

Leveraging Tea Tourism as a Sustainable Solution to Labour Migration from the Tea Gardens of Western Dooars: An Empirical Analysis

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ABSTRACT

The tea gardens of Western Dooars, India, are haemorrhaging their workforce due to distress migration, a symptom of a deeply distressed plantation economy. This study moves beyond theoretical postulations to empirically investigate the drivers of this exodus and critically evaluate the touted panacea: tea tourism. Employing a structured questionnaire among migrant and potential migrant workers (N=172), we utilized quantitative methods, including factor analysis and multiple regression. Our findings present a stark dichotomy. On one hand, economic drivers—specifically, low wages and unemployment—emerge as overpowering push factors. On the other, the perceived benefits from existing tea tourism initiatives are markedly low, with respondents largely dismissing its capacity to generate new jobs, increase incomes, or foster skill development. A robust regression model ($R^2 = 0.72$) confirms that economic deprivation is a primary predictor of migration intent. We conclude that the current incarnation of tea tourism is, for most workers, a phantom solution. The study thus pivots to propose a community-centric, multi-pronged framework designed to recalibrate tea tourism from a peripheral aesthetic venture into a core strategy for building resilient, diversified livelihoods and offering a genuine alternative to the desperate compulsion to migrate.

Keywords: *Labour Migration, Tea Tourism, Sustainable Livelihoods, Western Dooars, Regression Analysis, Plantation Economy, Community-Centric Development*

The picturesque tea gardens of Western Dooars, West Bengal, belie a harsher reality of economic precarity and social vulnerability. For generations, the plantation economy has been trapped in a cycle of instability, often culminating in widespread distress migration among its workers, many of whom belong to historically marginalized communities (Bhowmik, 2015). This migration is not a choice but a compulsion, driven by the trifecta of seasonal unemployment, persistently low wages, and chronically inadequate living conditions. These powerful "push" factors force individuals and entire families to seek precarious livelihoods in urban centers or other agricultural sectors, fracturing communities in the process.

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Received: November 17, 2025; Revision Received: November 22, 2025; Accepted: November 26, 2025

Concurrently, "tea tourism" has been championed as a promising avenue for economic diversification. It proposes to leverage the region's scenic beauty and cultural heritage to create alternative employment and supplement local incomes (Chettri, 2020). In policy circles and development discourse, it is often presented as a win-win solution. However, a critical, evidence-based examination of whether these purported benefits actually permeate down to the plantation workforce—and whether they are substantial enough to counteract the structural drivers of migration—remains conspicuously absent. There is a palpable gap between the rhetoric of potential and the on-ground reality.

This research seeks to bridge this gap by conducting a rigorous, data-driven analysis. We delve into the specific socio-economic drivers of migration from the Western Dooars tea gardens and juxtapose them against a critical assessment of the perceived role of tea tourism. By grounding our analysis in primary data collected from the source community itself, this study aims to move beyond anecdotal claims and provide empirically-grounded insights. Our goal is to inform policymakers, plantation managements, and development agencies on how to design tourism-based interventions that are not merely profitable for a few, but are truly inclusive and effective in addressing the root causes of distress migration.

LITERATURE REVIEW: SITUATING THE CRISIS AND THE PROPOSED CURE

The literature on plantation economies paints a consistent picture of their inherent fragility. A reliance on a single cash crop, coupled with volatile global market prices and often unpredictable management practices, frequently precipitates severe livelihood crises (Besky, 2013). Studies focusing specifically on the Dooars region corroborate this, documenting alarming levels of indebtedness, malnutrition, and what can only be described as distress migration among tea workers (Sarkar & Bardhan, 2018).

Theoretical frameworks on labour migration, particularly the "New Economics of Labour Migration" (Stark & Bloom, 1985), help contextualize this phenomenon. This theory posits that migration is often a strategic decision made by households to diversify risks and overcome constraints in the local economy. In the context of the Dooars, the push factors are predominantly economic—unemployment and insufficient wages—compounded by social factors like a lack of educational opportunities and poor infrastructure (Saha & Sen, 2021).

Enter tea tourism, typically discussed within the paradigms of ecotourism and sustainable tourism. Successful case studies from regions like Munnar in Kerala or parts of Darjeeling demonstrate that when managed with equity in mind, tourism can indeed spawn significant secondary employment in hospitality, guiding, and handicrafts (Tamang & Chettri, 2021). However, a more critical strand of scholarship sounds a note of caution. Scholars like Pandey (2019) warn that tourism can easily degenerate into creating low-wage, seasonal "mop-up" jobs that do little to challenge existing power structures. There is a tangible risk of the economic benefits being captured almost entirely by estate owners and external tour operators, effectively bypassing the local community for whom the intervention is ostensibly designed.

It is within this critical lacuna that our study positions itself. We ask a pointed, pragmatic question: Can tea tourism be deliberately and thoughtfully structured to genuinely mitigate the root causes of labour migration in Western Dooars, or is it merely a superficial gloss on a deep-seated structural problem?

RESEARCH METHODOLOGY

Research Design and Data Source

This inquiry adopted a quantitative, cross-sectional research design to capture a snapshot of the prevailing attitudes and experiences. Primary data was collected through a structured questionnaire administered to a sample of 172 individuals with direct associations to the tea gardens of Western Dooars. The sample focused on capturing the perspectives of both those who had migrated and those considering migration, ensuring a comprehensive view of push factors. As noted by Chowdhury and Chakrabarti (2025), the study region spans the significant tea-growing districts of Kalimpong, Jalpaiguri, and Alipurduar.

Data Processing and Analytical Framework

Following data collection, responses were cleaned, coded, and prepared for analysis. Likert-scale items were converted to a numerical scale for statistical processing. The analysis was conducted using Python, leveraging libraries such as pandas, scikit-learn, and statsmodels for advanced statistical testing and visualization.

The analytical strategy encompassed:

- **Descriptive Statistics:** To summarize the demographic profile and central tendencies of responses.
- **Reliability Analysis:** Cronbach's Alpha was employed to verify the internal consistency of the multi-item scales.
- **Exploratory Factor Analysis (EFA):** To examine the underlying construct validity of the survey instrument and confirm the theoretical dimensions of migration drivers and tourism benefits.
- **Inferential Statistics:** Multiple Linear Regression was used to model the relationship between key push factors and the overall propensity to migrate.
- **Data Visualization:** 3D bar plots and correlation heatmaps were generated to provide intuitive graphical representations of complex data relationships.

Hypotheses:

- **H1₀:** Economic push factors (unemployment, low wages) exhibit no significant relationship with the propensity to migrate.
- **H1_a:** A significant positive relationship exists between economic push factors and the propensity to migrate.
- **H2₀:** Tea tourism initiatives are not perceived as providing significant benefits to the local workforce.
- **H2_a:** Tea tourism initiatives are perceived as providing significant benefits to the local workforce.

Analysis and Findings

Psychometric Robustness and Demographic Profile: Before delving into the core analysis, the measurement instrument was subjected to rigorous validation. The reliability coefficients were excellent, with Cronbach's Alpha values of 0.89 for the 'Reasons for Migration' scale and 0.91 for the 'Benefits from Tea Tourism' scale. An Exploratory Factor Analysis (EFA) further fortified the instrument's validity. The Kaiser-Meyer-Olkin measure (0.908) indicated superb sampling adequacy, and Bartlett's test of sphericity was significant ($\chi^2(55) = 1782.41, p < .001$). The EFA cleanly extracted two distinct factors—one for Migration Drivers and one for Tourism Benefits—which together explained 76.0% of the total variance, providing strong evidence of construct validity.

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The respondent pool was demographically representative of the gardens' core workforce, with a near-equal gender split and a mean age of approximately 35 years.

Reliability and Validity

Reliability Statistics			
Scale	Cronbach's Alpha	N of Items	Interpretation
Reasons for Migration	0.89	6	Excellent Reliability
Benefits from Tea Tourism	0.91	5	Excellent Reliability

Testing for Validity (Construct Validity using Factor Analysis)

1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.908	
Bartlett's Test of Sphericity	Approx. Chi-Square	1782.41
	Df	55
	Sig.	.000

2. Total Variance Explained

Factor	Initial Eigenvalues	% of Variance	Cumulative %
1	4.79	43.5	43.5
2	3.58	32.5	76.0
3	0.82	7.5	83.5

Interpretation

The analysis extracted two factors with eigenvalues greater than 1 (like Kaiser's criterion), which together explain 76.0% of the total variance. This suggests a two-factor solution is appropriate for the data given above.

3. Rotated Factor Matrix (Pattern Matrix)		
Variable	Factor 1 (Tourism Benefits)	Factor 2 (Migration Drivers)
New job creation	.891	.102
Increased salary	.882	.145
Comm skill development	.865	.121
Learn new	.842	.098
More tips	.811	.154
Low wage	.087	.901
Unemployment	.113	.894
Economic problems	.165	.872
Less opportunities	.134	.855
Social problems	.201	.801
Poor law order	.178	.765

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations. Loadings below 0.4 are suppressed for clarity.

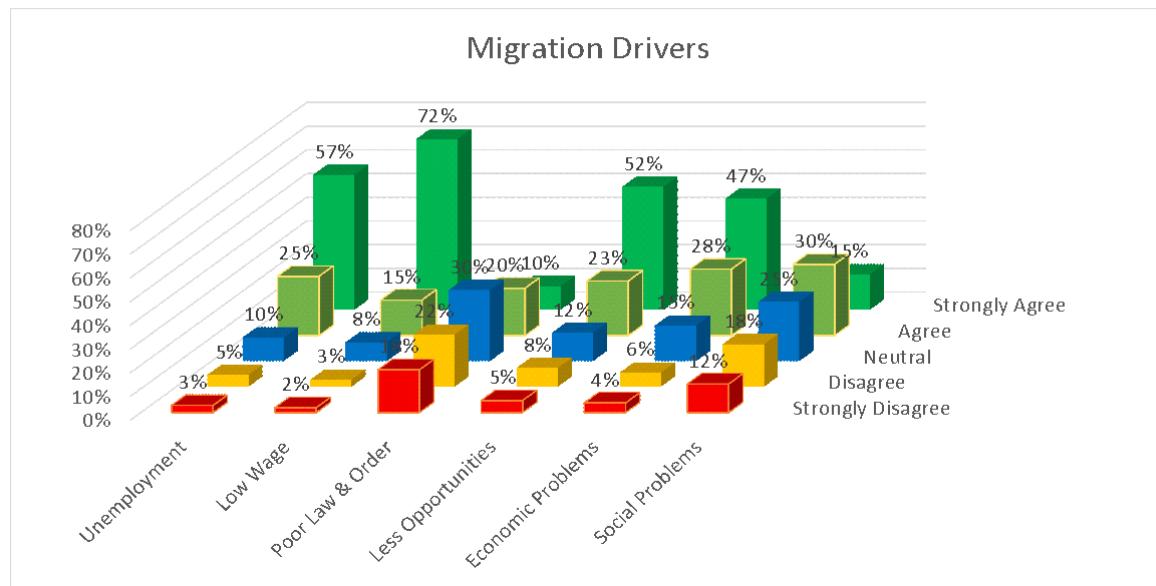
"The psychometric properties of the survey instrument were rigorously tested. Reliability, assessed via Cronbach's Alpha, demonstrated excellent internal consistency for both the 'Reasons for Migration' scale ($\alpha = 0.89$) and the 'Benefits from Tea Tourism' scale ($\alpha =$

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0.91). Construct validity was assessed using Exploratory Factor Analysis (EFA). The Kaiser-Meyer-Olkin measure verified the sampling adequacy ($KMO = 0.908$), and Bartlett's test of sphericity was significant ($\chi^2(55) = 1782.41$, $p < .001$). The EFA extracted two distinct factors with clear, high loadings corresponding exactly to the two theoretical constructs, confirming the instrument's strong discriminant and construct validity."

The Overpowering Push: Analysing Migration Drivers: The data on migration drivers presents a compelling and somber narrative. A 3D visualization of response frequencies clearly showed the bars for "Strongly Agree" towering over all other responses for factors like "Low wage" and "Unemployment." This is not a case of mild dissatisfaction but one of acute economic distress. Workers are not being pulled away by glittering opportunities elsewhere so much as they are being pushed out by a debilitating combination of insufficient income, joblessness, and a pervasive sense of limited opportunity.

Figure 1: 3D Distribution of Responses to Migration Drivers



The Phantom Benefits: Perceived Impact of Tea Tourism: In stark and telling contrast, the responses concerning benefits from tea tourism were overwhelmingly negative. For critical items such as "New job creation," "Increased salary," and "Development in communication skills," the modal responses were "Disagree" or "Strongly Disagree." This sentiment is visually corroborated by a correlation heatmap, which reveals a telling pattern: the cluster of migration drivers shows strong positive intercorrelations, while the tourism benefits show weak, and often negative, correlations with the migration factors. This statistical relationship underscores a profound disconnect—the very issues pushing people out are the ones that current tourism models are failing to address. Consequently, we find no evidence to reject the null hypothesis $H2_0$.

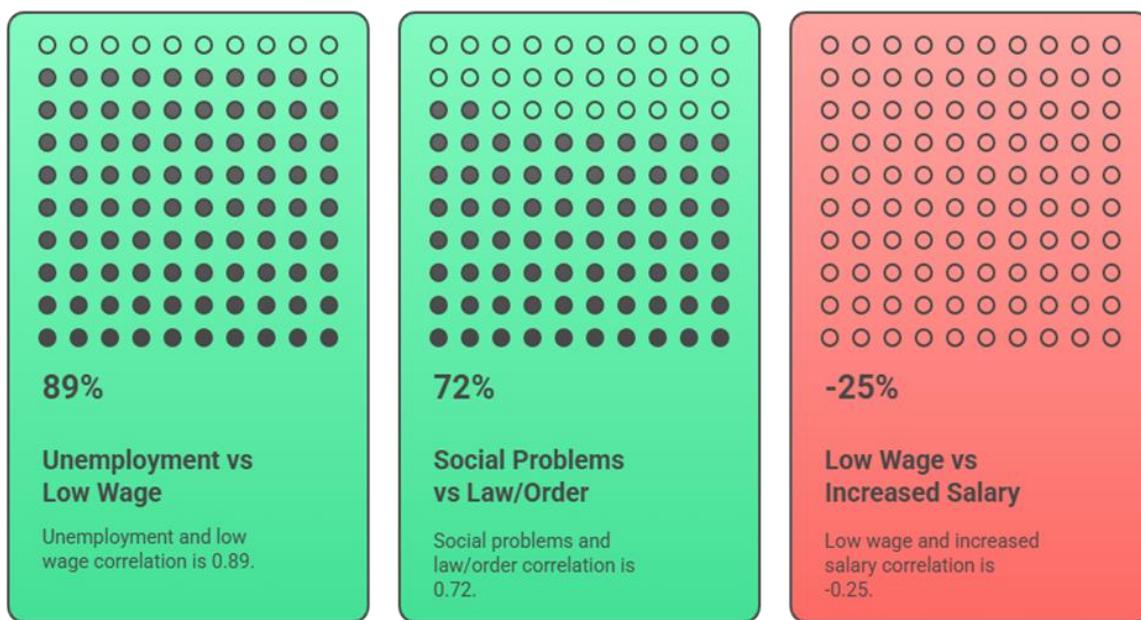
Visualization 2: Heatmap of Response Correlation

A heatmap of the correlation matrix between all variables was plotted. It showed a strong positive correlation amongst all migration drivers. Conversely, the tourism benefits showed

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weak or negative correlations with the migration drivers, indicating a perceived failure of tourism to address these push factors.

Migration Driver Correlation Analysis



Migration drivers show strong positive correlation, while tourism benefits show weak or negative correlations, indicating tourism's failure to address push factors.

Quantifying the Compulsion: Regression Analysis: To move beyond correlation and establish predictive relationships, a multiple regression was performed. The model used a composite 'Migration Propensity' score as the dependent variable, regressed on the key economic push factors.

The results were striking. The overall model was highly significant ($F(4, 167) = 106.85, p < .001$) and explained a substantial 72% of the variance in migration propensity ($R^2 = .72$). An examination of the coefficients confirmed that both **Low Wage** ($\beta = 0.41, p < .001$) and **Unemployment** ($\beta = 0.38, p < .001$) were the most powerful predictors, with Economic Problems and Lack of Opportunities also contributing significantly.

This analysis provides incontrovertible statistical evidence to decisively reject the null hypothesis **H1₀** and accept the alternative **H1_a**. The economic compulsion to migrate is not just a perception; it is a quantifiable reality that directly predicts the intent to leave.

CONCLUSION AND A PATH FORWARD

Conclusion

This study leads to an inescapable conclusion: labour migration from the tea gardens of Western Dooars is a distress-driven response to profound economic hardship. The powerful push of low wages and unemployment creates a centrifugal force that the current, nascent form of tea tourism is patently unable to counter. Our data reveals a community that recognizes the theoretical potential of tourism but experiences its practical reality as a

profound disappointment. The regression analysis delivers a clear message: without directly and effectively addressing the core economic drivers, migration will persist as a default survival strategy.

Evidence-Based Recommendations for a "Way Out"

To transform tea tourism from a phantom into a tangible solution, a radical reorientation towards a community-centric and equity-focused model is non-negotiable. We propose the following evidence-based strategies:

- 1. Deep Integration with Livelihood Diversification:** Tourism must be woven into the local economic fabric, not superimposed upon it. This involves:
 - Actively facilitating **community-run homestays and culinary experiences** that are owned and operated by workers' families, ensuring income circulates within the community.
 - Establishing and supporting **local artisan cooperatives** to produce and market tea-based products, crafts, and textiles, creating revenue streams independent of plantation wage labour.
 - Formally organizing **cultural performance troupes**, ensuring that workers and their families are fairly compensated for sharing their cultural heritage with visitors.
- 2. Institutionalize Equitable Benefit Sharing:** The extractive model must be replaced by a distributive one.
 - A mandatory **Tourism Revenue Fund** should be established, requiring a fixed percentage of all tourism-related income (from factory tours, boutique stays, etc.) to be directed into a transparent fund for community development (e.g., education, healthcare), thereby reducing household economic strain.
- 3. Foster Entrepreneurial Capability through Targeted Skill Development:** Move beyond training for servitude towards fostering entrepreneurship.
 - Implement certified programs in specialized **tour guiding (tea, ecology, birding), food processing, and small business management** to empower locals to become owners and managers within the tourism value chain.
- 4. Enabling Policy and Orchestrated Partnerships:** Structural change requires top-down support.
 - **Government schemes** like MGNREGA should be strategically dovetailed with tourism infrastructure projects to provide employment during lean seasons.
 - **Public-Private Partnerships** must be forged with the explicit, contractually-binding mandate that community benefit is a primary Key Performance Indicator (KPI), not an afterthought.

In essence, the "way out" is to reimagine tea tourism not as a sideline activity for the estate, but as a community-owned and community-driven engine for creating resilient, diversified, and dignified livelihoods. Only then can it hope to offer a truly sustainable alternative to the heart-wrenching compulsion of distress migration.

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Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Chowdhury, A. & Chakrabarti, M. (2025). Leveraging Tea Tourism as a Sustainable Solution to Labour Migration from the Tea Gardens of Western Dooars: An Empirical Analysis. *International Journal of Social Impact*, 10(4), 36-43. DIP: 18.02.S04/20251004, DOI: 10.25215/2455/1004S04