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Agricultural Economics in India: Trends, Challenges, and Policy Implications

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ABSTRACT

Agriculture continues to be the backbone of the Indian economy, employing nearly half of the population and contributing significantly to GDP and rural livelihoods. Despite rapid industrialization and service sector expansion, the agricultural sector remains vital for food security, employment, and inclusive growth. This paper explores the economic significance of agriculture in India, analyzes recent trends in production, income, and employment, and examines challenges such as fragmented landholdings, climate change, low productivity, and market inefficiencies. The study also evaluates the impact of government schemes like PM-KISAN, PMFBY, and MSP policy on farmers' welfare. The paper concludes with policy recommendations to enhance agricultural productivity, resilience, and profitability.

Keywords: Indian agriculture, agricultural economics, rural economy, MSP, PM-KISAN, productivity, rural employment

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1. Introduction

Agriculture is not merely an occupation in India—it is a way of life. Over 54% of the Indian population depends on agriculture and allied activities for livelihood. Though its share in Gross Value Added (GVA) has declined over the years—from over 50% in the 1950s to around 18.3% in 2023—it remains the largest employer in the country. India's agricultural sector is characterized by small and marginal landholdings, monsoon dependence, low mechanization, and periodic agrarian distress. With increasing urbanization and the changing structure of the economy, the relevance of agricultural economics has evolved. The current

focus is not only on production but also on income diversification, sustainability, market linkages, and climate resilience. Understanding the economic implications of agriculture is vital for inclusive policy-making and long-term development planning.

India's agricultural economy plays a vital role in maintaining food security for its 1.4 billion people. The Green Revolution helped India transition from a food-deficient to a self-sufficient nation, but this success was geographically skewed and came with environmental consequences. Furthermore, fluctuations in international trade, volatile commodity prices, and WTO negotiations make the sector vulnerable to global economic forces. Despite technological advancement in some regions, agriculture in many parts of India still suffers from outdated practices, lack of irrigation, and limited institutional credit. Low agricultural income and high levels of indebtedness among farmers have led to socio-economic distress, including rising instances of farmer suicides. There is also growing awareness about the environmental costs of chemical-based farming and the need to shift toward organic and sustainable agricultural models. The emergence of AgriTech startups and digital platforms is reshaping the way farmers access inputs, markets, and finance. Another challenge is climate change. With rising temperatures and irregular monsoons, there is a growing demand for climate-resilient crops, efficient water use, and early warning systems. In addition, post-harvest losses due to inadequate cold storage and transport infrastructure reduce farmer incomes.

This paper seeks to provide a holistic understanding of agricultural economics in India, analyzing the trends, evaluating policies, identifying challenges, and recommending future directions.

Indian agriculture, agricultural economics, rural economy
MSP, PM-KISAN, productivity, rural employment

2. Review of Literature

2.1.Bhalla and Singh (2012) examined long-term agricultural growth and structural changes in Indian agriculture. They emphasized the regional disparity in productivity

and highlighted the need for inclusive reforms. The study also indicated that while some states showed sustained growth, others lagged due to policy neglect and inadequate public investment.

2.2. Chand et al. (2015) explored price policies and their impact on Indian farmers. Their findings pointed out that MSP (Minimum Support Price) alone is insufficient unless backed by procurement and infrastructure. They further argued that price policy should be accompanied by effective institutional mechanisms and diversified crop procurement. The research also discussed how MSP tends to benefit farmers in a few states, leaving others dependent on volatile open markets.

2.3. Dev (2018) studied farm distress in India, identifying stagnating farm incomes, rising input costs, and climatic uncertainty as the main drivers. He emphasized the importance of income support and better insurance coverage to address distress. The study also noted the limited reach of existing schemes and the absence of farmer-centric extension services. Additionally, Dev discussed the deteriorating terms of trade for agriculture vis-à-vis industry and services, creating a persistent income gap.

2.4. Narayanan (2020) analyzed the implementation of PM-KISAN and other direct income support schemes. The study found improved consumption smoothing but stressed the importance of complementing it with investment in irrigation and market infrastructure. Narayanan also highlighted the administrative and database issues in identifying eligible beneficiaries, which diluted the impact in several regions. Furthermore, the research emphasized the need to integrate such schemes with broader rural development policies and credit access programs.

3. Objectives of the Study

The objective of the paper is to analyze the economic importance of agriculture in India, assess the current trends in agricultural growth and challenges, and evaluate the effectiveness of key government policies in addressing the issues faced by Indian farmers. The paper also aims to suggest actionable policy recommendations for sustainable agricultural development.

4. Trends in Indian Agriculture

- **Contribution to GDP**: Though the share of agriculture in GDP has declined, it saw a revival during the COVID-19 pandemic, growing at 3.4% in 2020–21 when other sectors contracted.

- **Food Production**: India is the world's largest producer of milk, pulses, and spices, and ranks second in rice, wheat, fruits, and vegetables. The total foodgrain production in 2022–23 reached 330 million tonnes.
- **Employment**: As per the Periodic Labour Force Survey (PLFS), agriculture employs over 45% of the total workforce, indicating its critical role in rural employment.
- **Exports**: India's agri-exports reached an all-time high of USD 50 billion in 2022–23, with major exports being rice, sugar, spices, and cotton.

5. Challenges in Indian Agricultural Economics

1. **Fragmented Landholdings**: Over 86% of farmers are small and marginal, limiting economies of scale and investment capacity.
2. **Input Cost Inflation**: Rising prices of seeds, fertilizers, pesticides, and diesel increase production costs, shrinking profit margins.
3. **Climate Variability**: Frequent droughts, floods, and unseasonal rains affect yield and income unpredictably.
4. **Market Access and Infrastructure**: Despite reforms, most farmers sell produce in local mandis with limited access to fair prices or storage facilities.
5. **Low Credit Penetration**: Many small farmers rely on informal lenders, facing high interest rates and debt traps.

6. Key Government Schemes and Their Impact

6.1. PM-KISAN (Pradhan Mantri Kisan Samman Nidhi)

Aims to provide ₹6,000 annually in three equal installments to all landholding farmers across India. This direct income support scheme was introduced to ease the burden of input costs and enhance liquidity among farmers, especially smallholders. It has helped reduce farmers' dependence on informal credit and improved short-term consumption capacity. However, it does not address structural issues such as poor market access, land fragmentation, or declining soil productivity. Moreover, landless agricultural laborers and tenant farmers, who are often more vulnerable, are excluded from its benefits, limiting its inclusiveness and impact on poverty alleviation.

6.2. PMFBY (Pradhan Mantri Fasal Bima Yojana)

Introduced in 2016, this crop insurance scheme is designed to protect farmers against yield loss due to natural calamities like drought, floods, and pest attacks. It offers coverage for pre-sowing to post-harvest losses, with a minimal premium to be paid by the farmer. While the scheme has increased insurance coverage, several issues hinder

its effectiveness. Delays in claim settlement, lack of transparency in yield estimation, and private insurers' inefficiencies have led to declining farmer trust. In addition, poor awareness about enrollment deadlines and complicated claim procedures have further discouraged participation. There is a need to simplify the claim process, promote digital monitoring, and improve coordination between state governments and insurance companies.

6.3. MSP and Procurement Policies

Minimum Support Prices (MSPs) are announced for 23 crops annually to guarantee farmers a fair price and protect them from market volatility. However, the actual procurement is concentrated primarily in rice and wheat, especially in Punjab, Haryana, and parts of Madhya Pradesh. Farmers growing pulses, oilseeds, and coarse cereals rarely benefit due to lack of procurement infrastructure. Moreover, excessive focus on wheat and rice has led to overproduction and unsustainable groundwater usage. To make MSP more effective, procurement operations must be diversified and decentralized, and greater awareness must be created among farmers in non-traditional regions.

6.4. e-NAM (Electronic National Agricultural Market)

This digital trading platform aims to integrate all state-regulated APMC mandis into a single unified national market. It promotes transparency, better price discovery, and interstate trade. However, adoption has been slow due to infrastructural gaps, limited internet access in rural areas, and reluctance from traditional mandi intermediaries.

7. Emerging Areas in Agricultural Economics

- **Agri-Tech Startups**:Use of AI, drones, IoT sensors, and mobile-based advisory services is transforming agriculture, making it more data-driven, precise, and efficient. These technologies assist farmers in monitoring crop health, predicting weather, optimizing input use, and accessing market prices in real time. Agri-tech solutions are also enabling digital lending and e-commerce platforms for direct farm-to-consumer sales, reducing dependency on middlemen.
- **Organic and Sustainable Farming**:With rising global demand, organic produce is becoming an economic opportunity for Indian farmers. Moreover, it promotes soil health, biodiversity, and long-term sustainability while reducing input costs through natural farming methods.

- **Agri-Exports**:Diversification into high-value crops like spices, fruits, medicinal plants, and processed food products can significantly increase farmer income. India's agri-export potential remains underutilized due to inadequate cold chains, export logistics, and compliance with global quality standards. Policies focusing on agro-processing clusters and export promotion councils are gradually bridging these gaps. Strengthening farmer-producer organizations (FPOs) and linking them with export markets can enhance collective bargaining power and profitability.
- **Contract Farming**:Legally backed contract farming models offer security, price assurance, and input support to farmers, but require fair regulatory frameworks to prevent exploitation and ensure transparency.
- **Climate-Smart Agriculture**:Policies need to encourage climate-resilient cropping patterns, water conservation techniques like drip irrigation, and the use of renewable energy in agriculture, such as solar-powered pumps, to build long-term environmental and economic sustainability.

8. Policy Recommendations

1. **Land Reform and Consolidation**:
   Promote cooperative farming models and digital land records to enable scale, transparency, and investment. Small and fragmented holdings limit mechanization and commercial viability. Consolidation through farmer-producer organizations (FPOs) and cluster-based approaches can increase bargaining power and promote shared infrastructure.
2. **Agri-Infrastructure Development**:
   Cold chains, warehouses, and farm-to-market roads should be prioritized to minimize post-harvest losses and improve market connectivity. Strengthening logistics can boost farmer income by ensuring better price realization.
3. **Rationalization of Input Subsidies**:
   Shift towards direct benefit transfers (DBT) to ensure subsidies reach the intended beneficiaries efficiently. Excessive reliance on chemical fertilizers and power subsidies has distorted input use patterns and harmed soil health. DBT can promote judicious use of inputs while incentivizing organic and sustainable farming. It also reduces administrative burden and leakages in subsidy distribution. Moreover, encouraging bio-fertilizers and renewable energy for irrigation can align input use with climate goals.

4. **Market Reforms**:
   Strengthen APMC reforms and expand the reach of e-NAM to promote fair and transparent market transactions. Interstate trade facilitation and better digital infrastructure are essential for success.
5. **Integrated Crop Insurance**:
   Improve claim settlement mechanisms and enhance coverage under PMFBY to restore farmer confidence. Simplifying paperwork, increasing awareness, and involving local institutions in damage assessment can improve efficiency and trust.
6. **Focus on Allied Sectors**:
   Encourage dairy, poultry, and fisheries as supplementary income sources to reduce dependence on seasonal crop income and mitigate risks related to climatic shocks.
7. **Promotion of Research and Extension Services**:
   Increase investment in agricultural R&D and dissemination of knowledge through mobile apps, field schools, and Krishi Vigyan Kendras to empower farmers with the latest technologies and climate-resilient practices.

9. Conclusion

Agriculture in India is at a crossroads. While it has achieved self-sufficiency in food production, the economic sustainability of farming remains a concern. The sector faces structural and policy challenges that require targeted reforms and technological intervention. Addressing the income disparity between farmers and other sectors is crucial to ensure equitable growth. A reimagined approach focusing on resilience, inclusivity, and innovation can transform Indian agriculture into a driver of sustainable development.

Declaration of conflict of interests:

I wish to confirm that there are no known conflicts of interest associated with this publication. I confirm that the manuscript has been read and approvedby me and there are no other persons who satisfied the criteria for authorship but are not listed.

I confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property.

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I declare that this research paper is my original work, and I have properly cited all sources used in this study. I have not submitted this work or any part of it for publication or academic

credit elsewhere. I understand that plagiarism is a serious academic offense and take full responsibility for the content of this paper.

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