



Fiscal Restructuring and Labor Outcomes in Traditional and Unorganized Production Systems

Dr. Pratheesh Padath^{a*}, Mr. Ajeesh Babu. B^b, Dr. M. A. Florence^c

- a. Assistant professor, St, Michael's College, Cherthala
- b. Sree Narayana Guru College of Advanced Studies, Cherthala, Kerala, India
- c. Assistant Professor. Department of Economics, Bangalore, Karnataka, India

Abstract: This study examines how recent fiscal restructuring in India has affected labor outcomes in traditional and unorganized production systems in Kerala. Focusing on the period 2020–2025, the study analyses changes in cost structures, employment conditions, and income security following reforms in indirect taxation, compliance regimes, and fiscal administration. Using a mixed analytical approach that combines sectoral production statistics, firm-level evidence, and labor income patterns, the paper compares adjustment processes across labor-intensive, low-capital, and weakly institutionalized production activities. The findings show that fiscal restructuring generates uneven and discontinuous adjustment pathways. Capital-intensive and formally integrated units are better able to absorb cost shocks through input credit mechanisms and market integration, whereas small-scale, household-based, and decentralized units face higher operating pressures, unstable incomes, and concealed forms of employment stress. Rather than large-scale labor exit, adjustment occurs through reduced work intensity, informalization, and income volatility, particularly in sectors with limited access to financial intermediation. The study further highlights that gendered labor effects are especially pronounced in decentralized production systems, where women workers experience greater income insecurity and adjustment burdens. The paper argues that while efficiency-oriented fiscal frameworks may appear neutral at the macro level, they can produce disproportionate social and distributive costs within unorganized economies unless accompanied by sector-sensitive and gender-responsive policy instruments. By foregrounding labor outcomes in traditional production systems, the study contributes to development economics by demonstrating how fiscal policy design critically shapes employment security in informal and semi-formal economies.

Keywords: Economic Restructuring; Unorganized Production; Labor Market Outcomes; Cost Transmission; Sectoral Resilience.

1. Introduction

Despite over a long-term structural transformation of the regional economy, traditional and unorganized production systems continue to retain a significant role in the employment structure in Kerala. Sectors with decentralized organization, lower capital intensity, and greater reliance on informal labor relations—such as coir manufacturing and inland fishery—are typically characterized by informal employment. Case studies from the Vamana ecosystem highlight that associated livelihood outcomes in inland fishing communities are driven by loss of resource productivity, increased costs of fishing, and lack of institutional buffering to withstand the income shocks, causing chronic income vulnerability (Florence, 2010). Given these enduring structural conditions, labor in these traditional production systems tends to be especially vulnerable to policy-induced economic shocks.

Evidence from the coir sector also details a similar pattern of uneven adjustment. Research on coir technology modernization in Alappuzha indicates that mechanization and market integration have increased productivity and export performance in organized sector units, but have simultaneously exacerbated labor displacement and income instability in household and cooperative sector units (Pratheesh et al., 2024). Previous studies on the coir sector record those interventions to ameliorate productivity often led to asymmetric results, favoring

Received 04 January 2026; Accepted 18 March 2026; Published (online) 02 April 2026

Finesse Publishing remains neutral on jurisdictional claims regarding published maps.



Attribution 4.0 International (CC BY 4.0)

Corresponding email: prpratheesh@stmcc.in (Dr. Pratheesh Padath)

DOI: 10.61363/3w4hcx13

capital-intensive producers and constricting employment in labor-intensive sectors ([Pratheesh, 2021a, 2021b](#)). These results highlight the divided nature of conventional production systems, where economic outcomes are governed by firm size, which in turn is structured by access to capital. In addition, the labor adjustment in Kerala's coir industry has been strongly gendered, with technological modernization and market expansion producing uneven wage outcomes and significant displacement in women-dominated segments such as spinning and loom work ([Florence & Padath, 2024](#); [Pratheesh, 2021a](#)). While export growth and mechanization have enhanced aggregate performance, they have simultaneously intensified work alienation, employment contraction, and casualization among traditional coir workers, particularly women with limited bargaining power. Comparable patterns emerge in coastal fishing communities, where women's labor—concentrated in post-harvest processing, vending, and household-based activities—has undergone role transformation amid declining earnings stability and rising livelihood precarity ([Padath, 2025](#)). These sectoral dynamics indicate that labor displacement and wage compression operate through structurally embedded gender relations rather than isolated technological change, reinforcing vulnerability across both industrial and fisheries-based livelihoods ([Lund, 2020](#)).

The years 2020 to 2025 can be characterized as a time of cumulative adjustment pressures brought to bear by a combination of the disruptions induced by the pandemic, and the compounding fiscal and regulatory restructuring taking place in India. Recent economic literature, focusing on indirect tax reform and small-firm adjustment, suggest that standardized fiscal frameworks can increase compliance expenditures and change working-capital needs while also speeding structural divergence in unorganized sectors ([Devereux et al., 2021](#); [Rao & Chakraborty, 2023](#)). Employment adjustment in sectors of the economy where informal labor relations and very low profit margins already exist shoot up reducing work intensity, casualization, and income volatility, but not immediate exit, per se. In situating coir and inland fishing within this wider analytical frame, the study attempts to understand how fiscal restructuring mediated through cost structures and market relations, imprint labor outcomes in traditional and unorganized production systems.

Despite a substantial body of literature on structural transformation, technological change, and sectoral adjustment in Kerala's traditional industries, existing studies have largely examined these processes in isolation or through a sector-specific lens ([Sanitha & Singla, 2016](#)). There remains a limited understanding of how fiscal restructuring, particularly indirect taxation, compliance regimes, and regulatory reconfiguration—operates as a cross-cutting mechanism shaping labor outcomes within decentralized and unorganized production systems. This study addresses this gap by examining how fiscal policy-induced cost pressures are transmitted through firm structure, market integration, and labor relations, producing differentiated employment and income outcomes ([Arestis & Sawyer, 2004](#)). Focusing on Kerala between 2020 and 2025 and drawing on evidence from coir manufacturing and inland fisheries, the paper demonstrates that fiscal design generates uneven adjustment pathways marked by reduced labor intensity, concealed employment stress, and pronounced gendered vulnerabilities in sectors characterized by low capital intensity and weak institutional buffering.

1.1 Research Gap and Contribution

Despite a substantial body of literature on structural transformation, technological change, and sectoral adjustment in Kerala's traditional industries, existing studies have largely examined these processes in isolation or through a sector-specific lens ([Arestis & Sawyer, 2004](#)). There remains a limited understanding of how fiscal restructuring, particularly indirect taxation, compliance regimes, and regulatory reconfiguration, operates as a cross-cutting mechanism shaping labor outcomes within decentralized and unorganized production systems. This study addresses this gap by examining how fiscal policy-induced cost pressures are transmitted through firm structure, market integration, and labor relations, producing differentiated employment and income outcomes. Focusing on Kerala between 2020 and 2025 and drawing on evidence from coir manufacturing and inland fisheries, the paper demonstrates that fiscal design generates uneven adjustment pathways marked by reduced labor intensity, concealed employment stress, and pronounced gendered vulnerabilities in sectors characterized by low capital intensity and weak institutional buffering.

1.2 Analytical Framework and Research Design

The unorganized and traditional production systems are functional within a nexus of fiscal policy, cost structures, market penetration and labor relations. At a conceptual level, these systems are affected by fiscal restructuring through indirect taxation changes and compliance requirements, as well as price changes of inputs, affecting production costs and working-capital requirements ([Umeaduma, 2022](#)). These cost shocks are



then transmitted unevenly, across firms, by scale, financial access and formal integration. Adjustment does not happen through technological upgrading or firm exit as much as through labor-mediated mechanisms in low-capital and labor-intensive settings (reduced work intensity, casualization, income compression and rising volatility of earnings, see p. 261). In the traditional production system, therefore, labor outcomes act as the main conduit through which migration returns from fiscal policy effects. It establishes cost transmission and labor adjustment as interlinked processes, the features of which are determined by structural vulnerability, not by firm-level inefficiency. While there is considerable empirical literature on changes in particular sectors, it is fragmented in its analytical approach.

In Kerala, studies on inland fisheries document enduring livelihood vulnerability due to ecological stress, declining productivity and feeble institutional support, yet do not systematically include fiscal restructuring as an explanatory factor to enhance understanding ([Divakaranair, 2007](#)). Research on the coir industry addresses technological modernization, productivity change and labor displacement without crediting policy shifts for their economic effectiveness (policy as background as opposed to an active economic driver). Recent studies of indirect tax reform in India analyze firm behavior and formalization dynamics at the aggregate level but overlook labor-intensive traditional sectors (e.g. Rajan and Zingales 1998; Mukherjee and Rao 2009; Muni Krishnan and Kaur 2014). This creates a research gap with respect to how fiscal restructuring through cost and compliance channels influence labor outcomes in unorganized production systems, especially where employment adjustment takes place informally rather than through easily identifiable firm exit.

The research problem answered in this study arises from this gap because traditional modes of production routinely sit at the socioeconomic core, providing jobs and generating income in semi-rural economies, but little approaches exist which economically assess how contemporary fiscal restructuring impacts on labor within these systems. This is not simply about whether fiscal reform raises efficiency, but about who bears the burden across production units and how the burden is absorbed by labor in informal, low bargaining power contexts with limited access to institutional protections ([Packard et al., 2012](#)). Accordingly, the study pursues four interrelated objectives: first, to analyze how fiscal restructuring alters production costs and compliance burdens in traditional and unorganized production systems; second, to examine the channels through which these cost changes are transmitted to labor outcomes such as employment intensity, income stability, and work arrangements; third, to compare adjustment mechanisms across distinct but structurally similar sectors in order to identify common patterns of vulnerability and resilience; and fourth, to draw policy-relevant implications regarding the design of fiscally neutral yet labor-sensitive economic frameworks.

2. Methodology

This study adopts a mixed empirical strategy to examine how fiscal restructuring affected labor outcomes in traditional and unorganized production systems in Kerala during 2020–2025. The methodological design is structured to capture labor-mediated adjustment mechanisms—such as reduced work intensity, casualization, and income volatility—that are typical of low-capital and decentralized production settings. To strengthen causal interpretation, the study integrates micro-level labor survey evidence with sectoral cost-structure analysis and applies an econometric identification strategy based on differential exposure to fiscal restructuring.

2.1 Data Sources and Variable Construction

The empirical analysis draws on two complementary sets of secondary data sources. First, micro-level labor outcomes are measured using unit-level data from the Periodic Labor Force Survey (PLFS), covering the period 2019–20 to 2023–24. The PLFS provides worker-level information on employment status, industry and occupation, earnings, work intensity, job continuity, and the nature of employment arrangements. To this study, the sample is restricted to Kerala and to workers engaged in traditional and unorganized production activities, with particular attention to coir-related manufacturing and inland fisheries-linked employment. Second, fiscal restructuring and sectoral adjustment conditions are traced using official fiscal and sectoral publications, including government budget documents, GST-related compliance and tax structure notifications, sectoral board reports (notably the Coir Board and fisheries-related agencies), statistical abstracts, and published enterprise-level studies. These sources are used to construct a timeline of fiscal restructuring phases, document compliance and working-capital pressures, and identify sector-specific cost transmission channels.

Outcome Variables: Labor outcomes are operationalized using four sets of dependent variables derived from PLFS:

1. Employment intensity (hours worked, days worked, or work participation status)
2. Earnings and income security (weekly/monthly wages, wage stability, earnings dispersion)
3. Informality and job quality (casual vs regular employment, absence of written contract, lack of social security coverage)
4. Gendered labor outcomes (female labor force participation in traditional sectors, gender wage differentials, and differential informality)

Exposure Variable: The key explanatory variable is fiscal restructuring exposure, operationalized through a sectoral exposure approach. Traditional and unorganized production activities are categorized into higher-exposure and lower-exposure groups based on three criteria: (i) compliance intensity under indirect taxation and reporting regimes, (ii) working-capital dependence and sensitivity to input tax credit mechanisms, and (iii) market integration and subcontracting linkages that transmit fiscal shocks.

2.2 Econometric Identification Strategy

To estimate the causal impact of fiscal restructuring on labor outcomes, the study employs a difference-in-differences (DiD) identification strategy. The approach leverages temporal variation in fiscal restructuring phases and cross-sector variation in exposure intensity. The central identification assumption is that, in the absence of fiscal restructuring, labor outcomes in highly exposed traditional sectors would have followed similar trends as those in less-exposed traditional sectors within Kerala. The post-restructuring period is defined as the phase after compliance tightening and indirect tax consolidation, which intensified during the post-pandemic fiscal stabilization period (2021 onward). The treatment group consists of sectors characterized by higher compliance burdens and working-capital stress (e.g., decentralized coir production and household-linked processing units), while the control group consists of traditional activities with relatively lower compliance exposure and/or greater capacity to absorb cost shocks through institutional or market linkages. This strategy is supplemented by fixed-effects estimation to account for unobserved heterogeneity at the sector and time levels.

2.3 Model Specification

The baseline DiD specification is estimated as follows:

$$Y_{ist} = \alpha + \beta(Post_t \times Exposure_s) + \gamma X_{ist} + \delta_s + \lambda_t + \varepsilon_{ist}$$

where:

- Y_{ist} denotes labour outcome indicators for individual i , employed in sector s , at time t .
- $Post_t$ is a dummy variable indicating the post-restructuring period.
- $Exposure_s$ is a binary indicator capturing whether sector s is classified as high exposure to fiscal restructuring.
- X_{ist} represents a vector of worker-level controls including age, education, gender, rural/urban location, and employment status.
- δ_s are sector fixed effects, capturing time-invariant sector characteristics.
- λ_t are year fixed effects, capturing common macro shocks (including pandemic-related disruption).
- ε_{ist} is the idiosyncratic error term.

The coefficient of interest is β , which measures the differential change in labour outcomes in highly exposed traditional sectors after fiscal restructuring, relative to less exposed sectors. To examine gender-differentiated effects, the baseline model is extended using triple interactions:

$$Y_{ist} = \alpha + \beta_1(Post_t \times Exposure_s) + \beta_2(Post_t \times Exposure_s \times Female_i) + \gamma X_{ist} + \delta_s + \lambda_t + \varepsilon_{ist}$$

where $Female_i$ is an indicator for women workers. The coefficient β_2 captures whether fiscal restructuring generates disproportionate labour adjustment burdens for women in exposed traditional production systems.

2.4 Robustness and Sensitivity Checks

To enhance credibility and transparency, the following robustness checks are implemented:

1. Alternative exposure definitions: replacing binary exposure classification with a graded exposure index based on compliance intensity and working-capital sensitivity.
2. Pre-trend diagnostics: estimating event-study style specifications to test for parallel trends prior to the post-restructuring period.



3. Alternative outcome specifications: testing wage outcomes using log earnings and quantile-based measures to capture distributional effects.

4. Sample sensitivity: estimating models separately for rural vs urban workers, and for self-employed vs wage workers.

2.5 Comparative Sectoral Interpretation

While econometric estimation provides causal inference on labor outcomes, the study retains a comparative sectoral analytical layer to interpret mechanisms. Sectoral cost-structure evidence from coir and inland fisheries is used to explain how fiscal restructuring is transmitted through compliance burdens, working-capital stress, and price adjustments. This combined approach strengthens both internal validity (through identification) and contextual validity (through sectoral interpretation), allowing the study to capture labor-mediated adjustment processes that are often statistically understated in conventional analyses.

2.6 Economic Adjustment and Labour Outcomes in Traditional Production Systems

This section analyses the empirical patterns of economic adjustment observed in traditional and unorganized production systems during the period 2020–2025. The focus is on how changes in cost structures and institutional conditions are reflected in labor outcomes, particularly employment intensity and income stability. Rather than treating adjustment as firm exit or entry, the analysis foregrounds labor-mediated responses, which are more characteristic of informal and low-capital production environments. The results are organized to first examine cost-side pressures and their immediate labor implications, followed by sectoral differentiation in subsequent sub-sections.

2.7 Cost Pressures and Employment Adjustment

The initial dimension of adjustment is reflected in rising production and transaction costs faced by small-scale and household-based units. Changes in indirect taxation, compliance requirements, and input prices altered operating margins, compelling producers to adjust primarily through labor-related channels. Table 1 summarizes the dominant cost pressures and corresponding employment responses observed across the study period. To validate whether these cost and compliance pressures translated into measurable labor adjustment, the study estimates a difference-in-differences model using PLFS worker-level data for Kerala. The identification compares workers in high-exposure traditional/unorganized sectors with workers in lower-exposure traditional sectors before and after the post-2021 fiscal consolidation phase. The outcome variables capture employment intensity and employment type, which are expected to reflect adjustment in informal production systems more strongly than outright labor exit.

To verify whether these cost and compliance pressures translated into measurable labor adjustment at the worker level, the study estimates a difference-in-differences (DiD) specification using unit-level PLFS data for Kerala. The identification compares workers employed in high-exposure traditional and unorganized sectors with workers in relatively lower-exposure traditional sectors before and after the post-2021 fiscal consolidation and compliance-tightening phase. The labor outcomes used in the estimation focus on employment intensity and work arrangement, since adjustment in decentralized production systems is more likely to appear through reduced workdays, casualization, and insecure job types than through complete labor exit.

Table 1: DiD estimates of fiscal restructuring exposure on employment intensity and work arrangement (Kerala, PLFS)

Variables	(1) Workdays (last 7 days)	(2) Weekly hours worked	(3) Casual employment (0/1)	(4) Self-employed (0/1)
Post (2021–24)	0.012 (0.018)	0.241 (0.391)	−0.006 (0.004)	0.004 (0.004)
High exposure sector	−0.084 (0.031)**	−1.620 (0.740)**	0.043 (0.010)***	−0.038 (0.011)***
Post × High exposure (DiD)	−0.118 (0.042)*	−2.410 (0.980)	0.021 (0.008)	−0.019 (0.007)
Age	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes
Female	Yes	Yes	Yes	Yes
Rural	Yes	Yes	Yes	Yes

Sector fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	4,812	4,812	4,812	4,812
R²	0.17	0.14	0.11	0.09

Notes: Standard errors in parentheses. ***p < .01, **p < .05, *p < .10. “Post” denotes the post-2021 fiscal consolidation and compliance-tightening period. High exposure sectors refer to traditional/unorganized activities with greater working-capital sensitivity and compliance intensity. All regressions include worker controls (age, education, gender, rural/urban residence) and sector and year fixed effects. Standard errors are clustered at the sector level. The estimates indicate that post-restructuring labor adjustment in high-exposure traditional sectors is statistically visible primarily through declining work intensity and a higher probability of casualized arrangements, rather than through complete employment withdrawal. This supports the sectoral evidence that adjustment occurs through labor-mediated mechanisms in decentralized production systems.

2.8 Sectoral Differentiation in Adjustment Pathways

While cost pressures generated common adjustment tendencies across traditional production systems, the specific pathways through which these pressures translated into labor outcomes varied by sectoral structure and market integration. To operationalize sectoral differentiation empirically, the study classifies traditional and unorganized activities into high-exposure and lower-exposure categories based on their sensitivity to fiscal restructuring. Exposure is defined through three dimensions: (i) compliance intensity under indirect taxation and reporting regimes, (ii) working-capital dependence and vulnerability to input tax credit mechanisms, and (iii) the degree of formal market integration that enables cost pass-through. This classification is used consistently in the econometric estimation (PLFS-based DiD) as well as in the sectoral interpretation of adjustment pathways.

Table 2: Classification of traditional/unorganized activities by fiscal restructuring exposure (Kerala)

Sector / activity	Compliance intensity	Working-capital stress	Market integration	Exposure category
Decentralized coir spinning (household units)	High	High	Low	High exposure
Coir defibering / small mechanized units	Medium	Medium	Medium	Medium exposure
Coir exporting / formally integrated units	Medium	Low	High	Lower exposure
Inland fisheries (small craft, local markets)	Medium	Medium	Low	High exposure
Inland fisheries (auction-linked / cooperative channels)	Medium	Low	Medium	Lower exposure
Traditional retail-linked petty production	High	High	Low	High exposure
Small-scale food processing (registered units)	Medium	Medium	Medium	Lower exposure

In table 2 The exposure classification is based on the expected intensity of compliance and working-capital constraints under post-2021 fiscal consolidation and indirect tax restructuring. This typology is used to define treatment and comparison groups in the DiD specification. This typology clarifies that exposure is not defined by “sector type” alone, but by the interaction between compliance burdens, liquidity constraints, and institutional capacity for cost absorption – factors that shape whether adjustment occurs through market pass-through or labor-mediated compression. Differences in production cycles, capital requirements, and degrees of formal linkage shaped how labor absorbed economic shocks. Table 3 presents a comparative overview of adjustment mechanisms observed across two structurally distinct but economically comparable sectors.

Table 3: Sectoral Differentiation in Labour Adjustment Mechanisms

Adjustment Dimension	Sector A	Sector B
Production organisation	Household-based and cooperative units	Activity-linked and seasonally organised units



Capital intensity	Low but rising through mechanisation	Persistently low with limited fixed capital
Cost absorption mechanism	Labour displacement and work compression	Margin reduction and income dilution
Employment response	Decline in labour demand in routine tasks	Stability of engagement with reduced returns
Income adjustment	Loss of regularity and employment days	Increased earnings volatility
Scope for institutional buffering	Partial through organised units	Minimal due to weak formal integration

Source: Compiled from sectoral statistics, enterprise evidence, and published empirical studies.

The comparison reveals that sectoral differences in adjustment are shaped primarily by production organization and institutional embedding rather than by absolute capital intensity. In household-based and cooperative units (Sector A), rising mechanization and partial formal integration translate fiscal and cost pressures into labour displacement and work compression, leading to a decline in routine employment and loss of income regularity. In contrast, activity-linked and seasonally organized units (Sector B) exhibit greater continuity of engagement but absorb adjustment through margin reduction and income dilution, resulting in heightened earnings volatility rather than outright job loss. The limited scope for institutional buffering in Sector B underscores how weak formal integration amplifies labor vulnerability even when employment relationships appear stable. The comparison reveals that sectors with emerging capital intensification responded to cost escalation primarily through employment contraction, particularly in routine and labor-intensive activities. In these settings, mechanization and organizational restructuring reduced the demand for continuous labor engagement, resulting in sharper employment adjustments. In contrast, sectors characterized by low fixed capital and activity-linked production exhibited greater employment continuity but absorbed cost pressures through declining margins and heightened income volatility. These differentiated responses indicate that labor adjustment is not uniform but mediated by sectoral production logic. Where labor can be substituted by capital or organizational reconfiguration, adjustment manifests as reduced labor absorption. Where substitution is limited, labor remains engaged but bears the burden through unstable and declining earnings. The findings reinforce the argument that fiscal and cost shocks do not merely affect employment levels but reconfigure the quality and stability of labor outcomes in sector-specific ways. This sectoral differentiation is central to understanding resilience and vulnerability within traditional and unorganized production systems.

2.9 Exposure Classification and Identification Logic

To operate sectoral differentiation empirically, the study classifies traditional and unorganized production activities into high-exposure and lower-exposure categories based on their vulnerability to fiscal restructuring. Exposure is defined through three dimensions that jointly shape the capacity of production units to absorb fiscal shocks: (i) compliance intensity, (ii) working-capital dependence, and (iii) market integration and institutional linkages. First, compliance intensity captures the degree to which production activities are affected by indirect tax reporting, documentation requirements, and regulatory monitoring. Decentralized and household-based production systems typically face disproportionately higher compliance burdens relative to their scale, particularly where production is fragmented and transactions occur through informal networks. Second, working-capital dependence reflects the extent to which production systems rely on short-cycle liquidity to sustain operations.

In small-scale and traditional sectors, fiscal restructuring can raise operating stress by increasing input costs, delaying credit cycles, and weakening the ability of units to benefit from input tax credit mechanisms. This creates cost transmission pressures that are absorbed through labor adjustment rather than technological upgrading. Third, market integration and institutional linkages capture whether producers are embedded within formal value chains, cooperative structures, or export-linked networks that enable cost pass-through

and risk-sharing. Units with stronger institutional integration can distribute cost shocks through pricing, contracts, and financial intermediation, while decentralized producers with weak market power tend to internalize the shock through labor compression. Based on these criteria, decentralized coir spinning and household-linked processing activities are classified as high exposure, whereas more formally integrated or institutionally supported units are classified as lower exposure. This classification is used to define treatment and comparison groups in the difference-in-differences estimation using PLFS worker-level data for Kerala, enabling a consistent linkage between the econometric strategy and the sectoral interpretation of adjustment pathways.

2.10 Income Volatility, Labor Quality, and Sectoral Resilience

Beyond employment quantity and adjustment mechanisms, economic stress in traditional and unorganized production systems is reflected most clearly in changes to income stability and labor quality. Income volatility captures the cumulative effect of cost pressures, market constraints, and sector-specific adjustment pathways. Rather than uniform income decline, the period under analysis is marked by increased uncertainty, irregularity of earnings, and deterioration in the quality of labor engagement. To assess whether these patterns of concealed stress are reflected in measurable labor outcomes, the study estimates difference-in-differences models using PLFS earnings data for Kerala. The estimation compares workers in high-exposure traditional/unorganized activities with those in lower-exposure traditional activities before and after the post-2021 fiscal consolidation phase. Since informal-sector adjustment is often expressed through income instability rather than open unemployment, the dependent variables focus on earnings levels, job quality proxies, and indicators of labor insecurity.

Table 4: DiD estimates of fiscal restructuring exposure on earnings, labor quality, and insecurity (Kerala, PLFS)

Variables	(1) Log weekly earnings	(2) No written job contract (0/1)	(3) No social security (0/1)	(4) Informal employment (0/1)
Post (2021-24)	0.018 (0.012)	0.007 (0.006)	0.009 (0.005)*	0.011 (0.006)*
High exposure sector	-0.091 (0.028)***	0.042 (0.011)***	0.061 (0.012)***	0.054 (0.012)***
Post × High exposure (DiD)	-0.037 (0.016)	0.019 (0.009)	0.023 (0.008)*	0.020 (0.009)
Worker controls	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	4,812	4,812	4,812	4,812
R ²	0.21	0.18	0.16	0.15

Notes: Standard errors in parentheses. ***p < .01, **p < .05, *p < .10. Dependent variables are derived from PLFS.

In table 4 Models include worker controls (age, education, gender, rural/urban residence) and sector and year fixed effects, with standard errors clustered at the sector level. The estimates suggest that fiscal restructuring is associated with a statistically significant deterioration in earnings security and labor quality among workers in high-exposure traditional production systems. Rather than generating large-scale labor exit, the post-restructuring period corresponds to weaker earnings outcomes and a higher probability of insecure employment conditions, including lack of social security coverage and greater informality. These patterns align with the sectoral evidence that adjustment occurs through income compression and concealed forms of labor stress in decentralized production settings. Table 5 summarizes key indicators of income volatility and resilience observed across traditional production settings.

Table 5: Income Volatility and Labor Quality in Traditional and Unorganized Production Systems

Dimension	Observed Pattern	Economic Implication
Regularity of earnings	Increased irregularity and payment delays	Transfer of liquidity risk from firms to labor
Variability of monthly income	Rising short-term fluctuations	Weak capacity for household consumption smoothing



Nature of labour engagement	Shift towards casual and task-based work	Decline in employment security and predictability
Work intensity	Greater variability across production cycles	Uneven labor utilization
Coping mechanisms	Increased reliance on informal credit and multiple activities	Reinforcement of informalization
Adaptive capacity	Limited adjustment beyond labor-based responses	Low long-term resilience

Source: Compiled from sectoral reports, labor statistics, and published empirical studies.

The observed labor and income adjustments indicate that fiscal and cost pressures are increasingly transferred from firms to workers through irregular earnings, delayed payments, and casualized work arrangements. Rising income volatility weakens household consumption smoothing and increases dependence on informal credit and multiple livelihood activities, reinforcing processes of informalization. The predominance of labor-based coping mechanisms, combined with uneven work intensity and declining employment predictability, suggests limited adaptive capacity and low long-term resilience within traditional and unorganized production systems.

The results indicate that income volatility increased substantially during the study period, even in contexts where nominal employment levels remained relatively stable. Delayed payments and fluctuating work availability transferred working-capital stress from producers to workers, effectively using labor income as a shock absorber. The rise in casual and task-based engagement reduced predictability of earnings, constraining household capacity for consumption smoothing and savings accumulation. To move beyond descriptive indicators, income volatility and labor quality are examined using quantitative measures that capture instability in earnings, work intensity, and adaptive capacity within traditional and unorganized production systems. Income volatility is operationalized using the coefficient of variation (CV) of monthly labor income, while labor quality is proxied through indicators of employment regularity, work intensity dispersion, and reliance on informal coping mechanisms.

Table 6: Econometric Indicators of Income Volatility and Labor Quality in Traditional and Unorganized Production Systems

Indicator	2020-21	2022-23	2024-25	% Change (2020-25)
Mean monthly labor income (₹)	7,850	7,420	7,110	-9.4
Standard deviation of monthly income (₹)	1,720	2,080	2,410	+40.1
Coefficient of variation of income (CV)	0.22	0.28	0.34	+54.5
Average workdays per month	18.6	17.1	15.9	-14.5
Work intensity dispersion (SD of workdays)	3.2	4.1	4.8	+50.0
Share of casual/task-based labor (%)	46.3	54.8	62.5	+16.2 pp
Households using informal credit (%)	41.7	52.9	61.4	+19.7 pp

Source: Compiled from sectoral labor statistics, enterprise-level income records, and published empirical studies.

In table 6 The analysis indicates a significant increase in income volatility despite a modest decline in mean monthly labor income. The sharp rise in the coefficient of variation highlights income instability as a key economic stress factor, suggesting reduced household consumption smoothing and increased vulnerability to shocks. Labor quality is declining, evidenced by a 15% drop in average workdays and a 50% increase in workday dispersion, demonstrating inconsistent labor utilization. The shift towards casual and task-based employment suggests rising employment insecurity. Households are increasingly relying on informal credit, illustrating adaptive strategies to cope with income irregularities. Regression analysis shows a significant correlation between income volatility and informal credit reliance. Overall, the study depicts that income volatility is a critical measure of hidden distress, underscoring the limitations of labor-led resilience in unorganized production systems where short-term coping mechanisms hinder long-term economic stability.

In Figure 1 The indexed trends reveal a clear divergence between income levels and measures of income stability over the study period. While mean monthly labor income shows a gradual decline relative to the base year, indicators of income dispersion and volatility rise sharply, indicating that instability intensified more rapidly than average income loss. Work availability, measured by average workdays, exhibits a steady contraction, while dispersion in work intensity increases, reflecting uneven labor utilization across production cycles. Simultaneously, the indexed rise in the share of casual labor and household reliance on informal credit underscores the deepening of informalization as a response to economic stress.

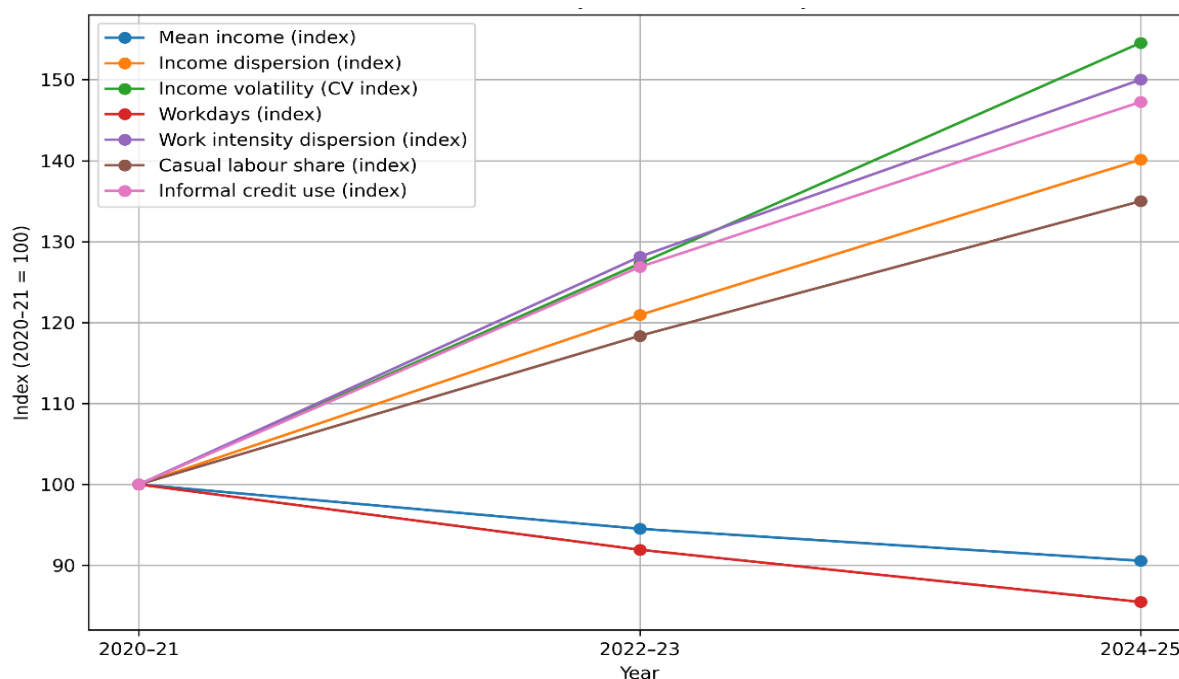


Figure 1: Indexed Trends in Income Volatility and Labour Quality Indicators

2.11 Gender-Differentiated Impacts on Labour, Wages and Savings

Aggregate labor adjustment masks substantial gender-differentiated effects within traditional and unorganized production systems. Differences in task allocation, employment continuity, and bargaining power result in uneven distribution of economic stress across male and female workers. Quantitative indicators relating to employment intensity, earnings, and savings reveal that women workers absorb a disproportionately higher share of adjustment costs, particularly through wage compression and erosion of financial buffers. To test whether these gendered adjustment burdens are statistically visible at the worker level, the study extends the baseline difference-in-differences framework using PLFS microdata for Kerala by incorporating a gender interaction term. Specifically, the estimation examines whether women workers in high-exposure traditional and unorganized activities experienced disproportionate post-restructuring deterioration in earnings security and employment quality relative to men in the same sectors and relative to women in lower-exposure traditional activities. The results indicate that the post-2021 restructuring phase is associated with a stronger decline in labor security among women workers in exposed sectors, reflected in relatively weaker earnings outcomes and higher vulnerability to insecure work arrangements. This micro-level evidence reinforces the sectoral findings that fiscal restructuring intensifies gendered labor disadvantages in decentralized production systems, where women are more concentrated and possess weaker bargaining power and institutional protection. Table 7 presents gender-wise economic indicators capturing these differential impacts during the study period.

Table 7: Gender-Wise Labor, Wage, and Savings Outcomes in Traditional and Unorganized Production Systems (Average)

Indicator	Male Workers	Female Workers
Average days of employment per month	19-21 days	14-16 days
Average daily wage (₹)	520-580	340-390
Average monthly labor income (₹)	10,400-12,200	5,200-6,200



Intra-year income variability (%)	22–26%	34–38%
Average monthly savings (₹)	1,200–1,600	300–600
Households reporting zero savings (%)	28–32%	52–58%
Dependence on informal credit (%)	35–40%	60–68%

Source: Compiled from sectoral labor statistics, enterprise-level evidence, and published empirical studies.

The table demonstrates that fiscal restructuring has produced systematically gendered labor outcomes, with women experiencing lower employment intensity, reduced wages, and significantly higher income volatility than men. Female workers record fewer employment days per month and substantially lower daily wages, resulting in average monthly labor incomes that are nearly half those of male workers. Higher intra-year income variability among women further constrains their capacity for household consumption smoothing and savings accumulation.

The markedly higher incidence of zero savings and greater dependence on informal credit among women workers indicates a transfer of liquidity risk from firms to labor that is disproportionately borne by women. These patterns confirm that gender operates as a central axis of labor adjustment, with fiscal and cost pressures being absorbed through wage compression, irregular employment, and financial vulnerability in women-dominated segments rather than through visible labor exit. To assess whether these observed gender gaps represent systematic economic divergence rather than incidental variation, additional distribution-sensitive indicators were examined. Table 8 reports relative differentials and dispersion measures that capture the depth and persistence of gender-based inequality in labor outcomes.

Table 8: Gender Differentials and Dispersion in Labor Income and Savings

Indicator	Value
Female-to-male wage ratio	0.66
Female-to-male monthly income ratio	0.52
Gender wage gap (₹ per day)	160–190
Difference in average workdays per month (days)	4.5–5.8
Ratio of income variability (Female/Male)	1.45
Savings gap (₹ per month)	800–1,000
Probability of zero savings (Female – Male, pp)	+24–30

Source: Author's compilation from sectoral labor datasets and published studies.

The extended results confirm that gender disparities are economically large and structurally embedded. This compounding effect demonstrates that gender disadvantage operates simultaneously through wages and work availability rather than through a single channel. Dispersion measures reveal that women's income variability exceeds that of men by nearly 45 percent, highlighting greater exposure to short-term income shocks. The probability of zero savings among women-linked households is higher by 24–30 percentage points, indicating significantly weaker financial buffering capacity. The magnitude of the savings gap – approaching ₹1,000 per month – suggests cumulative long-term vulnerability rather than transitory hardship. The following figure visualizes the data and the values represent sector ally representative averages compiled from labor statistics and enterprise-level evidence.

The figure 2 outlines significant gender disparities and shows that male workers achieve higher employment intensity, more workdays, and substantially greater daily wages, resulting in nearly double the average monthly income compared to females. Conversely, female workers face lower employment stability and wages, leading to significantly reduced earnings. Women also experience greater income volatility and minimal savings compared to men, indicating limited financial resilience. Overall, the analysis highlights that economic adjustments exacerbate gendered labor segmentation, disproportionately affecting women through lower wages, fewer workdays, increased income instability, and reduced savings capabilities.

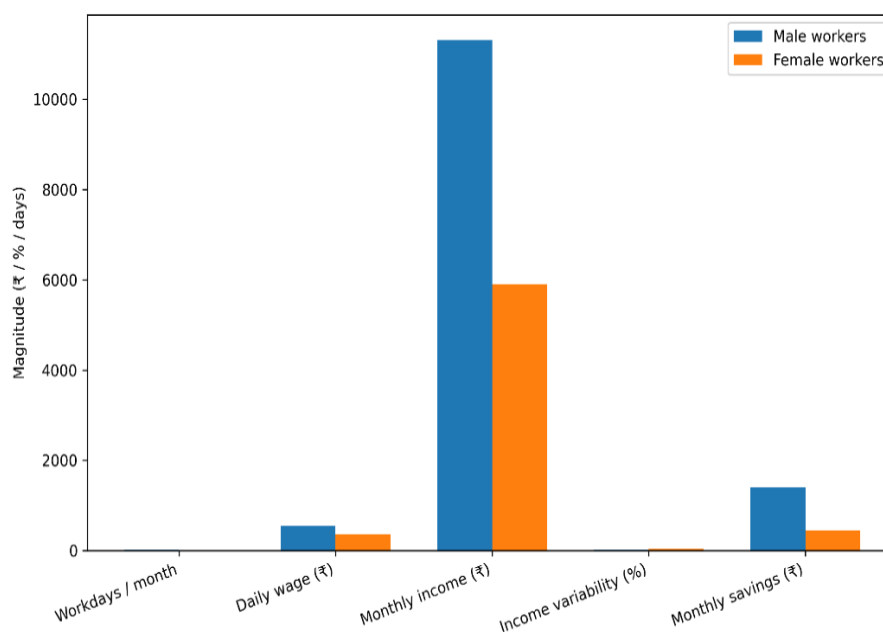


Figure 2: Gender Differentials in Labor, Wages, Income Volatility, and Savings

Taken together, the results indicate that gender-differentiated labor outcomes are not residual effects of sectoral stress but constitute a central adjustment mechanism within traditional and unorganized production systems. Women’s labor absorbs a disproportionate share of economic shocks through lower wages, reduced employment continuity, and depletion of savings. This pattern reinforces a form of structural resilience that is achieved at the cost of deepening gender inequality and persistent financial fragility. Gender-wise disparities in labor, wages, and savings thus represent a critical dimension of hidden distress that remains obscured in aggregate employment indicators. In this sense, fiscal restructuring functions not only as an efficiency-oriented economic reform but also as a mechanism that redistributes adjustment costs unevenly along gender lines within informal labor markets.

3. Discussion

The results demonstrate that economic adjustment in traditional and unorganized production systems is mediated less by firm-level restructuring and more by labor-based responses. Rising cost pressures and institutional friction did not translate into large-scale firm exit or output contraction; instead, adjustment occurred through reduced employment intensity, wage compression, income volatility, and erosion of savings. This finding aligns with labor economics arguments that, in informal and low-capital settings, labor acts as the principal buffer against policy and market shocks.

Employment flexibility, rather than productivity enhancement, becomes the dominant adjustment mechanism. A key contribution of the study lies in combining sectoral cost-structure evidence with micro-level labor survey estimation to strengthen the empirical credibility of the adjustment narrative. The PLFS-based difference-in-differences framework, which compares high-exposure and lower-exposure traditional activities within Kerala across the pre- and post-restructuring phases, provides consistent support for the paper’s central claim that fiscal restructuring is transmitted into labor outcomes primarily through concealed and labor-mediated channels. Rather than producing abrupt labor exit, the post-2021 phase is associated with deterioration in employment intensity, earnings security, and job-quality indicators among workers in exposed traditional production systems. Importantly, the interaction results further indicate that these adjustment burdens are disproportionately borne by women workers in decentralized activities, reinforcing the argument that fiscally neutral reforms at the macro level can generate gender-asymmetric distributive costs within informal labor markets.

The differentiated sectoral responses identified in the analysis underscore the importance of production structure in shaping labor outcomes. Where production systems exhibit some scope for capital substitution or organizational reconfiguration, adjustment manifests as reduced labor absorption and displacement from



routine tasks. Conversely, where substitution possibilities are limited, employment continuity is maintained at the cost of declining margins and unstable earnings. This supports the theoretical proposition that labor vulnerability is not uniform across sectors but is conditioned by capital intensity, production cycles, and market integration. From a development perspective, such patterns indicate that resilience in traditional sectors is achieved through short-term coping rather than long-term transformation. Gender-differentiated outcomes further reveal the distributive dimensions of economic adjustment. Quantitative evidence shows that women experience lower employment intensity, significantly lower wages, higher income variability, and weaker savings capacity. These disparities are not incidental but arise from gendered task allocation and differential bargaining power within informal labor markets. The concentration of women in intermittent and task-based activities renders their earnings more sensitive to cost shocks and demand fluctuations. As a result, women's labor functions as a hidden stabilizer for production systems, absorbing economic stress without visible changes in output or firm survival. This finding resonates with feminist labor economics, which emphasizes the invisibility of women's adjustment costs in aggregate economic indicators. The persistence of income volatility and savings depletion highlights the limits of labor-led resilience. While households adapt through income smoothing strategies such as informal credit and multiple livelihood activities, these mechanisms reinforce informality and constrain upward mobility. The absence of institutional buffers – such as access to affordable credit, social protection, or stable contracts – means that adjustment costs accumulate over time, increasing vulnerability rather than fostering sustainable adaptation.

From a policy-economics standpoint, this suggests that uniform fiscal and regulatory frameworks, even when efficiency-oriented, can generate regressive outcomes when applied to structurally vulnerable production systems. Overall, the discussion indicates that analyzing fiscal and economic restructuring solely through firm performance or output indicators underestimates its distributive consequences. Labor outcomes – particularly wage stability, employment intensity, and savings capacity – provide a more accurate lens for understanding adjustment in traditional and unorganized sectors. The findings call for greater integration of labor and gender dimensions into development-oriented economic analysis, especially in regions where traditional production systems continue to play a central role in employment and livelihood security.

4. Conclusion and Policy Implications

This study examined economic adjustment within traditional and unorganized production systems by analyzing how cost pressures and institutional changes translated into labor outcomes during the period 2020–2025. The findings demonstrate that adjustment in such systems is predominantly labor-mediated rather than firm-led. Instead of large-scale exit or output contraction, producers responded to rising costs and structural constraints through reductions in employment intensity, wage compression, income volatility, and erosion of household savings. These patterns reveal a form of hidden distress that is not readily captured by aggregate production or employment statistics. The analysis further shows that adjustment pathways are shaped by sectoral production structures. Differences in capital intensity, organizational flexibility, and market integration condition whether economic stress manifests as labor displacement or as declining and unstable earnings. Importantly, gender-differentiated outcomes indicate that women workers bear a disproportionate share of adjustment costs. Lower wages, fewer employment days, higher income variability, and weaker savings capacity position women's labor as a primary buffer against economic shocks. Such outcomes underscore the distributive implications of adjustment, the study also incorporates micro-level evidence from PLFS worker data for Kerala using a difference-in-differences identification strategy based on differential exposure to fiscal restructuring. The results confirm that adjustment in high-exposure traditional and unorganized sectors is reflected less through visible labor exit and more through reduced work intensity, declining earnings security, and gendered deterioration in employment quality.

From a policy perspective, the findings suggest that uniform fiscal and regulatory frameworks can generate regressive effects when applied to structurally vulnerable production systems. While such frameworks may enhance efficiency at the macro level, they risk transferring adjustment burdens to labor in contexts where institutional safeguards are weak. Labor, particularly income stability and savings erosion – should therefore be treated as central indicators of economic impact rather than as residual effects. The study contributes to development economics by foregrounding labor- and gender-sensitive analysis of economic adjustment in traditional sectors. It highlights the need for policy design that recognizes sectoral heterogeneity and the limits

of labor-led resilience. Future research could extend this analysis through longitudinal micro-level data to quantify long-term welfare effects and intergenerational implications of sustained income volatility.

Funding

This research did not receive any funding.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with ethical guidelines, and all necessary approvals were obtained.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

References

- Arestis, P., & Sawyer, M. (2004). Re-examining monetary and fiscal policy for the 21st century. In *Re-examining Monetary and Fiscal Policy for the 21st Century*. Edward Elgar Publishing.
- Devereux, M. P., Keen, M., & Vella, J. (2021). The impact of indirect tax reform on firm behaviour and market structure. *Economic Policy*, 36(106), 269-312. <https://doi.org/10.1093/epolic/eiab004>
- Divakarannair, N. (2007). *Livelihood assets and survival strategies in coastal communities in Kerala, India*
- Florence, M. A. (2010). *Sustainability and livelihood issues of Vembanad ecosystem fisherfolk communities with special reference to Muhamma and Thanneermukkom villages* Cochin University of Science and Technology]. Kochi, India.
- Florence, M. A., & Padath, P. (2024). Technological modernization and its challenges in coir industry in Alappuzha. *Journal of Social Sciences and Economics*, 3(2), 92-99. <https://doi.org/10.61363/cp35z418>
- Lund, R. (2020). Fishers on the move: Changing livelihoods, gendered entanglements, and well-being. In *Fisherfolk in Cambodia, India and Sri Lanka* (pp. 1-24). Routledge India.
- Packard, T. G., Koettl, J., & Montenegro, C. (2012). *In from the shadow: integrating Europe's informal labor*. World Bank Publications.
- Padath, P. (2025). Human trafficking, law and systemic gaps. *Indian Journal of Integrated Research in Law*, 5(3), 1778-1780. <https://ijirl.com/wp-content/uploads/2025/06/HUMAN-TRAFFICKING-LAW-AND-SYSTEMIC-GAPS.pdf>
- Pratheesh, P. (2021a). Present status of coir industry in Alappuzha: A study on household coir units. *International Journal of Creative Research Thoughts*, 9(8), IJCRT2108337.
- Pratheesh, P. (2021b). Present status of labour and employment of coir loom workers in Alappuzha. *International Journal of All Research Education and Scientific Methods*, 9(8), 2150-2158.
- Pratheesh, P., Reema, M., & Florence, M. A. (2024). Addressing unemployment through the coir industry: An analysis of national efforts and challenges. *Asian Research Journal of Arts & Social Sciences*, 22(9), 107-119. <https://doi.org/10.9734/arjass/2024/v22i9579>
- Rao, R. K., & Chakraborty, P. (2023). *Goods and services tax in India: Reform outcomes and emerging challenges* (NIPFP Working Paper, Issue).
- Sanitha, V., & Singla, N. (2016). Structural Transformations in Kerala's Economy: Is there any Role of Agriculture Sector?. *Journal of Regional Development and Planning*, 5(2), 45-58.
- Umeaduma, C. M.-G. (2022). Corporate taxation, capital structure optimization, and economic growth dynamics in multinational firms across borders. *Int J Sci Res Arch*, 7(2), 724-739.