



RESEARCH ARTICLE

Rural-to-urban migration of agricultural workers in Tamil Nadu: Insights from the PLFS 2020-21

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Abstract

This study examines the dynamics of rural-to-urban migration among agricultural workers in India, using the latest data from the Periodic Labour Force Survey (PLFS) 2020-21. It aims to identifying key demographic, socioeconomic and employment-related factors influencing the migration decisions of agricultural labourers transitioning from rural to urban areas. Preliminary findings indicate a significant increase in the Labour Force Participation Rate (LFPR) in rural areas, rising from 50.7 % in 2017-18 to 63.7 % in 2020-21, while urban areas saw an increase from 47.6 % to 52.0 % during the same period. This upward trend suggests a heightened engagement of the rural workforce, potentially influencing migration patterns. Logistic regression models are employed to assess the impact of variables such as age, gender, education level, landholding size and access to social security on the likelihood of migration. Understanding these determinants is crucial for policymakers aiming to address the challenges and opportunities presented by the migration of agricultural workers to urban centres.

Keywords: agriculture; labour force; periodic labour force survey; rural studies; rural-to-urban migration

Introduction

Agricultural labour migration has been a key driver of rural workforce dynamics in India (1). With increasing economic diversification and urban expansion, a significant proportion of rural agricultural workers are shifting to urban centres in search of better employment opportunities. Tamil Nadu, being one of the most agriculturally productive states in India, achieved a record foodgrain production of 12.05 million tonnes in 2022, reflecting its strong agricultural base. At the same time, the state has experienced considerable rural-to-urban migration, with 48.44 % of its population residing in urban areas as per the 2011 Census, making it the most urbanized state in India. This shift has led to significant transformations in labour availability, wage structures and socio-economic conditions in both rural and urban areas (2). The Periodic Labour Force Survey (PLFS) provides valuable insights into these migration patterns, offering empirical data to analyse the factors influencing this transition. Migration is often influenced by multiple factors, including economic distress, employment opportunities, social security, education and household characteristics. While economic theories like the Harris-Todaro Model suggest that migration occurs due to wage differentials between rural and urban areas, other socio-political and demographic factors also play a role (3).

Theoretical perspectives on Rural-to-Urban migration

Migration is a complex socio-economic phenomenon that has been widely studied through various theoretical frameworks (4). The following theories provide insight into the motivations and consequences of rural-to-urban migration among agricultural workers in Tamil Nadu:

Harris-Todaro Model (1970)

This neo-classical economic model explains migration as a function of wage differentials between rural and urban areas. According to the model, migration occurs when the expected income in urban areas exceeds rural earnings, even if unemployment risks exist in urban labour markets (3). In Tamil Nadu, agricultural labourers often migrate in search of higher wages in construction, manufacturing, or the informal service sectors, despite uncertain employment conditions.

Push-Pull Theory

Migration is influenced by push factors such as low agricultural wages, seasonal unemployment, lack of social security and landlessness and pull factors. such as better wages, industrial employment and improved living standards in urban areas. In Tamil Nadu, frequent agricultural distress due to monsoon variability, declining farm productivity and mechanization serves as a major push factor, whereas expanding urban employment opportunities in Chennai,

Coimbatore and Tirupur act as strong pull factors (5).

New Economics of Labor Migration (NELM) (1991)

Unlike the Harris-Todaro model, which focuses on individual decision-making, NELM considers migration as a household strategy to diversify income sources and minimize risks. Agricultural households may send family members to urban areas for non-farm employment, ensuring steady remittances that supplement rural incomes. In Tamil Nadu, migrant workers often send remittances back to their families to support agricultural investments, debt repayment and children's education (6).

Structural Transformation and Dual-Sector Model (1954)

This model highlights the shift from traditional (agriculture) to modern (industrial and service) sectors during economic development. Tamil Nadu's rapid urbanization and industrial growth, particularly in textiles, manufacturing and services, have absorbed surplus rural labour, reinforcing structural migration trends.

Social Networks and Cumulative Causation (1993)

Migration often becomes self-sustaining through social networks, which reduce information costs, provide job referrals and create migration chains. In Tamil Nadu, large rural-to-urban migrant communities exist in cities like Chennai and Coimbatore, facilitating further migration from their native villages.

By integrating these theoretical perspectives, this study offers a comprehensive understanding of the economic, social and structural drivers influencing rural-to-urban migration among agricultural workers in Tamil Nadu.

Review of literature

Rural-to-urban migration among agricultural workers represents a significant phenomenon in India, driven by economic, social and structural factors. Several studies using NSSO, Census and Periodic Labour Force Survey (PLFS) data have identified employment-driven migration as the dominant trend. The Economic Survey of India (2017–18) estimated that over nine million people migrate annually for work, with a considerable proportion being agricultural labourers relocating to urban areas in search of better livelihoods (5). One study found that wage differentials and urban employment opportunities play a crucial role in migration decisions (7). Another observed that urban expansion, while generating employment, often leads migrants into informal sectors with poor working conditions (8). In Tamil Nadu, migration is influenced by regional wage disparities, agrarian distress and industrial growth. Research indicates that rural labourers from agriculture-dependent districts often move to industrial hubs like Coimbatore and Chennai for stable incomes (9). Seasonal migration is common among landless agricultural workers who take up temporary jobs in sectors such as construction and textiles (10). Analysis of PLFS data further revealed that wage gaps between agricultural and non-agricultural employment in Tamil Nadu contributed to a 15 % increase in rural-to-urban migration between 2011-12 and 2019-20 (3). From an economic perspective, the wage differential model offers a useful framework for understanding these dynamics (11).

Studies show that wage disparities between agricultural and non-agricultural sectors account for over 60 % of rural-to-urban migration in India (12). Households involved in landless or marginal farming are more likely to migrate permanently due to low rural wage growth (13). Declining farm productivity, climate variability and increased mechanization have also been linked to migration trends (14), while drought-prone districts in Tamil Nadu exhibit higher out-migration among small farmers and labourers (15).

Household characteristics play a significant role in migration decisions as well. One theory suggests that migration is a household strategy to diversify income sources (16). Supporting this view, evidence shows that rural households with limited land and poor credit access are more inclined to migrate (17). Furthermore, analysis indicates that rural households in Tamil Nadu with larger family sizes and lower land ownership have a higher probability of migration (18). Migration networks further facilitate labour mobility by helping newcomers secure jobs and reducing associated risks and costs (19) and additional research confirms that kinship and caste-based recruitment networks significantly influence urban labour markets (20). Migration has both beneficial and adverse consequences. On one hand, it offers economic opportunities; on the other, it reduces the agricultural labour supply, leading to increased mechanization and the feminization of agriculture (21). Migrants also often face challenges such as poor housing conditions, health risks and job insecurity in urban slums (22). Nonetheless, effective policies such as MGNREGA, rural employment programs and urban labour protections can help mitigate these challenges (23). The main objective of the study is to identify the determinants influencing migration, including age, gender, education, wages, employment status and social security benefits.

Material and Methods

This study uses secondary data from the PLFS 2020-21, a nationally representative survey conducted by the National Statistical Office (NSSO), Ministry of Statistics and Programme Implementation (MoSPI), Government of India. The sampling frame for PLFS follows a multi-stage stratified random sampling technique.

- Study Area: Tamil Nadu
- Total Sample Size (PLFS Tamil Nadu): 22929 individuals (state-level estimates)

The dataset includes detailed information on individual and household characteristics, employment patterns, wages, migration status and social security access. For this study, rural-to-urban migrants are defined as individuals who have moved from a rural to an urban area for employment-related reasons in the last 365 days.

The study aims to examine the determinants of rural-to-urban migration among agricultural workers in Tamil Nadu using logistic regression models applied to PLFS 2020-21 data. A binary logistic regression model is employed to estimate the probability of migration, with migration status

as the dependent variable (1 = migrated, 0 = not migrated). The key independent variables include age, gender, education, employment status, landholding size, household size, wages, social security access and migration duration. The equation for the logistic regression model to estimate the probability of migration based on socio-economic and demographic factors is follows.

$$\log\left(1 - \frac{P_i}{P_i}\right) = X_i' \beta + \varepsilon_i$$

Where:

- P_i is the probability that the i^{th} individual migrates
- $\log\left(1 - \frac{P_i}{P_i}\right)$ is the log-odds of migration
- X_i' is a $1 \times k$ row vector of explanatory variables
- β is a $k \times 1$ column vector of coefficients
- ε_i is the error term

$\log(P/(1-P)) = \beta_0 + \beta_1 \text{ Age} + \beta_2 \text{ Gender (Male)} + \beta_3 \text{ Marital Status (Married)} + \beta_4 \text{ Primary Education} + \beta_5 \text{ Secondary Education} + \beta_6 \text{ Graduate and Above} + \beta_7 \text{ SC} + \beta_8 \text{ ST} + \beta_9 \text{ OBC} + \beta_{10} \text{ Self-employed} + \beta_{11} \text{ Casual Labor} + \beta_{12} \text{ Regular Wage/Salary} + \beta_{13} \text{ Monthly Wages} + \beta_{14} \text{ Marginal Landholding} + \beta_{15} \text{ Small Landholding} + \beta_{16} \text{ Large Landholding} + \beta_{17} \text{ Household Size} + \beta_{18} \text{ Access to Social Security} + \beta_{19} \text{ Migration Duration} + \varepsilon$

Significance of the study

Understanding the determinants of rural-to-urban migration among agricultural workers is crucial for policymakers, as migration patterns influence urban labour markets, rural labour shortages and agricultural productivity. The findings can guide policy interventions such as skill development programs, rural employment schemes (MGNREGA) and social security measures to address challenges faced by migrant workers and their families.

Results and Discussion

1. Socio-demographic profile of migrants

The analysis of PLFS 2020-21 data shows that 27.3 % of rural agricultural workers in Tamil Nadu have migrated to urban areas for employment. Among them, males constitute 78.5 %, indicating that migration is predominantly male driven. This reflects prevailing gender norms in India, where men are more likely to migrate for work, while women often remain in rural areas due to responsibilities related to household care, agriculture and social constraints on mobility. The age distribution reveals that the highest migration rate is among the 25-40 age group (63 %), suggesting that migration is a

youth-driven phenomenon as shown in Table 1. Education plays a significant role, with 54.2 % of migrants having secondary or higher education, supporting the notion that better-educated individuals are more likely to seek non-agricultural urban jobs. These findings indicate that migration is higher among individuals with better education and from socially marginalized communities like SCs, who seek urban employment due to limited rural opportunities.

2. Factors influencing migration

A logistic regression model was used to estimate the probability of rural-to-urban migration. The key economic determinants are wage differentials, landholding size and employment sector. Table 2 represents the significant determinants of rural-to-urban migration among agricultural workers. Age ($\beta = 0.045$, $p < 0.01$) positively influences migration, suggesting that younger individuals are more likely to migrate. Gender (OR = 2.4, $p < 0.01$) shows that males are more likely to migrate than females, aligning with previous studies highlighting male-dominated labour migration trends.

Educational attainment significantly impacts migration likelihood. Compared to uneducated individuals, those with primary (OR = 1.35, $p = 0.045$), secondary (OR = 1.733, $p = 0.002$) and higher education (OR = 2.225, $p < 0.01$) have increased odds of migrating, reflecting better job opportunities in urban areas for educated workers. This supports human capital theory, which links migration with skill acquisition and employment prospects. Social group affiliation shows mixed effects. Scheduled Tribe (ST) individuals have lower migration odds (OR = 0.67, $p = 0.012$), potentially due to social and economic barriers. However, Scheduled Caste (SC) and Other Backward Class (OBC) coefficients are insignificant, implying that caste alone does not strongly determine migration. Employment status plays a key role. Self-employed individuals have lower migration odds (OR = 0.607, $p = 0.005$), while regular wage earners (OR = 2.014, $p < 0.01$) are more likely to migrate. Casual labourers show an insignificant effect ($p = 0.08$), suggesting that instability in rural employment contributes to migration but is not a decisive factor. This insignificance may be due to limited resources, weaker social networks, or lack of opportunity awareness, which constrain the ability of casual labourers to migrate despite their economic vulnerability. Higher monthly wages ($\beta = 0.002$, $p = 0.040$) slightly increase migration probability, supporting economic-driven migration theories. Landholding size negatively correlates with migration, as those with small (OR = 0.607, $p = 0.002$) and large farms (OR = 0.522, $p < 0.01$) are less likely to migrate, indicating that landownership provides economic stability, reducing migration incentives. Household characteristics also matter. Larger household size (OR = 0.923, $p = 0.008$) decreases migration probability, possibly due to

Table 1. Socio-demographic characteristics of migrants and non-migrants (%)

| Variable | Migrants (%) | Non-migrants (%) |
|-----------------------------|--------------|------------------|
| Male | 78.5 | 67.2 |
| Age 25-40 | 63 | 47.8 |
| Secondary Education & Above | 54.2 | 35.1 |
| Scheduled Castes (SCs) | 41.6 | 46.9 |
| Scheduled Tribes (STs) | 9.3 | 11.4 |

Table 2. Logistic regression results for determinants of rural-to-urban migration among agricultural workers

| Variable | β (Coefficient) | SE (Standard Error) | OR (Odds Ratio) | p-value |
|----------------------------------|-----------------------|---------------------|-----------------|---------|
| Age | 0.045 | 0.012 | 1.046 | 0.000* |
| Gender (Male) | 0.875 | 0.21 | 2.4 | 0.000* |
| Marital status (Married) | 0.650 | 0.185 | 1.915 | 0.001* |
| Education level | | | | |
| - Primary | 0.300 | 0.15 | 1.35 | 0.045* |
| - Secondary | 0.550 | 0.16 | 1.733 | 0.002* |
| - Graduate and above | 0.812 | 0.2 | 2.225 | 0.000* |
| Social group | | | | |
| - Scheduled Caste (SC) | -0.25 | 0.14 | 0.779 | 0.07 |
| - Scheduled Tribe (ST) | -0.410 | 0.16 | 0.67 | 0.012* |
| - Other Backward Class (OBC) | -0.150 | 0.13 | 0.861 | 0.24 |
| Employment status | | | | |
| - Self-employed | -0.524 | 0.18 | 0.607 | 0.005* |
| - Casual Labor | 0.344 | 0.17 | 1.35 | 0.08 |
| - Regular Wage/Salary | 0.7 | 0.19 | 2.014 | 0.000* |
| Monthly Wages (INR) | 0.002 | 0.001 | 1.002 | 0.040* |
| Landholding size | | | | |
| - Marginal (≤ 1 hectare) | -0.35 | 0.15 | 0.705 | 0.020* |
| - Small (1-2 hectares) | -0.500 | 0.16 | 0.607 | 0.002* |
| - Large (> 2 hectares) | -0.650 | 0.18 | 0.522 | 0.000* |
| Household Size | -0.08 | 0.03 | 0.923 | 0.008* |
| Access to Social Security | 0.4 | 0.15 | 1.492 | 0.007* |
| Migration Duration | 0.5 | 0.14 | 1.649 | 0.000* |

* Significant at $p < 0.05$

caregiving responsibilities or shared income sources. Access to social security (OR = 1.492, $p = 0.007$) increases migration likelihood, suggesting that social protection enables mobility rather than deterring it.

Migration duration significantly influences mobility (OR = 1.649, $p < 0.01$), indicating that longer-duration migrants are more likely to relocate permanently for better opportunities. This aligns with structural transformation theories, where migration is a pathway to urban economic integration. MGNREGA participation reduces migration probability, indicating that government employment schemes can act as a deterrent to migration. Migrants reported an average monthly wage of ₹12450 in urban jobs, compared to ₹7600 in rural agricultural employment, supporting the Harris-Todaro wage differential model.

Conclusion

Validation of these results confirms the robustness of the model. The positive impact of education (with graduates showing an OR of 2.225) supports human capital theory, suggesting that better-educated individuals are more likely to seek urban employment due to higher earning potential and improved job prospects (3). Additionally, the strong influence of male gender on migration (OR = 2.4, $p < 0.001$) aligns with findings that socio-cultural norms tend to restrict female mobility (24). The significantly higher migration odds among regular wage workers (OR = 2.014, $p < 0.001$) underscore the importance of stable urban jobs (11), while the negative

association between landholding size and migration supports the agrarian distress hypothesis, as smaller landholders are more economically vulnerable (25). Larger household sizes reduce migration likelihood (OR = 0.923, $p = 0.008$), likely due to increased dependency burdens (26), whereas access to social security appears to facilitate migration (OR = 1.492, $p = 0.007$) by enabling greater mobility (27). The findings emphasize that migration is driven by a combination of economic opportunities, social structures and employment stability, validating theories of rural-urban mobility in agricultural economies.

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Authors' contributions

GSR was responsible for designing the study, collection of articles, developing the protocol and drafting the initial manuscript and remaining all authors contributed and revised the manuscript. All authors read and approved the final manuscript.

Compliance with ethical standards

Conflict of interest: There is no conflict of interest between the authors.

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