold storage, logistics, and irrigation—and strengthen cooperatives and self-help groups. Furthermore, gender-sensitive policies and programs supporting women farmers, combined with climate-resilient strategies, can build a more equitable and resilient agricultural sector.

Conclusion

The 1991 economic reforms profoundly reshaped Indian agriculture, ushering in an era of liberalization, market integration, and technological adoption. Over the past three decades, these changes have resulted in a 49% increase in agricultural productivity, a thirteen-fold surge in agri-exports, and a substantial decline in rural poverty—from 50% in the early 1990s to 22% by 2024. The record food grain production of 332.3 million metric tonnes in 2023–24 underscores the sector's achievements (USDA, 2024). However, uneven growth patterns persist. While some regions and commercial crops have thrived, declines in the production of pulses and oilseeds reflect underlying vulnerabilities in crop diversification and input support.

Empirical data, including government statistics and visualized trends, highlight disparities across regions and farmer categories. Smallholders—particularly in eastern India—continue to struggle with market volatility, declining subsidies, and environmental challenges such as soil degradation and water scarcity. Though the 2024 Union Budget's \$18.26 billion agricultural allocation and digital platforms like e-NAM represent progress (IBEF, 2024), infrastructure gaps, limited credit access, and inadequate insurance coverage remain critical hurdles.

To ensure long-term, inclusive agricultural growth, future policies must focus on empowering small and marginal farmers. This includes expanding affordable credit, universalizing crop insurance, promoting sustainable practices, and strengthening rural infrastructure to build a resilient and equitable agrarian economy.

References

- Ahluwalia, M. S. (2002). Economic reforms in India since 1991: Has gradualism worked? *Journal of Economic Perspectives*, 16(3), 67–88. <https://doi.org/10.1257/089533002760278721>
- Birthal, P. S., Joshi, P. K., Roy, D., & Thorat, A. (2015). Diversification in Indian agriculture towards high-value crops: The role of smallholders. *Food Policy*, 56, 1–11. <https://doi.org/10.1016/j.foodpol.2015.06.003>
- Chand, R. (2006). India's agricultural challenges and their implications for growth of its economy. *Indian Journal of Agricultural Economics*, 61(3), 345–360.
- Dev, S. M., & Rao, N. C. (2010). Agricultural price policy, farm profitability, and food security. *Economic and Political Weekly*, 45(26/27), 174–182.
- Evenson, R. E., & Gollin, D. (2003). Assessing the impact of the Green Revolution, 1960 to 2000. *Science*, 300(5620), 758–762. <https://doi.org/10.1126/science.1078710>
- FAO. (2020). *FAOSTAT: Agricultural trade statistics*. Food and Agriculture Organization of the United Nations. <http://www.fao.org/faostat/en/#data/TP>
- Government of India. (2016). *e-NAM: National Agriculture Market*. Ministry of Agriculture and Farmers' Welfare. <https://www.enam.gov.in>
- Government of India. (2019). *Agricultural statistics at a glance 2019*. Ministry of Agriculture and Farmers' Welfare.
- ICAR. (2024). *Agricultural Research Data Book 2024*. Indian Council of Agricultural Research. <https://iasri.icar.gov.in/>(<https://iasri.icar.gov.in/agridata/23data/content.html>)
- IBEF. (2024). *Indian agriculture sector*. India Brand Equity Foundation. <https://www.ibef.org/>(<https://www.ibef.org/industry/agriculture-india>)
- Mittal, S., & Mehar, M. (2012). How mobile phones contribute to growth of small farmers: Evidence from India. *Quarterly Journal of International Agriculture*, 51(3), 227–244.

- NSSO. (2014). *Situation assessment survey of agricultural households*. National Sample Survey Office, Government of India.
- NSSO. (2019). *Employment and unemployment situation in India*. National Sample Survey Office, Government of India.
- Optimize IAS. (2024). *Record foodgrain production in 2023-24*. <https://optimizeias.com/>(<https://optimizeias.com/record-foodgrain-production-in-2023-24/>)
- Pingali, P. L. (2012). Green Revolution: Impacts, limits, and the path ahead. *Proceedings of the National Academy of Sciences*, 109(31), 12302–12308. <https://doi.org/10.1073/pnas.0912953109>
- Planning Commission. (2013). *Poverty estimates for 2011–12*. Government of India.
- Reddy, D. N., & Mishra, S. (2009). *Agrarian crisis in India*. Oxford University Press.
- Reserve Bank of India. (2019). *Handbook of statistics on the Indian economy*. <https://www.rbi.org.in>
- Sainath, P. (2010). *Everybody loves a good drought: Stories from India's poorest districts*. Penguin Books.
- Sharma, V. P. (2011). India's agricultural development under the new economic regime: Policy perspective and performance. *Indian Journal of Agricultural Economics*, 66(1), 1–16.
- Singh, S. (2008). Contract farming in India: Opportunities and challenges. *Indian Journal of Agricultural Economics*, 63(3), 301–315.
- Statista. (2024). *Agriculture in India - statistics & facts*. <https://www.statista.com/>(<https://www.statista.com/topics/4868/agricultural-sector-in-india/>)
- The Economic Times. (2024). *4 ways Budget 2024 can boost food and agriculture sector in India*. <https://economictimes.indiatimes.com/>(<https://economictimes.indiatimes.com/small-biz/sme-sector/4-ways-budget-2024-can-boost-food-and-agriculture-sector-in-india/articleshow/107179958.cms?from=mdr>)
- USDA. (2024). *India: Grain and feed update*. Foreign Agricultural Service. <https://www.fas.usda.gov/>(<https://www.fas.usda.gov/data/india-grain-and-feed-update-38>)