

Socio-Economic Conditions of Labourers Engaged in the Bakery Industry in Tangla in Udalgudi District (BTAD) and Adjacent Areas of Assam

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Abstract

The bakery industry constitutes an important component of the small-scale food processing sector in Assam and provides employment opportunities to a large number of informal labourers. The present study examines the socio-economic profile and employment characteristics of labourers engaged in bakery units located in Tangla and its adjacent areas of Udalguri district in Assam. Primary data were collected from 30 labourers through structured interviews and field observation. The study analyses demographic characteristics, employment patterns, and income levels of workers engaged in bakery production and distribution. Descriptive statistics and the Chi-square test were applied to examine the relationship between gender and employment participation. The findings reveal that male labourers dominate the bakery workforce, accounting for about two-thirds of the total workers, while female participation remains comparatively limited. Most labourers belong to economically weaker sections and work under informal employment arrangements with limited social security. The study highlights the need for policy intervention to improve wage conditions, occupational safety, and social protection mechanisms for workers engaged in small-scale bakery industries.

Keywords: Unorganised labour, bakery industry, informal employment, socio-economic condition, Tangla, Assam

1. Introduction

Small-scale food processing industries play an important role in generating employment in rural and semi-urban regions of India, and within this sector the bakery industry has emerged as an important source of livelihood for unorganised workers. In Assam, many bakery units function as informal enterprises where labourers are employed on daily wage or contractual arrangements. Tangla and its surrounding areas have experienced the growth of several small bakery establishments that supply products to local markets and nearby settlements. These units provide employment opportunities for workers engaged in activities such as baking, packaging, transportation and retail distribution. However, labourers working in bakery units often face vulnerable working conditions characterised by relatively low wages, extended working hours and limited access to social security benefits. Consequently, examining the socio-economic condition of these workers becomes important for understanding labour

welfare and employment sustainability within the informal sector. The present study therefore attempts to analyse the demographic composition and employment distribution of labourers working in bakery units located in Tangla and its adjacent areas of Assam.

2. Objectives of the Study

The main objectives of the study are:

1. To examine the demographic composition of labourers engaged in bakery industries in Tangla and adjacent areas.
2. To analyse gender participation among bakery labourers.
3. To evaluate the socio-economic conditions of workers employed in small bakery units.

3. Methodology

The study is based on primary data collected through field survey. A total of 30 labourers working in bakery units located in Tangla and its nearby areas were selected through purposive sampling.

Sources of Data

Primary data were obtained through structured interview schedules administered to labourers.

Sample Size

Total respondents: **30 labourers**

Tools for Analysis

The collected data were analysed using:

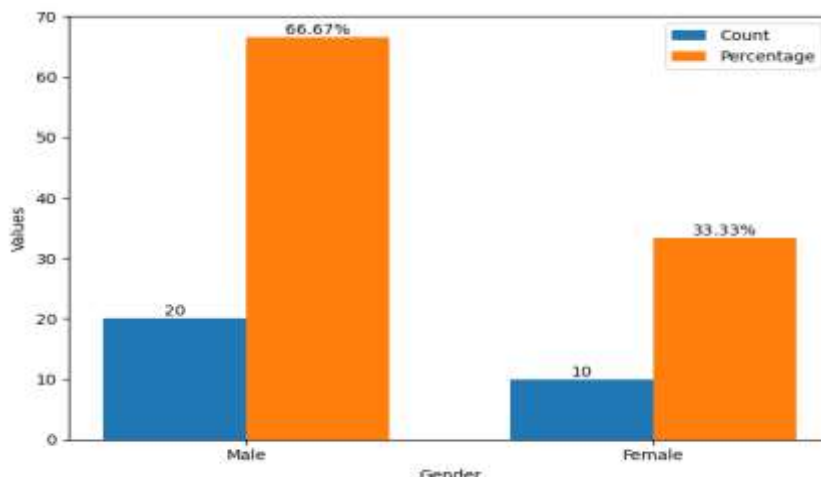
- Percentage analysis
- Tabular presentation
- **Chi-square (χ^2) statistical test**

4. Gender Composition of Labourers in Bakery Units of Tangla and Nearby Areas

Table -1 : Gender Distribution of Bakery Labourers

Gender	Number of Labourers	Percentage
Male	20	66.67%
Female	10	33.33%
Total	30	100%

Bar Chart -1 : Gender Distribution of Bakery Labourers



5. Statistical Test (Chi-Square Test)

To examine whether gender participation among bakery labourers significantly differs from equal participation, the **Chi-square test** is applied.

Hypothesis

H₀: There is no significant difference in gender participation among bakery labourers.

H₁: There is a significant difference in gender participation.

Observed and Expected Frequencies

Gender	Observed (O)	Expected (E)	(O-E) ² /E
Male	20	15	1.67
Female	10	15	1.67
Total χ^2 value			3.34

Degrees of Freedom (df) = 1

Critical value at 5% significance = 3.84

Since χ^2 calculated (3.34) < χ^2 table value (3.84), the null hypothesis is accepted.

6. Interpretation of Results

The statistical analysis indicates that although male labourers represent a larger share of the workforce in bakery units located in Tangla and its surrounding areas, the variation in gender participation does not reach statistical significance at the five percent level. Descriptive findings further suggest that male workers are primarily engaged in physically intensive activities such as dough preparation, baking processes, and transportation of products, whereas female workers are more frequently involved in comparatively lighter tasks including packaging, cleaning, and assisting in retail sales.

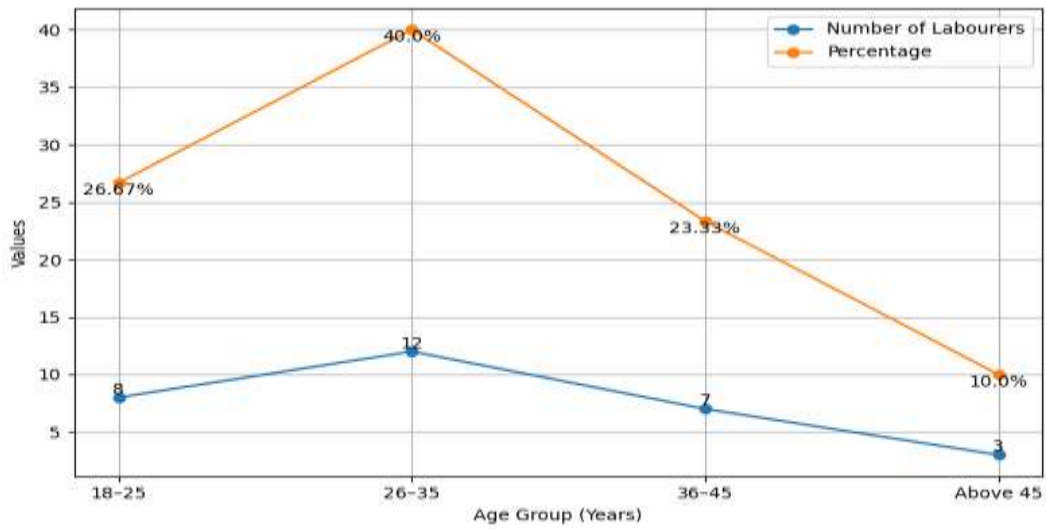
A substantial proportion of the workers originate from economically disadvantaged households and rely mainly on daily earnings obtained from bakery-related employment for their livelihood. In addition, the absence of formal employment contracts, irregular working schedules, and limited provisions for occupational safety and social protection collectively reflect the precarious and insecure working conditions experienced by labourers in this sector. These conditions highlight the need for improved labour welfare measures and institutional support within small-scale bakery enterprises operating in the informal economy.

7. Age-wise Distribution of Bakery Labourers in Tangla and Adjacent Areas

Table 2: Age-wise Distribution of Bakery Labourers

Age Group (Years)	Number of Labourers	Percentage
18–25	8	26.67%
26–35	12	40.00%
36–45	7	23.33%
Above 45	3	10.00%
Total	30	100%

Bar Chart 2: Age-wise Distribution of Bakery Labourers



8. Statistical Test (Chi-Square Test)

Hypothesis

H₀: Labourers are evenly distributed across different age groups.

H₁: Labourers are not evenly distributed across different age groups.

Expected Frequency

Total labourers = 30

Number of age groups = 4

Expected frequency (E) = 30 / 4 = 7.5

Chi-Square Calculation

Age Group	Observed (O)	Expected (E)	(O-E) ² /E
18-25	8	7.5	0.03
26-35	12	7.5	2.70
36-45	7	7.5	0.03
Above 45	3	7.5	2.70
Total χ^2			5.46

Degrees of Freedom (df) = (4-1) = 3

Critical value at 5% level = 7.815

Since χ^2 calculated (5.46) < χ^2 table value (7.815), the null hypothesis is accepted.

9. Interpretation

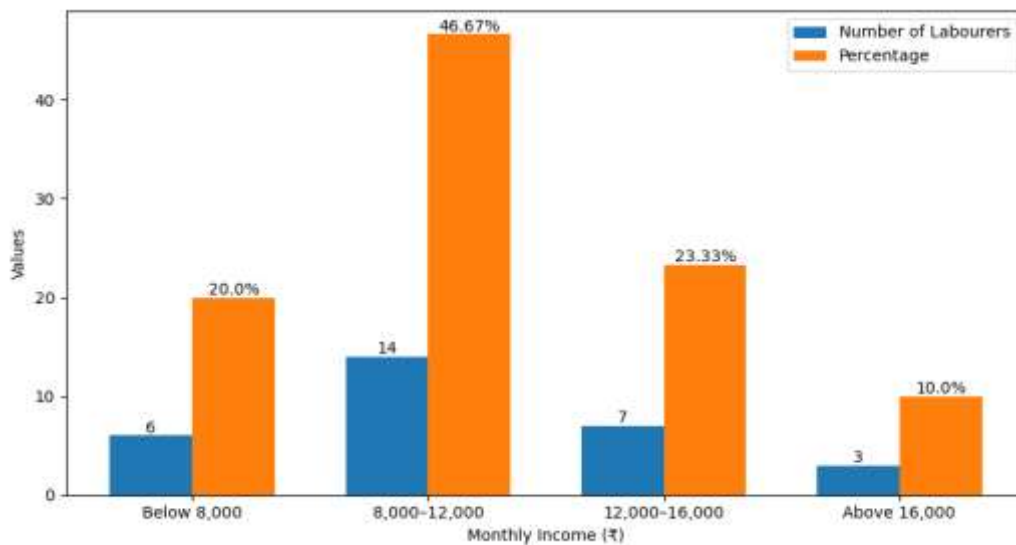
The age distribution of bakery labourers indicates that the 26-35 years age group forms the largest segment of workers (40%), suggesting that bakery activities require relatively young and physically active labourers. Workers aged above 45 years constitute only a small proportion of the workforce. The statistical result indicates that the variation in age distribution is not statistically significant at the 5 percent level.

10. Monthly Income Distribution of Bakery Labourers in Tangla and Adjacent Areas

Table 3: Monthly Income Distribution of Bakery Labourers

Monthly Income (₹)	Number of Labourers	Percentage
Below 8,000	6	20.00%
8,000–12,000	14	46.67%
12,000–16,000	7	23.33%
Above 16,000	3	10.00%
Total	30	100%

Bar Chart 3: Monthly Income Distribution of Bakery Labourers



11. Statistical Test (Chi-Square Test)

Hypothesis

H₀: Labourers are equally distributed across income categories.

H₁: Labourers are not equally distributed across income categories.

Expected Frequency (E)

Total respondents = 30

Income groups = 4

$E = 30 / 4 = 7.5$

Chi-Square Calculation

Income Category	Observed (O)	Expected (E)	$(O-E)^2/E$
Below 8,000	6	7.5	0.30
8,000–12,000	14	7.5	5.63
12,000–16,000	7	7.5	0.03
Above 16,000	3	7.5	2.70
Total χ^2			8.66

Degrees of Freedom (df) = 3

Critical value at 5% level = 7.815

Since χ^2 calculated (8.66) > χ^2 table value (7.815), the null hypothesis is rejected.

12. Interpretation

The income distribution indicates that nearly half of the bakery labourers (46.67%) earn between ₹8,000 and ₹12,000 per month, reflecting the modest wage structure prevailing in small-scale bakery units. A smaller proportion of labourers receive higher incomes above ₹16,000. The statistical result shows that the income distribution among labourers is significantly uneven, suggesting income inequality within the bakery workforce. This finding highlights the economic vulnerability of workers employed in informal bakery enterprises.

13. Conclusion

The bakery industry in Tangla and its surrounding areas constitutes an important source of livelihood for labourers employed in the unorganised sector. The findings of the present study, based on a sample of thirty workers, reveal that both male and female labourers participate in bakery-related activities; however, male workers represent a comparatively larger proportion of the workforce. The analysis of gender distribution indicates that although male participation is higher, the statistical test suggests that the variation is not significant at the five percent level.

The additional analysis of age distribution demonstrates that a substantial proportion of workers belong to the economically productive age group of 26–35 years, indicating that bakery work largely depends on physically active labour. However, the statistical test shows that the variation in age distribution across different categories is not statistically significant. The examination of income distribution further reveals that a considerable number of labourers earn between ₹8,000 and ₹12,000 per month, reflecting the relatively modest wage structure prevailing in small-scale bakery enterprises. The statistical result indicates that income distribution among labourers is uneven, highlighting certain disparities in earnings within the workforce.

Overall, the study highlights that employment in the bakery sector remains largely informal and is characterised by the absence of formal contracts, irregular working hours, and limited access to social security provisions. Strengthening labour welfare measures, ensuring fair wage practices, and introducing skill development initiatives could significantly improve the socio-economic conditions of workers engaged in this sector. Future research may incorporate larger sample sizes and extend the geographical coverage to additional districts of Assam in order to develop a more comprehensive understanding of employment conditions within the small-scale bakery industry.

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