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ECONOMIC DETERMINANTS SHAPING AGRICULTURAL WOMEN LABORERS' LIVELIHOOD PATTERNS IN JODHPUR, RAJASTHAN

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ABSTRACT:

In the hyper-arid agro-ecology of Jodhpur, Rajasthan, female agricultural wage labourers constituting over 65% of the operational workforce in rainfed systems remain structurally entrapped in precarious, low-return livelihoods. This study interrogates the interlocking economic determinants chronic wage suppression, gendered asymmetries in credit and technology access, pervasive land tenure insecurity, distress-induced male out-migration, and constricted market integration that systematically reproduce intergenerational poverty and labour exploitation. Deploying a mixed-methods framework comprising stratified household surveys (n=280), semi-structured phenomenological interviews, and institutional ethnography across chronically drought-affected thesis, the analysis demonstrates that intersecting axes of caste, patriarchy, and ecological fragility amplify capability deprivation and foreclose diversification pathways. While self-help groups and state-mediated entitlements yield marginal increments in bargaining power, entrenched extra-economic coercions perpetuate subsumption to informal, exploitative relations. The findings necessitate radical, gender-transformative policy reorientation prioritizing collective asset ownership, technological de-drudgery, and countervailing market institutions.

KEYWORDS:

FEMALE AGRARIAN PRECARITY, STRUCTURAL DETERMINANTS, LIVELIHOOD FORECLOSURE, GENDERED SUBSUMPTION, ARID POLITICAL ECONOMY.

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INTRODUCTION

BACKGROUND AND CONTEXT

Rajasthan's agricultural economy is overwhelmingly shaped by the arid and semi-arid conditions of the Thar Desert, where annual precipitation ranges between 150–350 mm, rainfall variability often exceeds 40%, and nearly 78% of the cultivated area remains dependent on erratic monsoons. In Jodhpur district, one of the largest and most drought-prone in western Rajasthan, groundwater depletion has reached critical levels (average annual fall of 1.5–2 m), irrigated area constitutes less than 15% of net sown area, and recurrent drought declarations have become near-annual events. These ecological constraints have intensified male out-migration towards urban and peri-urban centres, resulting in a marked feminisation of agriculture. Women now constitute 62–70% of the effective agricultural workforce in marginal and landless households, undertaking sowing, transplanting, weeding, harvesting, threshing, and livestock rearing tasks that are physically demanding, poorly remunerated, and largely unmechanised.

RESEARCH OBJECTIVES

1. To identify and analyse the principal economic determinants income sources, wage structures, resource access, migration dynamics, and institutional mediation that shape livelihood patterns of agricultural women labourers in Jodhpur.
2. To examine the socio-economic and ecological challenges that perpetuate gendered disadvantage and drudgery.
3. To assess the reach, effectiveness, and limitations of existing policy interventions and propose gender-transformative strategies for sustainable livelihood enhancement.

RESEARCH QUESTIONS

1. What are the dominant economic factors (e.g., education, household composition, credit access, market integration) influencing income levels, employment security, and diversification possibilities among women agricultural labourers?
2. How do gendered norms, ecological fragility, and male outmigration interact to configure daily livelihood practices and decision-making autonomy?

3. To what extent do government schemes and community-based institutions (SHGs, producer collectives) mitigate structural constraints, and what gaps remain?

SIGNIFICANCE OF THE STUDY

This research fills a critical empirical and analytical void by providing district-specific evidence on the lived realities of agricultural women labourers in one of India's most climate-vulnerable regions. It offers actionable insights for gender-responsive agricultural policy, strengthens the evidence base for achieving SDG 5 (Gender Equality) and SDG 2 (Zero Hunger), and contributes to ongoing scholarly debates on feminisation of agriculture, agrarian distress, and rural transformation in arid environments.

RESEARCH METHODOLOGY

STUDY AREA

The study was conducted in Jodhpur district (26°–27°30′ N, 72°–74° E), western Rajasthan, covering an area of 22,850 km^2 within the Thar Desert agro-ecological zone. Six chronically drought-affected rural tehsilsOsian, Balesar, Shergarh, Bap, Phalodi, and Luniwere purposively selected based on (i) rainfall below 250 mm, (ii) irrigation intensity below 15%, (iii) high incidence of male seasonal migration (>40% of adult males), and (iv) elevated female work participation rates in agriculture as per District Level Household Survey-4 and SECC-2011 data.

RESEARCH DESIGN

A sequential explanatory mixed-methods design was adopted, combining quantitative measurement of economic determinants with qualitative exploration of lived experiences and institutional processes.

DATA COLLECTION

Primary data were collected between 2022-2025:

- Structured household survey with 100 agricultural women labourers using a pre-tested schedule capturing income sources, wage rates, asset ownership, migration patterns, credit access, and participation in government schemes.
- Semi-structured interviews and eight focus group discussions with self-help groups and producer collectives.
- Key informant interviews with block-level agricultural officers, NGO functionaries, and moneylenders.

Secondary data were sourced from Census 2011, Rajasthan Agricultural Statistics 2022–23, DLHS-4, NFHS-5, PM-KISAN and MGNREGA MIS portals, and relevant scholarly publications.

SAMPLING

A four-stage stratified random sampling framework was employed:

1. Selection of six tehsils (purposive).
2. Random selection of four-gram panchayats per tehsil (24 total).
3. Random selection of two villages per gram panchayat (48 villages).
4. Within each village, systematic random sampling of 5–7 women labourers stratified by landholding status (landless, marginal <1 ha, small 1–2 ha) and caste category (SC/ST/OBC/General). Female-headed households were oversampled (20% of total sample) through purposive inclusion.

Quantitative data were analysed using Stata 17: descriptive statistics, ordinary least squares and logistic regression models to estimate determinants of daily wage income, annual household income, and livelihood diversification (Shannon Index). Qualitative data from interviews and FGDs were transcribed, coded, and subjected to thematic analysis using NVivo 14, following Braun and Clarke's (2021) reflexive approach.

Ethical approval was obtained from the Institutional Ethics Committee. Informed verbal and written consent were secured in Hindi/Rajasthani, anonymity was strictly maintained, and interviews were conducted by female investigators to ensure gender sensitivity and respondent comfort.

LITERATURE REVIEW

Doss (2025) shows that women's agricultural labour is often under-recorded due to blurred boundaries between unpaid and wage work. The study finds no direct correlation between women's labour share and income levels. It stresses the need for precise, field-based measurement in regions like Rajasthan.

Sharma & Meena (2025)report widening wage disparities for women labourers in Rajasthan's semi-arid districts. Seasonal fluctuations and contractor-controlled labour markets weaken women's bargaining power. The study highlights labour-market access as a key determinant of livelihood outcomes.

Najjar (2024)shows that gender, caste, and landholding status shape women's access to agricultural innovations. Women benefit less from technology due to limited training and asset ownership. The study calls for inclusive interventions linking women to innovation systems.

Kumar & Rathore (2024)find that women labourers depend heavily on informal credit, increasing debt burdens. Limited access to banks reduces financial stability and savings. They recommend expanding institutional credit and strengthening SHG networks.

KVK Jodhpur II (2024)notes that training improves women's knowledge but not immediate income. Adoption barriers and weak market linkages restrict economic gains. It stresses the need for post-training support and market integration.

Singh & Bhandari (2023)identify persistent wage inequality for rural women despite similar experience

levels. Women remain concentrated in low-paid, casual agricultural work. The study attributes this to structural gender biases in rural labour markets.

Jatav (2023)finds that household dependency and asset scarcity strongly influence women's labour intensity. Women increase work hours under economic stress. The study emphasises considering household-level economic pressures in livelihood analysis.

Kumari (2022)shows that monsoon variability and crop cycles cause unstable employment for women labourers. This instability affects income security and resilience. The study argues for livelihood diversification to reduce vulnerability.

Rathod (2022)reports persistent gender wage gaps across agricultural tasks in Rajasthan. Limited asset access and training reduce women's productivity and bargaining position. The study recommends improving skills and resource ownership for women.

NSO (2022)reveals high but predominantly informal participation of rural women in agriculture. Low wages and limited social protection intensify livelihood vulnerability. It highlights employment type and scheme access as crucial economic determinants.

CONCEPTUALFRAMEWORKANDTHEORETICALUNDERPINNINGS

FEMINIST POLITICAL ECONOMY PERSPECTIVE

This perspective emphasizes how patriarchal norms, unequal resource control, and gendered power relations shape women's access to wages, assets, and opportunities. It highlights structural constraints that limit women agricultural labourers' bargaining power and economic mobility in Jodhpur.

LABOUR MARKET SEGMENTATION THEORY

Labour market segmentation explains how women are confined to low-paid, seasonal, and informal agricultural tasks. Discriminatory job allocation, weak mobility, and employer biases create segmented labour markets that depress women's wage outcomes and employment stability.

GENDERED LIVELIHOOD FRAMEWORK

This framework situates women's livelihood strategies within household responsibilities, social norms, and limited access to productive resources. It underscores how social capital and intra-household dynamics shape livelihood decisions and coping mechanisms.

KEY CONCEPTUAL VARIABLES

Core variables include income, wage rates, employment stability, credit and asset access, and social capital. These determinants collectively influence livelihood security and resilience.

HYPOTHESIZED LINKAGES

The framework proposes that higher wages, stable employment, asset ownership, and stronger social networks enhance women's livelihood outcomes, while structural inequalities and segmented labour markets weaken economic resilience.

DATA ANALYSIS AND RESULTS

DESCRIPTIVE ANALYSIS

The descriptive results show that the average daily wage for women agricultural labourers in Jodhpur is ₹248, significantly lower than the male average of ₹340. Most women report unstable employment, with an average of 62 workdays per peak season and only 28 workdays during lean months. Asset ownership is minimal: only 18% possess small livestock, 12% own minor agricultural tools, and less than 5% have any land title. Nearly 72% depend on informal credit sources, mainly local moneylenders and SHGs, indicating limited financial inclusion.

CROSS-TABULATION RESULTS

Cross-tabulations reveal strong linkages between caste, employment type, and wage outcomes. Women from SC/ST households are overrepresented in casual labour and receive the lowest wages. SHG membership shows a positive association with access to credit and better wage negotiation capacity, suggesting social capital as a significant livelihood enabler.

CORRELATION ANALYSIS

Correlation results indicate a positive relationship between asset access and income ($r = 0.41$), employment stability and income ($r = 0.38$), and social capital and wage rates ($r = 0.36$). A negative correlation exists between household dependency ratio and employment stability ($r = -0.29$), implying greater economic pressure reduces the consistency of work.

REGRESSION ANALYSIS

Multiple regression analysis shows that wage rate ($\beta = 0.47$, $p < 0.01$), employment stability ($\beta = 0.32$, $p < 0.05$), and asset ownership ($\beta = 0.21$, $p < 0.05$) significantly predict livelihood outcomes measured through annual income and food security index. Social capital also contributes positively ($\beta = 0.19$), while limited credit access exerts a negative but statistically insignificant effect.

QUALITATIVE THEMATIC INSIGHTS

Open-ended responses indicate recurring challenges such as delayed payments, contractor-led exploitation, lack of workplace safety, and restricted mobility. Many women reported that unpaid household responsibilities reduce their availability for paid labour, reinforcing gendered livelihood constraints.

Overall results confirm that women's livelihoods are shaped by a combination of structural inequalities and economic determinants. Higher wages, stable employment, asset ownership, and strong social networks significantly improve livelihood security, while segmented labour markets and limited institutional access continue to suppress women's economic resilience.

TABLE 1: SOCIO-ECONOMIC AND LIVELIHOOD DETERMINANTS OF AGRICULTURAL WOMEN LABOURERS

Variable	Category / Unit	Mean / %	Interpretation
Age (years)	18-40	37.8	Majority are mid-age labourers
Education Level	Illiterate	48%	Low human capital base
	Primary	32%	
	Secondary+	20%	
Daily Wage Rate (Rs.)		214	Wage levels below state minimum standards
Employment Stability	Days/month	17	Frequent employment fluctuations
Household Income (Rs./month)		7,450	Reflects persistent low-income trap
Land/Asset Ownership	Owned assets	12%	Very limited productive asset access
Access to Credit	Formal	18%	High dependence on informal sources
Social Capital Index	(0–10 scale)	4.2	Weak institutional and network support
Working Hours	Hours/day	8.6	High labour intensity
Migration Status	Seasonal migrants	27%	Income volatility drives migration
Participation in SHGs		22%	Moderate engagement in collective structures

DISCUSSION

The findings underscore that women agricultural labourers in Jodhpur experience persistent vulnerabilities due to low wages, irregular employment, and minimal asset ownership, which collectively undermine livelihood security. Daily wage rates and employment stability are identified as the most significant determinants of income, emphasizing that consistent work and equitable remuneration are crucial for enhancing economic resilience. Access to productive assets and social capital further strengthens livelihood outcomes, highlighting the role of resource availability and collective networks in mitigating vulnerabilities. Conversely, limited access to formal credit and low educational attainment moderately constrain income potential, while extended working hours have minimal direct impact on economic gains. Participation in self-help groups (SHGs) emerges as a positive facilitator, improving bargaining capacity and resource access, though it only partially offsets structural inequities. Overall, the analysis confirms that women's livelihoods are shaped by an interplay of economic, social, and institutional factors, reinforcing the need for integrated policy measures that simultaneously address wage equity, employment stability, and resource access.

CONCLUSION

The present study elucidates the complex interplay between economic determinants, structural constraints, and social factors shaping the livelihoods of women agricultural labourers in Jodhpur, Rajasthan. Empirical evidence demonstrates that daily wage rates, employment stability, asset ownership, and social capital are pivotal in determining income levels and overall livelihood security. Women remain disproportionately represented in low-paid, casual, and seasonal agricultural work, reflecting entrenched labour market segmentation and systemic gender inequities. Limited access to formal credit, inadequate educational attainment, and prevailing patriarchal norms further constrain economic agency, exacerbating vulnerability. Participation in self-help groups and collective networks, while enhancing bargaining power and access to resources, only partially mitigates structural disadvantages. Qualitative insights reveal recurring challenges, including delayed payments, contractor exploitation, and restricted mobility, highlighting the multifaceted barriers women face. Overall, the findings underscore the necessity for integrated interventions that simultaneously address wage parity, employment regularity, asset accumulation, and social network strengthening. Policies fostering skill development, financial inclusion, and institutional support are imperative to enhance women's economic resilience, ensure equitable livelihood opportunities, and promote sustainable rural development in Rajasthan.

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