



Literacy and Employment Status of Tribal Population in Nashik District, Maharashtra

Punam Waghere¹, Vinayak M. Pagar²

^{1,2}Department of Geography, Arts, Commerce and Science College, Kalwan (Manur), Tal-Kalwan, Dist-Nashik.(MH).

Abstract:

This research paper aims to investigate the literacy levels and employment status of the tribal population in Nashik District, Maharashtra. The tribal communities in this region have unique cultural and socio-economic characteristics that may influence their educational attainment and workforce participation. The study employs a mixed-methods approach, combining quantitative data analysis and qualitative insights gathered through interviews and field observations. The findings are expected to contribute to a better understanding of the challenges faced by tribal communities in accessing education and gaining meaningful employment opportunities. The present paper is designed to analyse the progress, spatial variation, inter block variation, gender disparity in literacy and also the variation in work participation rate and different occupational category of Nashik district, Maharashtra, India.

Keywords: Literacy, Employment, tribal

1. Introduction

1.1 Background:

The literacy level of a population is a crucial aspect that serves as a significant indicator of socio-cultural development and political awareness (Husain, 2013). While the development of any region is influenced by a variety of socio-economic and infrastructural factors, education stands out as the most pivotal factor overall (Yadav, 2009). Literacy plays a vital role in the eradication of poverty, diminishing mental isolation, fostering peaceful international relations, and promoting various facets of societal progress.

Conversely, illiteracy detracts from an individual's dignity, exacerbates poverty and mental isolation, and impedes social advancement, economic growth, and political maturity. Beyond these, literacy profoundly influences other demographic attributes such as fertility rates, mortality rates, mobility, occupation, and more (Chandana, 1986). Therefore, addressing literacy becomes imperative for comprehensive societal improvement.

The enhancement of education serves as a critical metric for gauging social and cultural progress and the economic transformation that a country undergoes (Khullar, 1999). By emphasizing literacy, nations can strive towards not only individual empowerment but also collective advancement, fostering a society that is well-equipped for holistic growth and development.

Studies highlight the historical marginalization of tribal populations in India, tracing back to colonial policies that disrupted traditional modes of education (Behera, 2010). These historical factors contribute to the current challenges faced by tribal communities in accessing quality education. Numerous research works emphasize the persistent gap in educational access for tribal populations. Factors such as remote geographical locations, inadequate infrastructure, and lack of transportation contribute to lower enrolment rates (Ghosh & Kumar, 2018). The quality of education in tribal areas has been a subject of concern. Insufficient resources, a shortage of trained teachers, and culturally insensitive curricula have been identified as factors

contributing to lower learning outcomes (Mishra, 2015). Cultural dissonance and language barriers play a crucial role in the educational challenges faced by tribal populations. The clash between the formal education system and tribal cultures leads to disengagement, and the use of non-indigenous languages acts as a significant barrier (Mishra, 2015; Behera, 2010). The reservation system has been a significant intervention to address educational disparities, providing affirmative action for tribal communities (Government of India, 2006). However, debates exist regarding the effectiveness and the need for complementary measures. Gendered nuances within tribal education have been explored, highlighting the additional challenges faced by tribal girls. Early marriages, limited autonomy, and restricted access to education contribute to gender disparities (Reddy & Rao, 2017). Empowerment initiatives led by tribal communities themselves have shown promise. Community-led initiatives that involve local communities in decision-making processes regarding education have resulted in more sustainable outcomes (Behera, 2010).

The tribal population in Nashik District, Maharashtra, constitutes a significant segment of the region's demographic landscape. Understanding the literacy levels and employment patterns among this community is crucial for devising targeted interventions to improve their socio-economic conditions. The current study is structured to assess the advancements, geographical variances, inter-block variations, gender disparities in tribal literacy, and the diversity in work participation rates across different occupational categories in Nashik District.

1.2 Objectives:

To assess the literacy rates among tribal communities in Nashik District.

To examine the factors influencing literacy levels, including access to education and cultural factors.

To analyze the employment status of the tribal population, focusing on types of employment, income levels, and job satisfaction.

To explore the challenges faced by tribal individuals in accessing education and securing stable employment.

2. Study region:

Nashik district is situated in the northwestern part of Maharashtra, encompassing geographic coordinates between 19°35' and 20°50' north latitude and 73°16' and 74°56' east longitude. With a sprawling geographical area of 15,530 square kilometers, the district shares borders with Dhule district to the north, Dangs and Surat districts of Gujarat to the northwest, Jalgaon to the east and northeast, Ahmadnagar to the south, Aurangabad to the southeast, and Thane to the west and southwest.

The administrative hub of the district is Nashik town, overseeing four divisions: Nashik, Niphad, Malegaon, and Peint. Further subdivision includes 15 tehsils, namely Nashik, Igatpuri, Trimbakeshwar, Peint, Dindori, Surgana, Kalwan, Niphad, Sinnar, Chandvad, Deola, Satana, Malegaon, Nandgaon, and Yeola, covering 18 towns and 1,931 villages. Notably, Nashik district is recognized as tribal by the state government, with tribal areas identified in Surgana (96.51%), Peint (96.44%), Trimbakeshwar (83.62%), Kalwan (68.94%), Dindori (55.57%), Igatpuri (44.59%) and Baglan (43.15%) as per 2011 population census data.

Several significant rivers, including the Godavari, Girna, Darna, Vaitarna, and Kadwa, originate in the district. The Godavari, often referred to as the Ganga of South India, has its source near Trimbakeshwar. According to the 2011 census, the district's population stands at 6,107,187, comprising 3,157,186 males and 2,950,001 females. The average literacy rate in Nashik district for 2011 is recorded at 82.91%, exhibiting an increase from 80.96% in 2001. This literacy rate aligns with the overall state literacy rate. The average population density in Nashik district in 2011 is 393 persons per square kilometer.

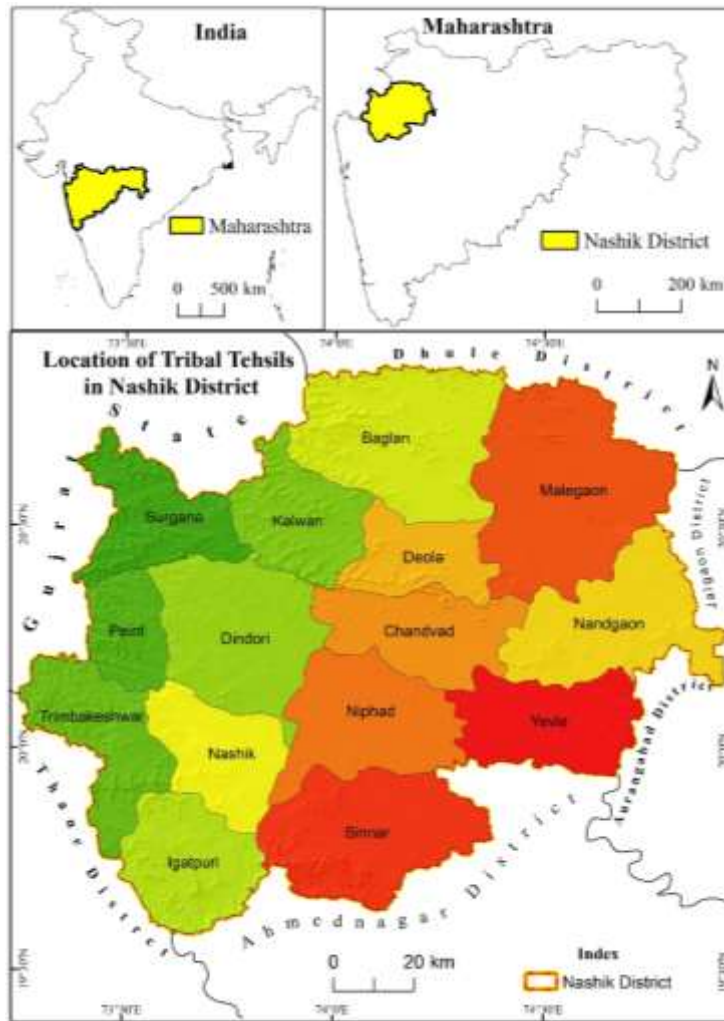


Figure 1: Location Map of Study region.

3. Methodology:

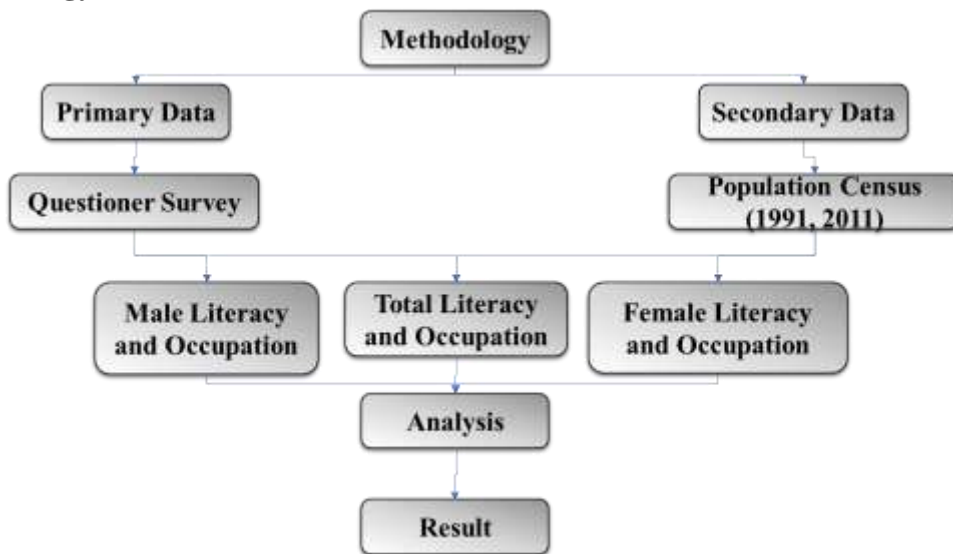


Figure 2: Graphical representation of methodology

4. Data Analysis:

The current investigation relies entirely on secondary data, specifically gathered from district census handbooks, primary census abstracts, and village directories. The data pertains to literacy and working categories. The determination of the relative concentration of the tribal population involves the use of the Location Quotient (LQ_i):

$$LQ_i = \frac{P_{ij}}{P_i} / \frac{P_j}{P} \quad \dots(1)$$

Where:

P_{ij} represents the number of persons in the j th category of area i .

P_i is the total population in all categories of area i .

P_j is the sum of persons in category j across all n areas.

P denotes the total population across all areas.

Percentage of tribal literate to the total tribal population have been calculated for showing the gender disparity in different blocks Sopher's disparity index, modified by Kundu & Rao (1985) has been used.

$$Ds = \text{Log}(X2/X1) + \text{Log} [(200 - X1)/(200 - X2)] \quad \dots(2)$$

Where,

Ds is gender disparity index,

$X1$ is percentage of literate female to total female population

$X2$ is percentage literate male to total male population.

The spatial pattern of tribal population by literacy rate and occupational structure has been examined. To reach the standardization, the data from each indicator have been calculated into Standard Score.

$$Z_i = \frac{X_i - \mu}{\delta} \quad \dots(3)$$

Where, Z_i is standard score.

X_i is original values for observation i

μ is the mean for the variable and

δ is the standard deviation.

Now the average of standard score has been calculated which is known as composite score.

$$CS = \frac{\sum Z_{ij}}{n} \quad \dots(4)$$

Where, CS is Composite Score

n is refers to the number of variable

$\sum Z_{ij}$ Indicates Z-score of all variables ' i ' in block j

5. Findings and Discussion:

5.1 Concentration of Tribal population

The value of Location Quotient shows the concentration of scheduled tribe population. the value of LQ shows that the higher concentration of tribal is mainly on the hilly region.

Table 1: Block-wise concentration of tribal population (2011)

Sr. No.	Tahsil Name	LQ
7	Baglan	1.1464
11	Chandvad	0.5309
10	Deola	0.5535
5	Dindori	1.4763
6	Igatpuri	1.1845
4	Kalwan	1.8314
13	Malegaon	0.4972
9	Nandgaon	0.5594
8	Nashik	0.9527
12	Niphad	0.5160
2	Peint	2.5619

14	Sinnar	0.3944
1	Surgana	2.5638
3	Trimbakeshwar	2.2214
15	Yevla	0.3302

The highest LQ value is of Surgana Tehsil which is 2.5638 following that Peint (2.5619) and Trimbakeshwar (2.2214). This Tehsil having more tribal population in the district. While lowest LQ value were found in Yevla tehsil (0.33) following this tehsil Sinnar and Malegaon have low concentration of tribal population.

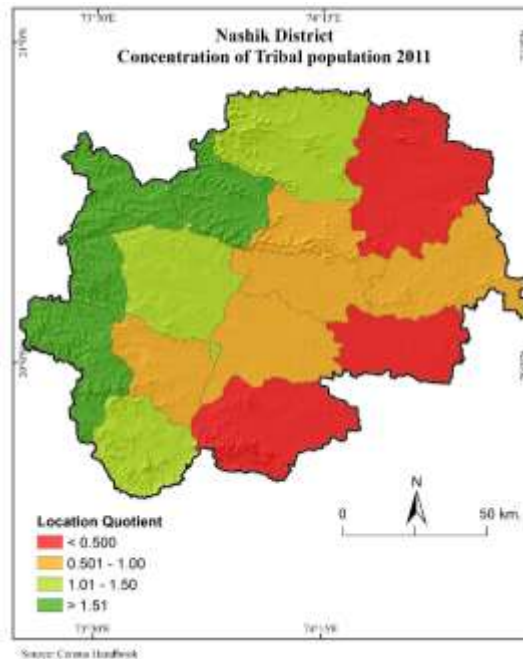


Figure 3: Spatial Distribution of Tribal Population Concentration

5.2 Trends of Tribal literacy rate

Table 2 : Block wise population literacy (2011)

Name	P_LIT	M_LIT	F_LIT	P_LIT %	M_LIT %	F_LIT %
Baglan	219457	121843	97614	65.17	70.18	59.85
Chandvad	168068	93616	74452	71.26	76.67	65.45
Deola	102568	57213	45355	70.97	75.97	65.53
Dindori	210976	117947	93029	66.83	73.03	60.33
Igatpuri	144930	82863	62067	65.13	73.17	56.80
Kalwan	121538	67852	53686	58.33	63.93	52.51
Malegaon	328249	183765	144484	67.78	73.09	62.05
Nandgaon	119105	68901	50204	64.32	71.35	56.65
Nashik	143164	80141	63023	70.50	76.27	64.32
Niphad	359841	198373	161468	72.95	77.86	67.71
Peint	72139	40379	31760	60.20	66.97	53.34
Sinnar	199255	112487	86768	70.89	77.38	63.93
Surgana	100634	55379	45255	57.24	63.03	51.45
Trimbakeshwar	88058	50265	37793	56.31	63.52	48.93
Yevla	154370	87005	67365	69.75	76.05	63.01

The table 2 provides demographic data on various regions, including population (P), male literacy (M_LIT), female literacy (F_LIT), and the corresponding literacy percentages.

Highest literacy identified in the Niphad tehsil i.e. 72.95% following Chandvad (71.26) and Deola (70.97) have second and third highest literacy rate respectively. The lowest literacy found in the Trimbakeshwar which is 56.31 after that Surgana (57.24) and Kalwan (58.33) percent of population literacy. The tribal tehsil having lowest population literacy while the Non tribal tehsil having highest population literacy. Figure 4 shows spatial distribution of population literacy in Nashik district. The distribution shows that lowest literacy rate is found in tribal tehsil in western part of district.

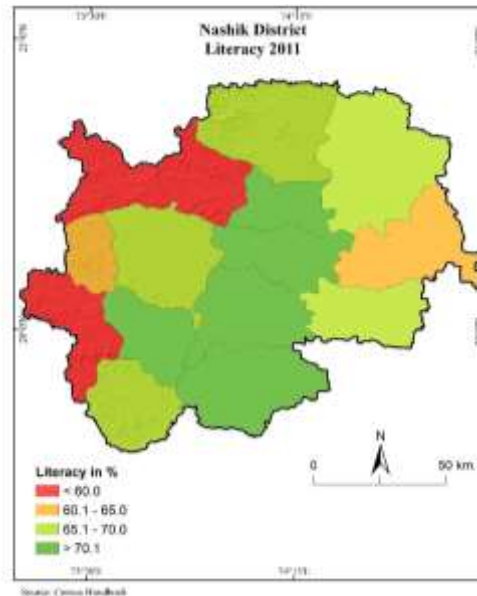


Figure 4: Spatial Distribution of Population Literacy

5.3. Trends of Tribal employment rate

Analyzing the employment rate and its structure holds significant importance in the field of population geography. India, in comparison to several developed nations, exhibits a lower employment rate. The 2011 census reports a work participation rate of 39.79% for the country. Interestingly, for tribal communities, the employment rate surpasses the national average.

Table 3 illustrates the employment rates, shedding light on the disparities and providing a comprehensive overview of the employment landscape. The table provides insights into the working population, categorized by gender, in different tahsils (administrative divisions) in the specified region. Working population percentages vary across tahsils, ranging from as low as 12.31% in Sinnar to as high as 75.73% in Niphad. Tahsils such as Nandgaon, Malegaon, and Niphad show notably high working population percentages. In most tahsils, the male working population is higher than the female working population. This gender disparity is evident in several regions, such as Surgana, Peint, Kalwan, Dindori, Nashik, Deola, Chandvad, Malegaon, and Yevla. Nandgaon, Deola, and Sinnar exhibit relatively lower gender disparities, with the working population percentages for males and females being closer. Sinnar stands out as an outlier with a negative percentage for female working population, suggesting a potential data anomaly or missing values in the female working population data. Igatpuri, Baglan, Nandgaon, Deola, Chandvad, Niphad, and Malegaon consistently show high working population percentages, indicating active participation in the workforce. Certain tahsils, such as Trimbakeshwar, Igatpuri, Baglan, Nandgaon, Deola,

Chandvad, Niphad, Malegaon, and Yevla, generally have higher working population percentages, suggesting economic activities and employment opportunities in these areas.

Table 3. Work participation rates of different Blocks (2011)

Sr. No.	Tahsil Name	Working Population	Male Working Population	Female Working Population
7	Baglan	67.89	69.71	65.94
11	Chandvad	56.01	62.75	48.78
10	Deola	47.88	52.17	43.21
5	Dindori	20.33	31.27	8.87
6	Igatpuri	59.83	61.88	57.69
4	Kalwan	25.74	31.14	20.13
13	Malegaon	73.63	75.48	71.64
9	Nandgaon	71.40	72.89	69.78
8	Nashik	24.46	32.46	15.87
12	Niphad	75.73	79.37	71.84
2	Peint	21.08	25.30	16.81
14	Sinnar	12.31	24.95	8.87
1	Surgana	55.49	56.63	54.35
3	Trimbakeshwar	57.12	58.91	55.28
15	Yevla	55.54	57.19	53.78

The table no. 4 provides valuable insights into the distribution of main workers across different tehsils, highlighting sectoral preferences and potential areas of economic specialization. The variations observed emphasize the diversity in economic activities across the region.

Table 4. Tehsil-wise variations in working category

Sr. No.	Tehsil Name	MAINWORK_P	MAIN_CL_P	MAIN_AL_P	MAIN_HH_P	MAIN_OT_P
7	Baglan	90.53	47.53	41.87	1.83	8.77
11	Chandvad	92.04	59.29	29.01	1.32	10.37
10	Deola	91.49	52.98	33.49	2.04	11.48
5	Dindori	92.09	51.99	36.21	1.26	10.53
6	Igatpuri	84.87	49.72	29.47	1.84	18.97
4	Kalwan	93.68	52.92	35.43	0.94	10.71
13	Malegaon	92.11	38.91	36.62	1.70	22.77
9	Nandgaon	93.68	51.16	38.41	0.90	9.52
8	Nashik	90.42	39.04	32.96	1.65	26.35
12	Niphad	92.20	43.12	33.61	1.49	21.79
2	Peint	79.87	41.42	52.76	0.47	5.36
14	Sinnar	91.59	61.64	22.93	2.24	13.19
1	Surgana	84.00	50.22	44.49	0.50	4.79
3	Trimbakeshwar	86.67	49.41	43.08	0.82	6.69
15	Yevla	93.98	62.00	30.04	1.20	6.76

Across tehsils, there is a consistent high percentage of main workers, ranging from 79.87% in Peint to 93.98% in Yevla. This indicates a significant portion of the population engaged in various occupations. Kalwan, Dindori, Nandgaon, Deola, Chandvad, Niphad, Malegaon, and Yevla show a relatively balanced distribution of main workers across different sectors. Igatpuri and Sinnar exhibit a higher concentration of main workers in non-agricultural sectors, such as household industry and other sectors. Tehsils like Peint, Kalwan, Dindori, Nashik, and Sinnar have a considerable percentage of main workers engaged in cultivation (MAIN_CL_P) and agriculture and allied activities (MAIN_AL_P). Igatpuri and Sinnar stand out for having higher percentages of main workers involved in household industry (MAIN_HH_P) and other sectors (MAIN_OT_P), indicating specialization beyond traditional agriculture. Niphad and Malegaon show a relatively higher percentage of main workers in other sectors (MAIN_OT_P), possibly indicating diversification and industrialization in these areas. Sinnar again stands out, particularly with a high percentage of main workers in cultivation (MAIN_CL_P) and a lower percentage in agriculture and allied activities (MAIN_AL_P). Further investigation may be required to understand the specific economic activities in Sinnar tehsil.

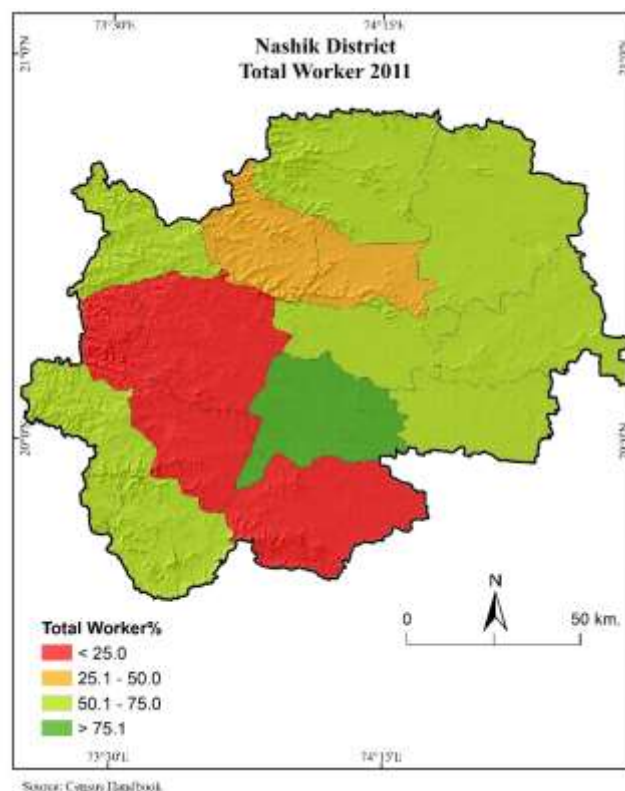


Figure 4: Spatial Distribution of Population Total Worker

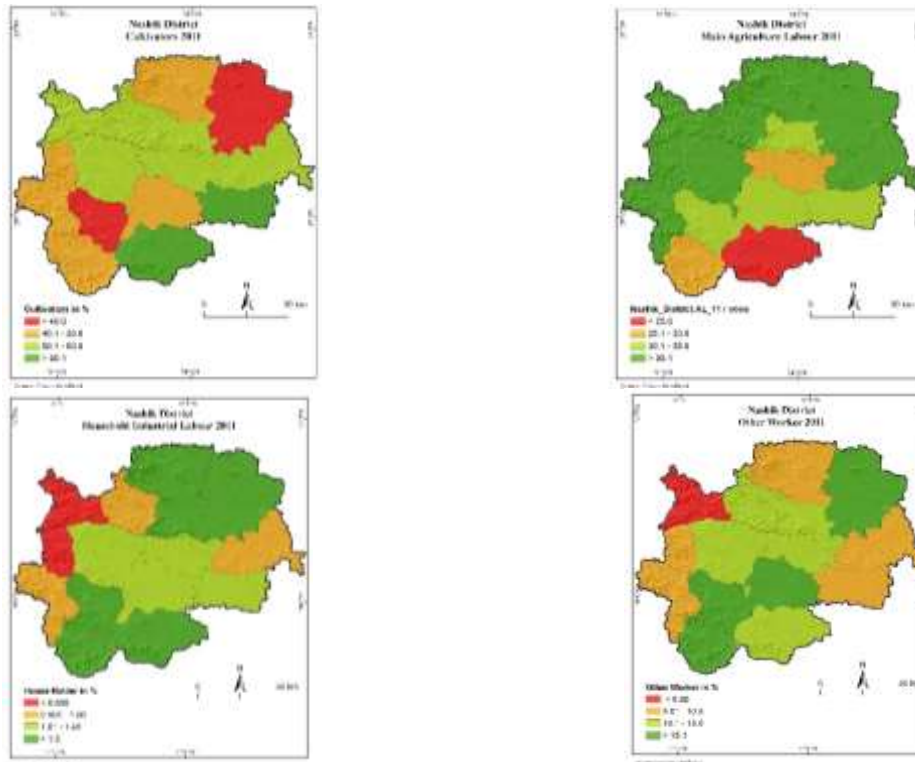


Figure 5: Spatial Distribution of Cultivators, Agricultural labour, Household industrial labour and other worker

Z Score Analysis

Table 5: Z Score Analysis of each parameter

Sr. No.	Parameter	Z Score Analysis	Results
1	Z LQ	$(1.1464 - 1.154666667) / 0.770704619$	-0.011
2	Z P_LIT %	$(65.17 - 65.842) / 5.352564743$	-0.124
3	Z M_LIT %	$(70.18 - 71.898) / 5.069405225$	-0.34
4	Z F_LIT %	$(59.85 - 59.457333333) / 5.659075857$	0.068
5	Z Working Population	$(67.89 - 48.296) / 20.94705669$	0.93
6	Z Male Working Population	$(69.71 - 52.806666667) / 18.33267817$	0.924
7	Z Female Working Population	$(65.94 - 44.189333333) / 22.79469396$	0.96
8	Z MAINWORK_P	$(90.53 - 89.948) / 4.01608964$	0.135
9	Z MAIN_CL_P	$(47.53 - 50.09) / 7.113466103$	-0.358
10	Z MAIN_AL_P	$(41.87 - 36.025333333) / 7.133088033$	0.818
11	Z MAIN_HH_P	$(1.83 - 1.346666667) / 0.526024925$	0.867
12	Z MAIN_OT_P	$(8.77 - 12.536666667) / 6.524310095$	-0.576

The table no. 5 provides insights into the relative positions of tehsils concerning literacy and occupation, highlighting areas with potential development imbalances and indicating the need for targeted interventions or further research to understand specific socio-economic dynamics. The Composite Z Score of Literacy represents the relative position of each tehsil compared to the overall literacy rates. Negative values indicate tehsils with lower literacy rates than the overall average, while positive values suggest higher literacy rates. Tehsils such as Surgana, Peint, Trimbakeshwar, Kalwan, Baglan,

and Sinnar exhibit negative Composite Z Scores of Literacy, indicating literacy rates below the overall average.

Conversely, Dindori, Igatpuri, Nashik, Nandgaon, Deola, Chandvad, Niphad, Malegaon, and Yevla show positive scores, suggesting higher literacy rates than the overall average. The Composite Z Score of Occupation reflects the relative distribution of occupations in each tehsil compared to the overall occupation distribution. Negative values suggest a lower concentration in certain occupations compared to the average, while positive values indicate a higher concentration. Surgana, Peint, Trimbakeshwar, Kalwan, and Sinnar have negative Composite Z Scores of Occupation, implying a concentration in occupations different from the overall distribution. Tehsils like Igatpuri, Baglan, Nashik, Nandgaon, Deola, Chandvad, Niphad, Malegaon, and Yevla show positive scores, indicating a concentration in certain occupations compared to the overall distribution.

The alignment of Composite Z Scores for literacy and occupation varies across tehsils. For instance, Dindori, Igatpuri, Nashik, Nandgaon, Deola, Chandvad, Niphad, Malegaon, and Yevla exhibit positive scores for both literacy and occupation, indicating a relatively balanced development in education and occupation. Sinnar stands out with a positive Composite Z Score of Literacy but a negative score for Occupation. This suggests a potential mismatch between literacy levels and occupational distribution, warranting further investigation.

5.4 Correlation Matrix

The table appears to present correlation coefficients between various variables, including Location Quotient (LQ) as X1, Percentage Literacy (P_LIT %) X2, Working Population X3, and different components of the main working population (MAIN_CL_P, MAIN_AL_P, MAIN_HH_P, MAIN_OT_P) X4, X5, X6 and X7 respectively. The values in the table represent the strength and direction of linear relationships between these variables. Here are the key conclusions:

LQ has a negative correlation with Percentage Literacy (P_LIT %) and Working Population. This suggests that areas with lower location quotients tend to have higher literacy rates and a smaller working population. P_LIT % has a negative correlation with LQ and a positive correlation with Working Population. This indicates that higher literacy percentages are associated with lower location quotients and a larger working population. Working Population shows a negative correlation with LQ and a positive correlation with Percentage Literacy (P_LIT %). This implies that areas with larger working populations tend to have lower location quotients and higher literacy rates. MAIN_CL_P (Main Cultivators) has a positive correlation with MAIN_AL_P (Main Agricultural Laborers) and MAIN_HH_P (Main Workers in Household Industry), suggesting that areas with a higher concentration of cultivators also tend to have more agricultural laborers and workers in household industries. MAIN_AL_P (Main Agricultural Laborers) has a positive correlation with MAIN_OT_P (Main Workers in Other Sectors), indicating that regions with more agricultural laborers also tend to have more workers in other sectors. LQ has a negative correlation with MAIN_HH_P (Main Workers in Household Industry) and MAIN_OT_P (Main Workers in Other Sectors), implying that areas with a lower location quotient may have fewer workers in household industries and other sectors.

There are negative correlations between LQ and some variables (P_LIT %, Working Population, MAIN_HH_P, MAIN_OT_P), suggesting that areas with a lower location quotient may exhibit higher literacy rates, a larger working population, and fewer workers in household industries and other sectors.

Table 5: Correlation Matrix of variable of Literacy and occupational groups.

	X1	X2	X3	X4	X5	X6	X7
X1	1						
X2	-0.87884	1					
X3	-0.28542	0.06672	1				
X4	-0.2783	0.143727	-0.17289	1			
X5	0.770743	-0.70457	0.074361	-0.53928	1		
X6	-0.71673	0.72658	0.009121	0.118727	0.71529	1	
X7	-0.48114	0.554863	0.106461	-0.51072	0.44736	0.571788	1

6. Conclusion:

Tribal people are the most under privileged section of the society. In terms of socio-economy, they are far behind from the other communities of our society and their cultural essence is also different from others. The study shows there is variation in literacy rate and work participation rate among the different blocks of Darjiling district. Literacy rate among St's of plain region which includes four blocks of the district is very poor. The relationship between education and employment shows a very different picture. A higher level of literacy and low level of employment has been observed in the hilly blocks. the existing situation of tribal development across different areas shows that the rural sides of the plain area are still lagging behind.

7. References:

1. Behera, M. (2010). Indigenous Knowledge and Education: A Study of the Juang Tribe in Orissa, India. *International Journal of Educational Development*, 30(3), 305-311.
2. Census of India (2011). Maharashtra, series-27, Part XII-B, District Census Hand Book, Nashik, village and town wise primary census abstract (PCA), Directorate of census operations Maharashtra.
3. Chandana, R.C. (1994). *A Geography of Population*, Kalyani Publishers, pp.228.
4. Ghosh, B., & Kumar, R. (2018). Educational Deprivation of Scheduled Tribes in India: A Spatial Analysis. *Economic & Political Weekly*, 53(26-27), 61-68.
5. Government of India. (2006). National Policy on Education. Retrieved from <http://www.education.nic.in/element/innerdoc/npe.pdf>
6. Hussain, M. (2013). *Geography of India*, Forth Edition, McGraw Hill Education (India) Private Limited, New Delhi. pp.13.60-13.61
7. Khullar (1999). *India A Comprehensive Geography*, Kalyani Publishers, pp.217.
8. Mishra, S. (2015). Indigenous Education and Cultural Identity: A Study of Tribal Communities in India. *Journal of Tribal Intellectual Collective India*, 1(1), 29-41.
9. Reddy, K. R., & Rao, P. P. (2017). Gender Disparities in Tribal Education: A Case Study of Andhra Pradesh. *International Journal of Educational Research and Development*, 6(1), 45-56.
10. Yadav, S. (2009). 'Regional Inequalities in the Levels of Literacy and Its Determinants in Uttar Pradeh', *Geographical Review of India*, vol.71(1), pp.85-90