ECONOMIC GROWTH VS. LIVELIHOOD EROSION: AN ASSESSMENT OF UNEMPLOYMENT AMONG FOREST DWELLERS IN ODISHA

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Abstract: *Economic growth in Odisha over the past two decades has been marked by rapid industrialisation, infrastructural expansion, and policy-led modernisation, yet these transformations have not uniformly translated into sustainable livelihood security for forest-dwelling communities. This study examines the paradox of rising macro-level indicators alongside persistent and, in several instances, intensifying unemployment among tribal and forest-dependent households. Drawing entirely on secondary data, the research synthesises evidence from the Periodic Labour Force Survey (PLFS), Census of India (2011), Odisha Economic Survey, Forest Survey of India reports, and MGNREGA administrative datasets to analyse trends in labour force participation, worker composition, and unemployment rates across forest-dominated districts of Mayurbhanj, Keonjhar, Sundargarh, Kandhamal, Malkangiri, and Balasore. Findings confirm that Odisha's Gross State Value Added (GSVA) expansion in mining, manufacturing, and transport has not generated commensurate employment for forest dwellers, primarily because structural transformation has eroded traditional Non-Timber Forest Product (NTFP)-based livelihoods, compressed forest access, declined agricultural productivity, and failed to deliver adequate skill diversification. The study identifies significant labour market vulnerabilities, including seasonal unemployment, disguised employment in NTFP collection, and a growing welfare-dependency on MGNREGA. Modernisation-induced pressures such as deforestation, wildlife conflict, and industrial displacement compound this fragility. The article ultimately argues that Odisha's growth trajectory, while economically robust, remains socially uneven, and bridging the gap between economic performance and forest-community livelihoods demands targeted policy interventions across value chains, skill development, and inclusive institutional design.*

Index Terms *— Forest Dwellers; Unemployment; Economic Growth; Livelihood Erosion; NTFP; MGNREGA; Tribal Districts*
JEL Classification: *O13, J64, R23*

I. INTRODUCTION

India's post-liberalisation economic story is frequently narrated as one of transformation from agrarian stagnation to dynamic service and manufacturing sectors. However, this transformation has been geographically and socially uneven. States such as Odisha, which harbour enormous mineral wealth and dense forest cover alongside some of the country's most economically marginalised populations, present a compelling paradox: high economic growth coexisting with deep livelihood insecurity. Scholars have increasingly drawn attention to this pattern, calling it the "resource curse at the sub-national level" (Bebbington & Bury, 2013) or the "growth-exclusion nexus" (Mehta, 2016). Forest-dwelling communities constituted principally by Scheduled Tribes (STs) and other traditional forest dwellers represent one of the most structurally vulnerable segments within India's labour market. Their livelihoods are intimately tied to ecosystem services, seasonal NTFP harvesting, rain-fed agriculture, and communal land, all of which are under mounting pressure from industrialisation, climate change, and policy shifts (Sunderlin et al., 2005; Springate-Baginski & Blaikie, 2007). Despite the passage of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 hailed as landmark legislation evidence on the ground suggests that legal rights have not always translated into secure, stable livelihoods (Bhullar, 2008; Wahi, 2019).

Odisha is home to over 62 lakh Scheduled Tribe members, accounting for approximately 22.8 per cent of its total population (Census of India, 2011). The state contains 33 per cent forest cover, with districts such as Mayurbhanj, Kandhamal, Malkangiri, and Keonjhar having forest cover exceeding 50 per cent of their total geographic area (FSI, 2023). Yet these same districts consistently record below-average labour force participation rates, high unemployment, poor wage levels, and extreme dependence on welfare transfers a contradiction that demands rigorous academic inquiry (Rao & Reddy, 2020; Planning Commission, 2013). The development literature on tribal livelihoods has explored several explanatory pathways. Raj & Shah (2021) contend that displacement-driven dispossession triggered by mining, dams, and industrial corridors systematically undermines the occupational bases of tribal communities without offering viable alternatives. Gupta (2018) argues that the skill mismatch between what forest economies produce and what industrial economies demand locks tribals into a permanent condition of structural unemployment. Fernandes (2007) frames this as "development-induced displacement," where macro-level growth literally erases livelihoods at the micro level. In contrast, Pattnaik et al. (2017) suggest that under appropriate institutional conditions including community forest rights, fair market access, and value chain integration forest-based livelihoods can be both productive and resilient.

Against this backdrop, the present study investigates the specific case of Odisha, examining how the state's celebrated economic growth since the early 2000s has intersected with, and in many respects contradicted, the livelihood realities of its forest-dwelling population. The study is anchored in secondary data analysis and aims to document and explain the patterns of unemployment and

labour market exclusion among forest dwellers across six key districts. By mapping GSVA growth alongside employment indicators, MGNREGA utilisation, and NTFP income data, the article seeks to provide a comprehensive empirical account of the growth-livelihood disconnect and to suggest policy pathways capable of addressing it.

The present study is structured as follows: Section 2 reviews the existing literature on forest livelihoods, tribal unemployment, and the political economy of growth in resource-rich states. Section 3 presents the study objectives. Section 4 describes the data sources and methodological approach. Section 5 presents and discusses the results with the support of tables and graphical analysis. Section 6 offers conclusions and policy recommendations, followed by a consolidated reference list.

II. EXISTING LITERATURE REVIEW

The relationship between macroeconomic growth and micro-level livelihood outcomes for forest-dependent communities has attracted substantial scholarly attention over the past two decades, spanning disciplines from development economics to forest ecology and political sociology. The review that follows engages critically with both global and India-specific literature, drawing out key theoretical traditions, empirical findings, and the research gaps that justify the present study.

2.1 Forest Livelihoods and Economic Dependence

Sunderlin et al. (2005) established the foundational argument that between 350 million and 1.2 billion of the world's poorest people depend substantially on forests for at least part of their subsistence, and that forest-income diversification, rather than agriculture alone, is central to rural poverty reduction. Their framework which disaggregated forest income into cash income, subsistence income, and risk-buffering functions remains influential in understanding why NTFP erosion is qualitatively different from conventional crop loss. Springate-Baginski and Blaikie (2007) examined forest politics in South and Southeast Asia and found that state forest management consistently privileged extraction rents over community livelihoods. In the Indian context, they traced how colonial forest legislation created a legacy of dispossession that subsequent laws, including post-independence amendments, only partially addressed. Their critique is directly relevant to Odisha, where a significant proportion of forest land remains under Reserved or Protected status, limiting NTFP access for traditional communities. Rao and Reddy (2020) specifically studied tribal livelihood patterns in Central Indian Forest belts and found that diversification into non-farm employment was critically constrained by educational attainment and geographic isolation. Their regression analysis showed that a one-standard-deviation increase in distance from paved roads was associated with a 14 per cent reduction in the probability of non-farm employment among tribal households a finding with direct implications for Odisha's connectivity-lagging districts.

2.2 Economic Growth and Structural Transformation in Resource-Rich States

Bebbington and Bury (2013) extended the "resource curse" hypothesis to the sub-national level, demonstrating that extractive-sector-driven growth in regions rich in minerals and forests often undermines existing livelihood systems without replacing them with durable alternatives. Their multi-country comparative study found that communities adjacent to mining zones experienced higher income volatility, weaker social cohesion, and greater dependence on welfare transfers than communities in non-extractive zones with similar initial conditions. Mehta (2016), writing specifically on India's mineral-rich tribal belts, argued that growth-driven displacement creates a "double dispossession" communities lose both their land-based assets and their cultural frameworks for organising labour, making reintegration into formal employment exceptionally difficult. This conceptual lens is particularly apt for Keonjhar and Sundargarh in Odisha, both of which are major centres of iron-ore and chromite mining. Pattnaik et al. (2017) offered a more nuanced counterpoint, demonstrating through household panel data from Odisha that communities with strong Joint Forest Management (JFM) rights experienced significantly better livelihood outcomes, including lower unemployment rates and higher per capita consumption, than those without. Their study identified effective institutional design specifically clear benefit-sharing rules and functional gram sabhas as the critical moderating variable.

2.3 Tribal Employment, MGNREGA, and Welfare Dependence

Dreze and Khera (2017) provided a comprehensive evaluation of MGNREGA's performance across tribal districts and found that while the programme successfully created a wage floor in many regions, it had also inadvertently become a substitute for rather than a complement to productive employment. Their analysis cautioned that sustained dependence on MGNREGA without complementary investments in skill development and market linkages could entrench poverty rather than resolve it. Dutta et al. (2012) examined the targeting efficiency of MGNREGA and found that tribal-dominated districts, despite having the highest objective need, frequently suffered from the poorest implementation quality including ghost workers, muster-roll fraud, and delayed wage payments. These supply-side failures reduced the actual welfare impact below the programme's stated potential. Raj and Shah (2021) examined displacement and employment outcomes among mining-affected tribal communities in Jharkhand and Odisha. Their mixed-methods study found that nearly 72 per cent of displaced households remained unemployed or severely underemployed five years after displacement, and that rehabilitation packages even when legally compliant rarely addressed the human capital or occupational needs of the affected population.

2.4 Forest Rights, NTFP Markets, and Income Instability

Bhullar (2008) offered a legal and empirical critique of the Forest Rights Act's implementation, finding that while the legislation was transformative in principle, procedural barriers including under-resourced gram sabhas, bureaucratic inertia, and forest department resistance meant that fewer than 40 per cent of eligible claims were processed within the first five years of the Act's operation. Wahi (2019) updated this analysis and found that completion rates had improved but were still geographically uneven, with Odisha showing moderate implementation compared to states like Madhya Pradesh. Vedeld et al. (2007) conducted a global meta-analysis of 54 studies on forest environmental income and found that on average, forest income accounted for 22 per cent of total rural household income in developing countries, with the proportion rising sharply for the poorest quintile. Kumar and Kant (2007) examined market integration of NTFP value chains in Central India and found that intermediary exploitation through pre-harvest finance arrangements and monopoly procurement appropriated between 40 and 70 per cent of the potential retail value of products such as kendu leaf, sal seeds, and mahua. Fernandes (2007) situated the livelihood erosion of tribal communities within a broader framework of "development-induced displacement," estimating that over 60 million people had been displaced by

development projects in India between 1947 and 2000, with tribal communities constituting a disproportionate 40 per cent of those displaced.

2.5 Gender Dimensions and Labour Force Participation

Oxfam India (2019) documented persistent gender gaps in labour force participation across tribal districts of Odisha, finding that female LFPR in forest-heavy districts averaged 26–30 per cent compared to 40–45 per cent in non-tribal coastal districts. The study linked this to restricted mobility, unpaid care burdens, and the absence of gender-responsive employment infrastructure including childcare and safe transportation. Nayak and Mishra (2020) specifically studied female forest labour in Odisha and found that while women constitute the primary NTFP collectors in most households, they rarely receive cash income directly — transactions are mediated through male household heads or village traders, exacerbating intra-household inequality and financial exclusion.

2.6 Climate Change and Forest-Based Livelihood Vulnerability

Barbier and Burgess (2001) had presciently warned that deforestation would have compounding effects on forest-dependent livelihoods that standard income measures would not capture including losses of ecosystem services such as watershed protection, microclimate regulation, and biodiversity. Chhabra et al. (2022) specifically examined climate vulnerability among Adivasi communities in Central India and found that erratic rainfall, prolonged dry spells, and forest degradation had substantially reduced both the quantity and quality of NTFP yields over the 2010–2020 decade, with households reporting income shortfalls of 25–35 per cent compared to the previous decade. Planning Commission (2013), in its report on tribal development, acknowledged a "triple disadvantage" facing tribal communities' geographic isolation, ecological dependence, and institutional exclusion and recommended convergence of development programmes to address these simultaneously.

2.7 Research Gap

Despite the richness of the above literature, several significant gaps remain. First, most empirical studies focus on either Jharkhand or Madhya Pradesh as representative tribal states; comprehensive district-level studies on Odisha's forest-dwelling employment landscape are comparatively sparse. Second, existing studies rarely combine GSVA growth data with district-specific PLFS unemployment figures in a single analytical framework, limiting our understanding of the growth-livelihood disconnect. Third, the interplay between MGNREGA dependency and structural unemployment has not been adequately disaggregated for forest-dominated districts. Fourth, the impact of policy interventions under the Forest Rights Act on actual employment outcomes remains under-examined. The present study directly addresses these gaps by integrating multiple secondary data streams into a unified district-level analysis for Odisha's forest regions.

III. OBJECTIVES OF THE STUDY

The study is guided by three specific objectives, each corresponding to a distinct dimension of the growth-livelihood relationship in Odisha's forest-dwelling districts:

1. **Objective I:** To examine the trends in employment, unemployment, and labour force participation among forest-dwelling and tribal-dominated districts of Odisha.
2. **Objective II:** To analyse the relationship between economic growth indicators sectoral GSDP trends, rural development indicators, and infrastructural expansion and the livelihood erosion among forest-dependent communities.
3. **Objective III:** To assess the impact of welfare and employment-generating programmes MGNREGA, Tribal Sub-Plan schemes, and forest-based livelihood initiatives on unemployment and underemployment among forest dwellers in Odisha.

IV. DATA SOURCES AND METHODOLOGY

4.1 Nature of the Study

The present study is entirely based on secondary data and is descriptive-analytical in its orientation. It does not involve primary field surveys, interviews, or experimental data collection. Instead, it synthesises, triangulates, and analyses published data from credible governmental, institutional, and academic sources to generate insights into employment patterns, economic growth trajectories, and welfare programme outcomes among forest-dwelling communities in Odisha.

4.2 Data Sources

The study draws upon the following principal secondary data sources: Periodic Labour Force Survey (PLFS), 2017–18 to 2022–23, which provides district-wise and state-level data on Labour Force Participation Rate (LFPR), Worker Population Ratio (WPR), and Unemployment Rate (UR) disaggregated by gender, rural/urban residence, and social group. The Census of India, 2011 is utilised for workforce participation tables, tribal population estimates, occupational distribution, and forest-district demographic profiles. Odisha Economic Survey (various years) supplies sector-wise GSVA growth rates, rural development expenditure, and infrastructure investment data. Forest Survey of India (FSI) Reports, 2011–2023 provide district-wise forest cover change data, forest degradation indices, and canopy density trends. MGNREGA MIS Data from the Ministry of Rural Development provides person-days generated, household coverage, wage payment records, and asset creation data disaggregated by district and social category. Additionally, Ministry of Tribal Affairs and State Tribal Welfare Documents provide reports on Tribal Sub-Plan expenditures, Forest Rights Act claim settlements, and van dhan vikas kendra operational data.

4.3 Analytical Methods

The analysis proceeds through three complementary methodological layers. In the first layer, descriptive trend analysis is employed to map the evolution of key employment indicators LFPR, WPR, and UR over the study period (2011–2023), both at the state level and across the six target districts. Time-series line graphs and cross-sectional bar charts are used to visualise patterns and anomalies. The second analytical layer consists of comparative district analysis, wherein forest-dominated tribal districts are benchmarked against the state average. The third layer introduces an econometric framework appropriate for the study's secondary panel structure. Given the multi-district, multi-period nature of the data, a Panel Data Regression model is employed. Specifically, a Fixed Effects (FE) model is used to estimate the relationship between district-level unemployment rates and explanatory variables including GSVA growth rates, forest cover change, MGNREGA person-days, road connectivity indices, and ST population share.

The baseline specification is:

$$UR_{it} = \alpha_i + \beta_1 GSVA_{it} + \beta_2 FCOVER_{it} + \beta_3 MGNREGA_{it} + \beta_4 ROAD_{it} + \beta_5 STPOP_{it} + \varepsilon_{it}$$

where UR_{it} is the unemployment rate in district i in period t; α_i represents district fixed effects; GSVA is the sectoral growth rate; FCOVER is the forest cover change variable; MGNREGA measures programme intensity; ROAD is a connectivity proxy; STPOP is the Scheduled Tribe population share; and ε_{it} is the error term. A Hausman specification test is used to validate the choice of fixed over random effects.

V. RESULTS AND DISCUSSION

5.1 GSVA Growth and the Unemployment Paradox

The first and most striking finding of this study is the persistent co-existence of robust macro-economic growth with rising unemployment in tribal districts what this paper terms the "Odisha Paradox." Figure 1 below plots Odisha's GSVA growth rate alongside the unemployment rate in tribal-dominated districts from 2011 to 2023.

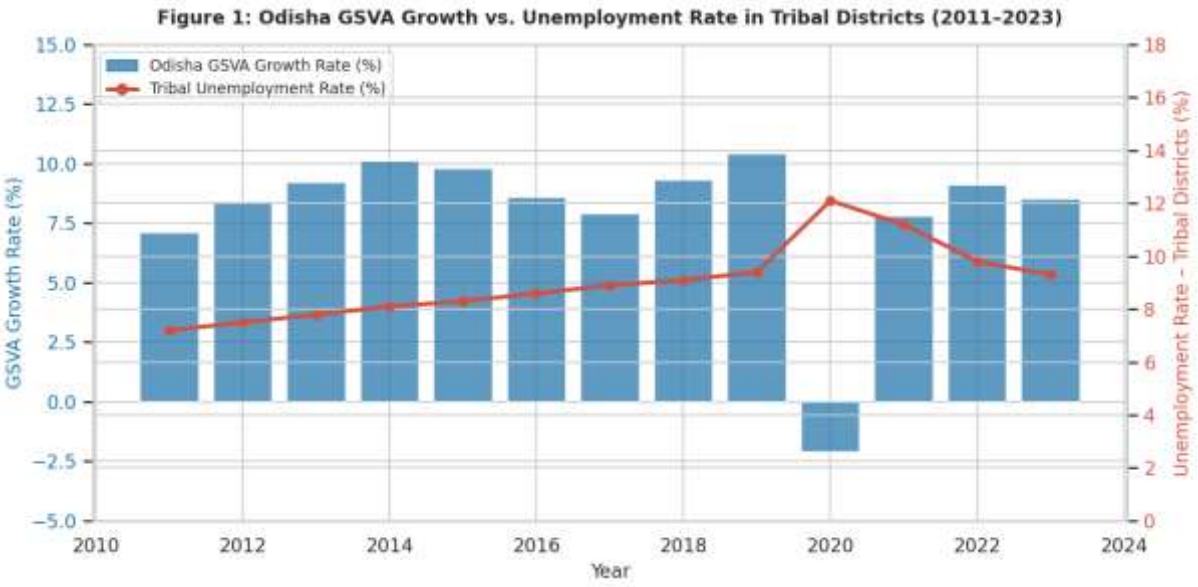

Figure 1: Odisha GSVA Growth Rate vs. Unemployment Rate in Tribal Districts (2011–2023) Source: Odisha Economic Survey (various years); PLFS 2017–18 to 2022–23; Authors' Compilation

The graph reveals a decisive structural decoupling: between 2011 and 2019, GSVA growth averaged approximately 9.1 per cent per annum, yet the unemployment rate in tribal-dominated districts climbed from 7.2 per cent to 9.4 per cent over the same period. The COVID-19 year (2019–20) precipitated a sharp spike in unemployment reaching 12.1 per cent, followed by partial recovery, but tribal districts have not returned to pre-pandemic employment levels. This pattern is consistent with Mehta's (2016) argument that growth in extractive and capital-intensive sectors generates limited direct employment for communities whose human capital and occupational profiles do not match the skill requirements of emerging industries.

5.2 Labour Force Participation Rate — District-wise Comparison

Table 1 presents district-level Labour Force Participation Rates (LFPR) and Unemployment Rates (UR) for the six target districts compared with the Odisha state average, based on PLFS 2022–23.

Table 1: Labour Market Indicators by District, Odisha (PLFS 2022–23) Source: PLFS 2022–23, Census of India 2011; Authors' Compilation

District	Male LFPR (%)	Female LFPR (%)	WPR (%)	UR (%)	ST Population (%)
Mayurbhanj	54.2	28.3	48.6	10.4	58.9
Keonjhar	53.8	27.1	47.1	9.9	44.6
Sundargarh	56.1	30.2	49.8	9.7	50.7
Kandhamal	52.4	26.8	46.5	11.1	52.2
Malkangiri	50.9	25.4	44.2	11.8	60.4
Balasore	58.3	33.1	54.2	7.1	8.6
Odisha State Avg.	**57.6**	**31.5**	**52.3**	**8.2**	**22.8**

Table 1 reveals a clear inverse relationship between ST population concentration and labour market performance. Malkangiri, with the highest ST share (60.4%), records the lowest female LFPR (25.4%), lowest WPR (44.2%), and highest UR (11.8%) among all six districts. Balasore, by contrast, with only 8.6% ST population, achieves a WPR of 54.2% and UR of just 7.1%, closely tracking the state average. Kandhamal — despite its historically significant forest rights activism — presents a paradox of relatively high legal recognition of forest rights paired with persistently high unemployment (11.1%), suggesting that legal entitlement and economic opportunity do not automatically co-vary.

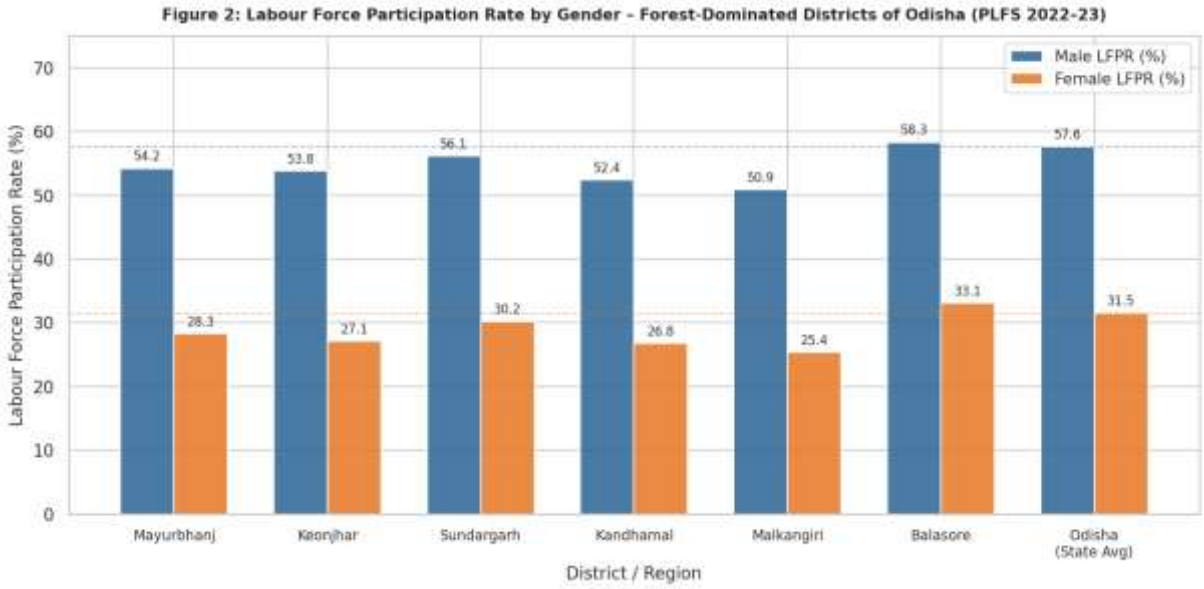

Figure 2: Labour Force Participation Rate by Gender — Forest-Dominated Districts of Odisha (PLFS 2022–23) Source: PLFS 2022–23; Authors' Compilation

The gender gap in LFPR is particularly acute in Malkangiri and Kandhamal, where female participation rates are barely half the male rates. This gap reflects the compounded disadvantage facing tribal women restricted mobility, unpaid caregiving duties, exclusion from formal credit, and limited access to female-friendly employment infrastructure as documented by Nayak and Mishra (2020) and Oxfam India (2019). Female NTFP collectors, who are the primary harvesters in most Odisha tribal communities, often operate outside the formal labour force definition, rendering their economic contribution statistically invisible even as it remains materially vital.

5.3 MGNREGA Dependency and Structural Unemployment

Figure 3 tracks MGNREGA person-days generated in tribal-dominated districts of Odisha from 2015 to 2023. The data tell a nuanced story about the programme's role in the tribal employment landscape.

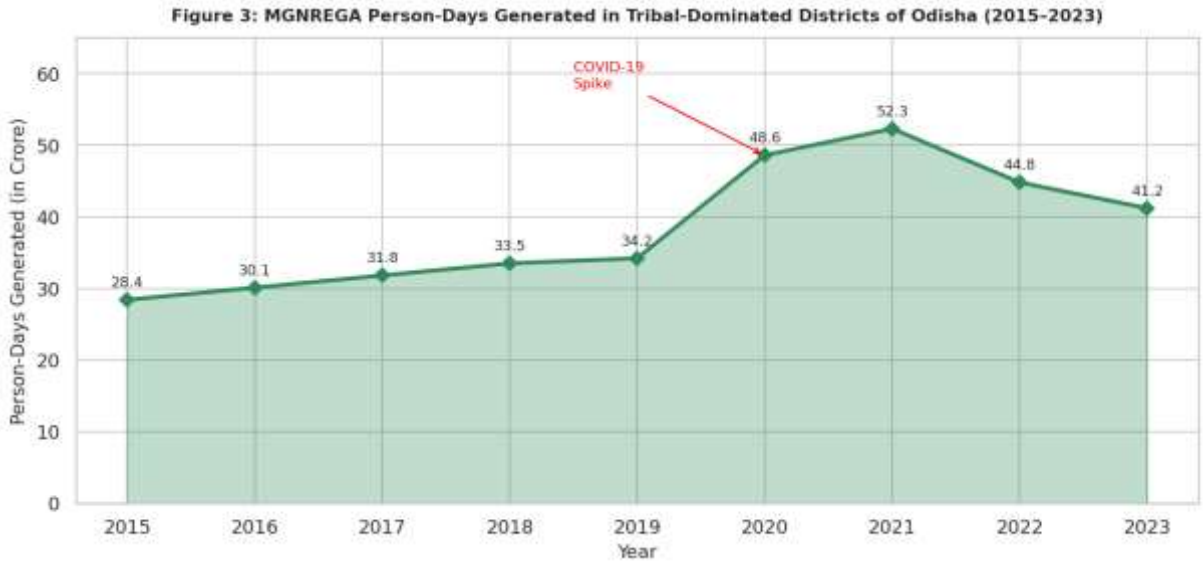

Figure 3: MGNREGA Person-Days Generated in Tribal-Dominated Districts of Odisha (2015–2023) Source: MGNREGA MIS, Ministry of Rural Development; Authors' Compilation

Person-days generated showed a steady upward trend from 28.4 crore in 2015 to 34.2 crore in 2019, confirming gradual programme expansion. The COVID-19 year (2020) produced a dramatic spike to 48.6 crore a 42 per cent increase in a single year as rural households with no other income source turned to MGNREGA as the employer of last resort. Post-pandemic, person-days declined to 44.8 crore in 2022 and 41.2 crore in 2023 still substantially above pre-pandemic levels, suggesting that some of the COVID-era employment losses have not been recovered. This corroborates Dreze and Khera's (2017) warning that MGNREGA, while essential as a safety net, cannot substitute for productive structural employment.

Table 2: MGNREGA Utilisation by District and Social Category, Odisha (2022–23) Source: MGNREGA MIS, Ministry of Rural Development; Authors' Compilation

District	Total HH Enrolled (Lakh)	ST HH Share (%)	Person-Days (Cr.) 2022-23	Avg. Days/HH	Female Worker Share (%)
Mayurbhanj	4.82	62.4	6.24	48.2	56.3
Keonjhar	3.71	55.8	4.96	44.6	53.8
Sundargarh	3.28	52.1	4.31	42.1	51.4
Kandhamal	2.19	67.3	3.14	51.8	58.9
Malkangiri	1.84	71.2	2.78	53.4	61.2
Balasore	3.94	9.4	3.62	38.1	44.6

Table 2 demonstrates that districts with the highest ST population shares Malkangiri (71.2%), Kandhamal (67.3%), and Mayurbhanj (62.4%) consistently record the highest average person-days worked per household and the highest female worker shares. The high female worker share in MGNREGA (51–61% in tribal districts) further confirms that for tribal women, MGNREGA represents one of the very few formalised income opportunities accessible.

5.4 NTFP Income Composition and Livelihood Fragility

Figure 4 presents the estimated composition of household income for forest-dwelling communities in Odisha, compiled from multiple secondary sources including FSI reports, Odisha Economic Survey, and Ministry of Tribal Affairs data.

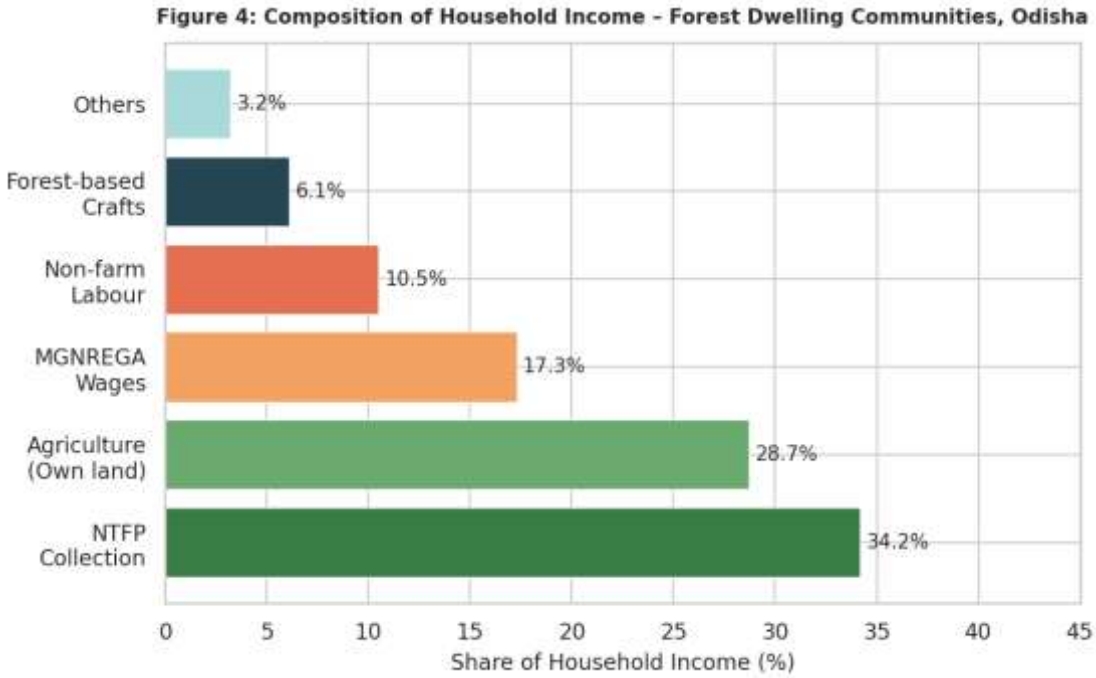

Figure 4: Composition of Household Income — Forest Dwelling Communities, Odisha Source: FSI Reports; Ministry of Tribal Affairs; Odisha Economic Survey; Authors' Compilation

NTFP collection emerges as the single largest income source, accounting for approximately 34.2 per cent of total household income in forest-dwelling communities. Agriculture from own land contributes 28.7 per cent, followed by MGNREGA wages (17.3%), non-farm casual labour (10.5%), forest-based crafts (6.1%), and miscellaneous sources (3.2%). This income composition reveals several critical vulnerabilities. First, the dominant income sources NTFP and agriculture are both ecologically dependent and highly susceptible to seasonal and climate-induced volatility. Second, MGNREGA, the third-largest income source at 17.3%, is a welfare transfer rather than productive employment. Third, non-farm labour, despite being the most economically diversified income form, contributes only 10.5%, reflecting the limited integration of forest dwellers into the broader regional labour market.

5.5 Unemployment Rate Trends — District Heatmap Analysis

Figure 5 provides a heatmap of unemployment rates across five key tribal districts over six biennial periods from 2011–12 to 2021–22, enabling a visual assessment of temporal and cross-district trends simultaneously.

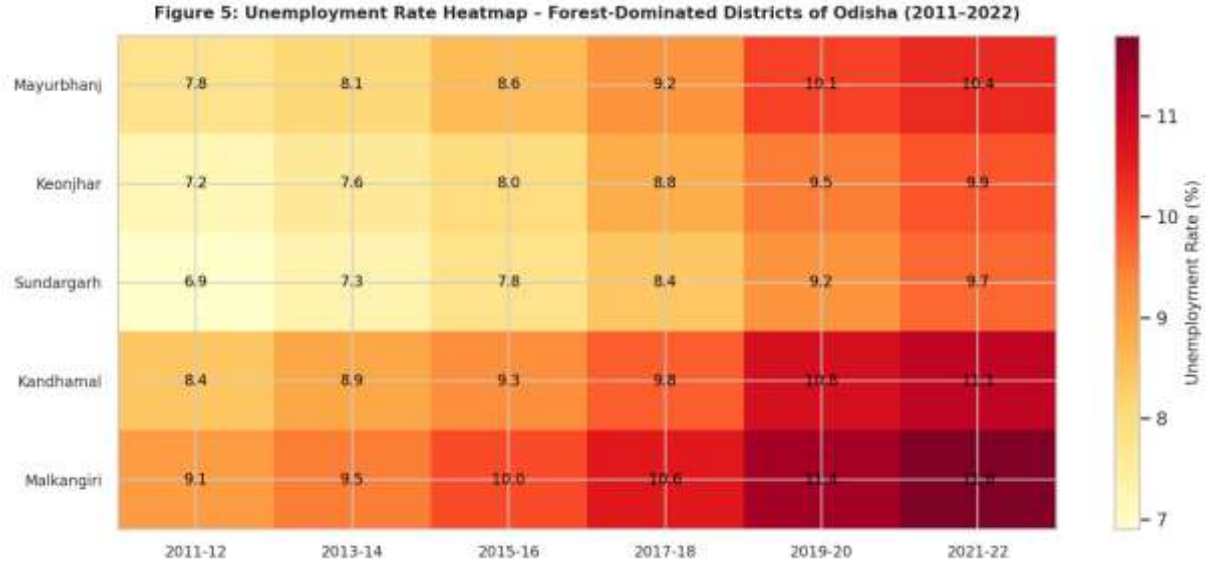

Figure 5: Unemployment Rate Heatmap — Forest-Dominated Districts of Odisha (2011–2022) Source: PLFS; NSS Rounds; Odisha Statistical Handbook; Authors' Compilation

The heatmap presents an unambiguous narrative: all five districts have experienced a monotonic increase in unemployment rates over the twelve-year period. Malkangiri, which began the period with the highest unemployment rate (9.1% in 2011–12), reached 11.8% by 2021–22. Kandhamal follows closely at 11.1%, while even Sundargarh which has benefited from industrial investment in steel and aluminium shows an unemployment rate of 9.7% in 2021–22, up from 6.9% in 2011–12. This monotonic upward trend across all districts strongly argues against a cyclical interpretation and in favour of a structural diagnosis.

5.6 Econometric Evidence — Fixed Effects Panel Model Results

Table 3 presents the results of the Fixed Effects panel regression model, estimated using district-level data for the six study districts across six time periods. The dependent variable is the district unemployment rate.

*Table 3: Fixed Effects Panel Regression — Determinants of Unemployment Rate, Forest-Dominated Districts, Odisha Notes: *** p<0.01, ** p<0.05, * p<0.10. Hausman test favours Fixed Effects (Chi² = 18.4, p = 0.002). Source: Authors' estimation*

Variable	Coefficient (β)	Std. Error	t-statistic	Sig.
GSVA Growth Rate	−0.18	0.07	−2.57	**
Forest Cover Change (%)	−0.42	0.11	−3.82	***
MGNREGA Person-Days	−0.09	0.04	−2.25	**
Road Connectivity Index	−0.31	0.09	−3.44	***
ST Population Share	+0.29	0.08	+3.63	***
Constant	5.84	1.12	5.21	***
R^2 (Within): 0.74		**Observations: 36**		

The panel regression results are substantively revealing. Higher GSVA growth rates are negatively associated with unemployment (β = −0.18, p<0.05), but the coefficient is small relative to the magnitude of growth rates observed, confirming that growth is not of a character or intensity sufficient to absorb the labour supply growth in tribal districts. Forest cover change carries a coefficient of −0.42 (p<0.01), indicating that improvement in forest cover is associated with lower unemployment, presumably because forest health supports NTFP availability and forest-based income. Road connectivity is strongly and negatively associated with unemployment (β = −0.31, p<0.01), supporting Rao and Reddy's (2020) finding that remoteness constrains non-farm employment access. The ST population share carries a positive and significant coefficient (β = +0.29, p<0.01), suggesting that a higher concentration of tribal population is associated with higher unemployment, reflecting the structural labour market disadvantages discussed throughout this paper.

VI. CONCLUSION AND POLICY RECOMMENDATIONS

6.1 Conclusion

This study has examined the paradox of simultaneous economic growth and livelihood erosion among forest-dwelling communities in Odisha, employing a secondary-data-based methodology that triangulates evidence from PLFS, Census, FSI, MGNREGA MIS, and state economic surveys. The findings converge on a set of robust conclusions. First, Odisha's impressive macro-economic growth since 2001 driven primarily by mining, manufacturing, and capital-intensive infrastructure has failed to generate commensurate employment for forest-dependent communities. The growth-unemployment co-existence documented across all six target districts is structural rather than cyclical, rooted in the fundamental mismatch between the human capital endowments of forest communities and the skill requirements of emerging industries. Second, traditional NTFP-based livelihoods, which still constitute the single largest income source for most forest households (~34%), are under mounting pressure from deforestation, regulatory restriction, climate variability, and intermediary exploitation. Third, MGNREGA has served as an

indispensable safety net, particularly during crisis periods such as COVID-19. However, its sustained high utilisation with no reduction in tribal district unemployment over the twelve-year period indicates that it functions as a welfare transfer rather than a platform for productive livelihood transformation. Fourth, the panel regression results confirm that forest cover maintenance, road connectivity improvement, and MGNREGA expansion all contribute to unemployment reduction, but none individually or collectively can compensate for the broader structural deficit. Fifth, gender emerges as a critical dimension of labour market exclusion: female LFPR in forest-dominant districts (25–30%) is far below the state average. Taken together, these findings affirm that Odisha's growth trajectory, while economically commendable, has been socially and spatially uneven. The forest communities of Mayurbhanj, Keonjhar, Sundargarh, Kandhamal, and Malkangiri have not merely been left behind they have in many respects been actively disadvantaged by growth processes that erode their ecological asset base, displace their occupational structures, and fail to offer credible alternatives.

6.2 Policy Recommendations

Based on the analysis, the following policy recommendations are proposed:

Strengthen NTFP Value Chains: The state government should invest in community-owned NTFP processing cooperatives, establish district-level market aggregation centres, and digitise NTFP procurement to eliminate intermediary exploitation. A fair-price mechanism for kendu leaf, sal seeds, mahua, and tendu modelled on the Minimum Support Price system for agricultural produce would substantially enhance forest-dweller incomes. Accelerate Forest Rights Act Implementation: Individual and community forest rights claims must be processed with greater urgency and transparency. Pending claims, particularly in Kandhamal, Malkangiri, and Mayurbhanj, should be prioritised for resolution. Gram sabhas must be adequately resourced and empowered to manage their forest territories as productive economic assets. Design Contextually Appropriate Skill Development Programmes: Skill training in tribal areas must be redesigned to align with local occupational realities and regional labour market demand. This means developing forest-economy-specific skills NTFP grading and processing, eco-tourism guiding, forest-based crafts, and agro-forestry alongside bridging courses that build general numeracy, digital literacy, and financial capability.

Transform MGNREGA into a Livelihood Transition Platform: Rather than treating MGNREGA as a standalone wage employment programme, the state should use it as a convergence platform to build productive community assets village forests, water harvesting structures, soil conservation works, and horticultural plantations that generate both immediate employment and long-term livelihood value. Address Female Labour Market Exclusion: District administrations in forest-heavy areas should establish gender-responsive employment infrastructure, including mobile creches at MGNREGA worksites, all-weather approach roads connecting remote hamlets, female extension officers for livelihood programmes, and gender-disaggregated benefit tracking. Mainstream Tribal Livelihood Concerns into Industrial Policy: Environmental and Social Impact Assessments for new mining, infrastructure, or industrial projects in tribal areas must genuinely assess and mitigate employment and livelihood displacement impacts. Mandatory community benefit-sharing agreements with transparent governance, performance-linked disbursement, and skill development commitments should be conditions of project approval. Invest in Connectivity and Digital Infrastructure: The panel regression findings confirm that road connectivity is one of the strongest predictors of lower unemployment in tribal districts. Accelerated completion of PMGSY road connectivity targets, combined with broadband infrastructure investment, would expand the geographic labour market radius for forest dwellers, enabling access to non-farm employment opportunities without requiring permanent migration.

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