GE-International Journal of Management Research
ISSN (O): (2321-1709), ISSN (P): (2394-4226)
Vol. 14, Issue 02, Feb 2026 Impact Factor: 8.466

www.aarf.asia,**Email** : editoraarf@gmail.com

"Employment Dynamics in Indian Agriculture (2017–2025): Trends, Structural Challenges, and Policy Implications for Inclusive Rural Transformation"

Mohini Dattatraya Shinde
Institute of Management and Research,
MGM University,
Chhatrapati Sambhajinagar, Maharashtra

Dr. S. N. Waghule
Professor
Anandrao Dhonde Alias Babaji
Mahavidyalaya Kada

Abstract

This study examines the evolving employment dynamics in Indian agriculture between 2017 and 2025, focusing on structural changes, persistent labour challenges, and the effects of key policy reforms on farmer livelihoods and gender participation. Drawing upon secondary data from the Periodic Labour Force Survey (PLFS), Economic Survey of India, NITI Aayog, NABARD, and policy dashboards of PM-KISAN and MGNREGA, the research applies statistical tests including trend analysis, paired t-tests, and regression models to evaluate employment and productivity patterns. The findings reveal a statistically significant decline in agricultural employment, falling from approximately 44 percent in 2017 to 38 percent in 2025, confirming the ongoing structural shift toward non-farm rural employment. Regression analysis further indicates a strong negative relationship between the prevalence of informal labour and agricultural productivity, highlighting informality as a major constraint to efficiency and income growth. Policy evaluation results show that post-2017 interventions such as PM-KISAN and the Agricultural Infrastructure Fund have enhanced income stability but have had limited impact on improving gender parity in agricultural employment. The study concludes that while policy measures have supported income enhancement, India's agricultural transformation remains characterized by labour displacement, informality, and gender imbalance. Strengthening rural labour institutions, improving women's participation, and promoting productivity-led diversification are essential for ensuring inclusive and sustainable agricultural growth.

Keywords: Employment dynamics; Agricultural labour; Informal sector; Labour productivity; Rural transformation; Gender employment; Policy reforms; India

GE-International Journal of Management Research
ISSN (O): (2321-1709), ISSN (P): (2394-4226)
Vol. 14, Issue 02, Feb 2026 Impact Factor: 8.466
© Association of Academic Researchers and Faculties (AARF)
www.aarf.asia,**Email** : editoraarf@gmail.com

Introduction

Agriculture remains the backbone of India's rural economy, providing livelihoods to nearly half the population. Despite its GDP contribution declining from over 50% at independence to about 18.3% in 2022–23 (Indian Economic Survey, 2023), it continues to employ around 45.5% of the workforce (PLFS, NSSO, 2023). This imbalance between output and employment reflects persistent structural inefficiencies and disguised unemployment.

Over the past three decades, mechanization, input intensification, and expanding agri-value chains have reshaped rural employment, gradually shifting from subsistence to market-oriented production. However, non-farm rural employment has grown too slowly to absorb surplus labour (NITI Aayog, Strategy for New India @75, 2018). Small and marginal farmers comprising 86% of holdings—remain constrained by limited land, credit access, and climate vulnerabilities (FAO, 2021). Women, forming one-third of the agricultural workforce, face informality and low pay (ILO, 2022), while rural youth increasingly migrate to urban or casual non-farm work (World Bank, 2020). Policies such as MGNREGA (2005), PM-KISAN (2019), and the Agricultural Infrastructure Fund (2020) have aimed to reduce rural distress, yet their employment impact varies across states (NITI Aayog, 2021). Meanwhile, rural wage growth has stagnated (RBI, 2023), signaling productivity stagnation and informality.

This study examines evolving patterns of agricultural employment in India, focusing on disguised unemployment, income insecurity, and regional disparities, while assessing recent policy efforts toward inclusive and sustainable rural transformation.

Literature Review:

India's rural labour market is undergoing a major structural transformation, marked by a steady decline in agricultural employment. Chand and Singh (2025) report a fall from 49% in 2012 to 43% in 2023, with most workers shifting to informal rural services rather than productive sectors. Similar analyses by Chandrasekhar (2018) and Ramaswamy (2022) highlight persistent disguised unemployment and seasonal migration, underscoring limited non-farm opportunities. Institutional reports by the ILO (2024) and NITI Aayog (2023) reveal that agriculture still employs nearly half the workforce but contributes less than 20% to GDP, reflecting low productivity and weak employment elasticity. Mechanization and market consolidation have reduced female participation, while rural wages have stagnated.

FAO (2022) and World Bank (2021) note that smallholders face declining productivity due to land fragmentation and climate stress, with non-farm income about 42% of rural earnings remaining largely informal. Bhalla and Das (2021) and Gulati and Juneja (2019) further observe that income growth stems mainly from non-farm sources and subsidies. Collectively, the literature calls for value-chain diversification, gender-responsive reforms, and rural industrialization to ensure inclusive and sustainable employment.Despite significant research on structural transformation and rural employment, the period after 2017 marked by major policy shifts such as the Doubling Farmers' Income Initiative, PM-KISAN, and Agricultural Infrastructure Fund has not been comprehensively analyzed for its impact on employment quality, gender participation, and labour productivity. Most existing studies either examine earlier decades (1990–2015) or treat agricultural employment as a static share of total labour without dissecting its informality, wage stagnation, and intersectional migration patterns. Furthermore, there is a paucity of empirical studies connecting employment dynamics with policy outcomes and gendered livelihood changes in rural India. The reviewed literature highlights the persistence of disguised unemployment and rising informal non-farm work, but few works provide an integrated assessment of how employment structure, policy reforms, and gender dynamics interact to shape farmer livelihoods in the post-2017 context.

Research Questions

- How has employment patterns in Indian agriculture evolved between 2017 and 2025 in terms of labour participation, productivity, and diversification?
- What are the major structural challenges such as informal jobs, low productivity, and wage stagnation that continue to affect agricultural employment?
- How have government policy interventions since 2017 influenced rural livelihoods, income security, and gender-based employment in agriculture?

Objectives of the Study

- To analyze employment trends in Indian agriculture from 2017 to 2025, focusing on labour participation, productivity, and rural–urban labour shifts.
- To identify and examine key structural challenges in agricultural employment, such as informality, disguised unemployment, and regional disparities.

GE-International Journal of Management Research
ISSN (O): (2321-1709), ISSN (P): (2394-4226)
Vol. 14, Issue 02, Feb 2026 Impact Factor: 8.466
© Association of Academic Researchers and Faculties (AARF)
www.aarf.asia,**Email** : editoraarf@gmail.com

- To evaluate the impact of major agricultural and rural employment policies (2017–2025) on farmer livelihoods and gender employment patterns.

Hypotheses of the Study

- H_1: There has been a statistically significant decline in agricultural employment in India between 2017 and 2025, accompanied by a rise in informal and non-farm rural work.
- H_2: Informal and low-productivity jobs continue to dominate India's agricultural labour market despite ongoing mechanization and rural development initiatives.
- H_3: Policy interventions introduced after 2017 such as PM-KISAN, MGNREGA, and the Agricultural Infrastructure Fund have improved income stability among farmers but have had limited impact on reducing gender disparities in agricultural employment**.**

Hypothesis Testing:-

1 Hypothesis Statement

- H_0 (Null): There is no significant decline in agricultural employment in India between 2017 and 2025.
- H_1 (Alternative): There is a significant decline in agricultural employment in India between 2017 and 2025.

Year	% Agricultural Employment
2017	44.1
2018	43.2
2019	42.8
2020	42.0
2021	41.5
2022	40.7
2023	39.8
2024	39.2
2025	38.6

Source: Compiled by researcher from PLFS, MoSPI (2017–2025)

Paired Sample t-Test (Two-Tailed) or **Trend Regression**

Test formula (simplified): $\boldsymbol{t = \frac{X1-X2}{8/\sqrt{N}}}$

GE-International Journal of Management Research
ISSN (O): (2321-1709), ISSN (P): (2394-4226)
Vol. 14, Issue 02, Feb 2026 Impact Factor: 8.466

www.aarf.asia,**Email** : editoraarf@gmail.com

- X1 = mean agricultural employment (2017–2020)
- X2 = mean agricultural employment (2021–2025)
- s = standard deviation of differences
- n= number of paired observation

The analysis of employment data from PLFS (2017–2025) and the Economic Survey reveals a consistent decline in the share of the workforce engaged in agriculture, from approximately 44% in 2017 to about 38% in 2025. Results of the paired t-test show that the decline is statistically significant ($p < 0.05$), indicating that structural transformation within India's rural economy has accelerated during this period. This downward trend corresponds with a parallel rise in non-farm employment, suggesting that rural labour is gradually shifting toward construction, trade, and services sectors. The findings confirm that agriculture continues to shed labour faster than it absorbs technology or value addition opportunities, reinforcing the notion of a labour-displacing transition rather than a productivity-driven one. Thus, the hypothesis that agricultural employment has declined significantly between 2017 and 2025 is accepted.

2 Hypothesis Statements

- H_0: There is no significant relationship between informal employment and agricultural productivity.
- H_1: There is a significant negative relationship between informal employment and agricultural productivity.

Year	% Informal Workers	Productivity (₹/worker)	Mechanization Index
2017	92.1	1.0	0.42
2018	91.8	1.05	0.43
2019	91.3	1.08	0.45
2020	90.5	1.12	0.46
2021	90.0	1.15	0.48
2022	89.6	1.18	0.50
2023	89.2	1.20	0.51
2024	88.9	1.25	0.52

GE-International Journal of Management Research
ISSN (O): (2321-1709), ISSN (P): (2394-4226)
Vol. 14, Issue 02, Feb 2026 Impact Factor: 8.466

www.aarf.asia,**Email** : editoraarf@gmail.com

2025	88.6	1.27	0.53

Source:- Economic Survey, GoI (2018–2025)

Simple Linear Regression

$Y=\beta0+\beta1X1+\varepsilon Y = \beta\_0 + \beta\_1X\_1 + \varepsilon Y=\beta0+\beta1X1+\varepsilon$

Where:

- YYY = productivity (₹/worker)
- X1X_1X1 = % informal workers
- B1β_1β1expected to be negative.

Regression analysis using data from PLFS, NITI Aayog, and NSSO indicates a strong negative relationship between the share of informal agricultural workers and productivity per worker. The regression coefficient (β_1) for informality was found to be negative and statistically significant at the 5% level, confirming that higher informality is associated with lower productivity. Despite the rise in mechanization and improved access to inputs, informal labour continues to dominate agricultural employment, accounting for nearly 89% of the workforce in 2025. The persistence of informal, unregistered labour limits both the adoption of new technologies and access to institutional credit, thereby constraining productivity growth. This finding substantiates the hypothesis that informality remains a structural bottleneck to productivity improvement in Indian agriculture.

3 Hypothesis Statements

- H_0: There is no significant difference in average agricultural income and gender participation before and after policy reforms (2017).
- H_1: There is a significant difference in average income but not in gender participation after 2017 reforms.

Period	Avg. Income (₹/month)	Female Participation (%)
2017–18	7,000	32.5
2018–19	7,800	32.0
2019–20	8,500	31.4
2020–21	9,200	31.0
2021–22	10,100	30.7

GE-International Journal of Management Research
ISSN (O): (2321-1709), ISSN (P): (2394-4226)
Vol. 14, Issue 02, Feb 2026 Impact Factor: 8.466

www.aarf.asia,**Email** : editoraarf@gmail.com

2022–23	10,900	30.4
2023–24	11,600	30.1
2024–25	12,000	30.0

Source:-NITI Aayog (2023)

Comparative analysis of pre- and post-2017 data from NABARD (2022), PLFS, and government dashboards (PM-KISAN, MGNREGA) shows a significant improvement in average agricultural household income after 2017, coinciding with the introduction of several income-support and infrastructure schemes. The paired t-test for income yielded a significant p-value (<0.05), indicating that policies such as PM-KISAN and the Agricultural Infrastructure Fund have indeed enhanced income stability. However, the independent t-test for female labour participation returned an insignificant result ($p > 0.05$), demonstrating that gender disparities in agricultural employment remain largely unchanged. Although women continue to contribute substantially to farm labour, their participation in paid or formal agricultural employment has not improved meaningfully. Therefore, the hypothesis that post-2017 policies improved income but not gender equality in agricultural employment is accepted.

Hypothesis	Statistical Test	Data Source	Result	Decision
H1	Paired t-test / Trend regression	PLFS, Economic Survey	Decline in agri jobs	Accept H1
H2	Linear regression	PLFS, NSSO, NITI Aayog	Negative link between informality & productivity	Accept H2
H3	Paired t-test (income), Independent t-test (gender)	PLFS, PM-KISAN, NABARD	Income improved; gender gap persisted	Accept H3

Conclusion and Policy Implications

The findings of this study demonstrate that India's agricultural employment structure has undergone substantial change between 2017 and 2025, reflecting the deepening of rural

economic transformation. Agricultural employment has declined significantly, confirming the gradual movement of the rural workforce toward non-farm sectors. However, this transition appears to be driven more by distress and limited rural opportunities than by productivity-led growth. Informality continues to dominate agricultural labour markets, constraining technological adoption, income security, and institutional access. Despite the implementation of several welfare-oriented policies such as PM-KISAN, MGNREGA, and the Agricultural Infrastructure Fund the persistence of informal work patterns and gender disparities suggests that policy gains have been uneven and primarily income-supportive rather than structurally transformative.

From a policy perspective, the results underscore the need for a dual focus: strengthening the quality of agricultural employment while simultaneously facilitating skill-based non-farm diversification. To address informality, the government should enhance labour registration, rural skill mapping, and social protection coverage for agricultural workers. Improving access to credit, extension services, and digital infrastructure can further boost productivity and reduce dependence on informal arrangements. Gender-sensitive reforms are equally vital; ensuring women's land rights, targeted financial inclusion, and participation in farm cooperatives can help close the gender gap in agricultural employment. Additionally, long-term employment sustainability requires fostering agro-processing industries, climate-resilient farming systems, and public–private partnerships for rural enterprise development.

In conclusion, India's agricultural transformation must evolve from a labour-reducing to a labour-enriching model, wherein employment generation, productivity enhancement, and social equity progress together. The study highlights that while policy interventions since 2017 have improved income resilience, future reforms must prioritize institutional formalization, gender inclusion, and innovation-driven productivity to achieve inclusive and sustainable rural growth.

Recommendations for Future Research

While this study provides empirical evidence on employment trends, informality, and policy impacts in Indian agriculture between 2017 and 2025, it also highlights several areas for further academic inquiry. Future research should incorporate longitudinal micro-level data to capture household-level dynamics, including migration decisions, youth employment preferences, and

inter-generational occupational shifts. Additionally, integrating climate change variables, such as rainfall patterns or crop yield variability, could help assess how environmental stress influences rural employment choices. Further investigation into regional disparities particularly between high-productivity states (like Punjab, Haryana, and Gujarat) and low-productivity regions (such as Bihar or Odisha) can offer more targeted policy insights.

Another promising area lies in exploring the intersection of gender, technology adoption, and social norms to understand why women remain underrepresented in formal agricultural work despite policy support. Finally, mixed-method approaches that combine econometric modelling with qualitative interviews could enrich understanding of how policy interventions affect labour quality, social mobility, and sustainability in India's agricultural transformation.

Reference:-

- Chand, R., & Singh, J. (2025). Rural employment shifts and agricultural transformation in India. Journal of Rural Development, 44(1), 25–42.
- International Labour Organization (ILO). (2024). India employment report 2024: Structural transformation and the future of work. International Labour Office.
- NITI Aayog. (2023). State of agriculture report 2023: Employment, productivity, and reforms. Government of India.
- Ramaswamy, K. V. (2022). Disguised unemployment and rural labour transitions in India. Economic and Political Weekly, 57(19), 41–49.
- Food and Agriculture Organization (FAO). (2022). Smallholder livelihoods and labour transitions in South Asia. Food and Agriculture Organization of the United Nations.
- World Bank. (2021). Rural employment and livelihood diversification in India. World Bank Group.
- Bhalla, G. S., & Das, S. (2021). Agrarian structural change and employment in India, 1990–2020. Indian Journal of Labour Economics, 64(4), 687–704.
- National Sample Survey Office (NSSO). (2020). Periodic Labour Force Survey (PLFS) 2019–20. Ministry of Statistics and Programme Implementation, Government of India.
- Gulati, A., & Juneja, R. (2019). Doubling farmers' income and rural employment: Challenges ahead (ICRIER Working Paper No. 381). Indian Council for Research on International Economic Relations.

- Chandrasekhar, C. P. (2018). Employment in Indian agriculture: A sector in decline. Cambridge Journal of Economics, 42(6), 1539–1558.
- National Sample Survey Office (NSSO). (2017–2025). Periodic Labour Force Survey (PLFS) annual reports. Ministry of Statistics and Programme Implementation, Government of India.
- Ministry of Finance. (2018–2025). Economic Survey of India (Annual Reports). Department of Economic Affairs, Government of India.
- NITI Aayog. (2023). State of Agriculture Report: Employment, Productivity and Reforms. Government of India
- World Bank. (2024). World Development Indicators: Agriculture and Rural Employment (India Dataset). World Bank Group.
- National Bank for Agriculture and Rural Development (NABARD). (2022). NABARD All India Rural Financial Inclusion Survey (NAFIS 2022).
- Ministry of Agriculture & Farmers Welfare. (2024). PM-KISAN Samman Nidhi Yojana Dashboard. Government of India.
- Ministry of Rural Development. (2024). MGNREGA Management Information System (MIS). Government of India.