

A Comparative Study of Socio-Economic Development in the Tribal Border Belt of Gujarat, Madhya Pradesh and Maharashtra

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Abstract

The present study examines the socio-economic conditions of tribal households located in the tri-state border region of Gujarat, Maharashtra, and Madhya Pradesh. The primary objective of the research is to compare income levels, educational status, and health conditions among tribal communities living in geographically connected border areas. Despite several welfare initiatives, these regions continue to experience uneven development, raising the research problem of whether administrative boundaries influence socio-economic outcomes among culturally similar tribal populations. The study is based on primary data collected from 300 tribal households (100 from each state) through a structured interview schedule and field observation. Data were analyzed using frequency distribution, grouped mean calculations, one-way ANOVA, and multiple regression analysis. The results show significant differences in household income across the three states, with Gujarat reporting the highest mean income (₹9,500), followed by Maharashtra (₹8,640) and Madhya Pradesh (₹8,000). The ANOVA results confirm that these differences are statistically significant. Regression analysis further indicates that education and access to healthcare services have a positive and significant influence on household income. The study concludes that socio-economic disparities persist across the tri-state border region despite shared cultural and geographic characteristics. Strengthening education and healthcare access, along with coordinated development policies across state borders, may help improve livelihood conditions and reduce poverty among tribal communities in this region.

Keywords: Socio-Economic, Tribal Border, Gujarat, Mdhya Pradesh, Maharashtra, Comparative Study.

1. Introduction:

India's tribal population has historically lived in geographically isolated and forested regions. While constitutional safeguards and development programs have aimed to reduce disparities, regional inequalities remain visible, especially in border areas. The tri-state belt connecting parts of Gujarat, Madhya Pradesh, and Maharashtra represents one such region where development indicators remain uneven despite shared cultural and ecological features.

The experience of the Border regions are mostly administrative fragmentation. Further, Welfare schemes differ from one state to another, and implementation gaps may occur due to coordination challenges. Tribal communities living in these areas frequently migrate across state lines for work, access markets in nearby towns, and rely on forest resources for survival. Yet, their socio-economic conditions are shaped not only by geography but also by state-specific policies and institutional support.

Previous studies have shown that tribal households face persistent poverty, low literacy, malnutrition, and limited healthcare access (Xaxa:2011). Economic vulnerability among tribal communities is closely linked to land alienation and seasonal migration (Shah:2005). Education has been identified as a key pathway for social



mobility, but dropout rates remain high in rural tribal belts (Tilak: 2007). Health outcomes are often affected by poor infrastructure and lack of awareness (Balgir:2004).

This study attempts to compare socio-economic development indicators across selected tribal households in the shared border region of Gujarat, Madhya Pradesh, and Maharashtra. By focusing on income, poverty, health, and education, the research seeks to understand whether administrative boundaries influence development outcomes within culturally similar tribal communities.

2. Main Research Objectives:

- ✓ To examine and compare the income and poverty levels of tribal households in the tri-state border region.
- ✓ To analyze the health and educational status of tribal families across the three states.
- ✓ To identify differences and similarities in socio-economic development patterns within the border belt.

3. Research Problems:

Despite multiple tribal welfare schemes, socio-economic disparities continue in border areas. The main research problem addressed in this study is:

Why do tribal communities living in geographically connected border regions experience differences in income, health, and education outcomes across state boundaries?

Sub-problems include:

Are poverty levels significantly different among households across the three states?

Does access to education and healthcare vary based on state administration?

How does migration influence socio-economic stability?

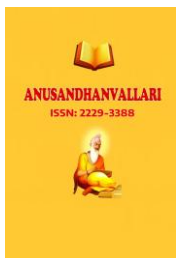
4. Research Hypothesis

H1: There is a significant difference in socio-economic development indicators among tribal households across the three state border regions.

H2: Access to education and healthcare services significantly influences household income levels in the tri-state border belt.

5. Review of Literature:

Structural Inequality and Tribal Marginalization: Xaxa (2011) provides a detailed sociological examination of tribal communities in India, focusing on the structural roots of exclusion rather than viewing tribal poverty as an isolated economic problem. This work draws on census data, National Sample Survey reports, and policy analysis to show how tribal communities remain at the margins of development despite constitutional safeguards. Using a macro-analytical framework, the study argues that land alienation, displacement due to development projects, and weak institutional access are central factors behind persistent deprivation. One important contribution of Xaxa's work is the distinction he makes between "protective discrimination" and actual social transformation. While policies such as reservations and targeted schemes exist, implementation gaps and bureaucratic barriers limit their impact. This study finds that tribal households continue to show lower literacy rates, higher poverty ratios, and weaker health outcomes compared to national averages. His analysis highlights that poverty in tribal regions is structural and historically rooted, not merely a result of individual limitations. This perspective is useful for understanding why border tribal belts continue to experience socio-economic disparities despite state interventions.



Livelihood Patterns and Migration Dynamics: Shah (2005) examines tribal livelihoods through field-based research in western and central India. This study relies primarily on qualitative tools such as in-depth interviews, village-level observation, and case studies of migrant households. Mostly here, documents how traditional subsistence agriculture has become increasingly insufficient due to shrinking landholdings, environmental degradation, and market pressures.

This study key findings is that migration has shifted from being seasonal and supplementary to becoming a primary survival strategy. Tribal families migrate to nearby towns and even across state borders for construction work, brick kilns, and agricultural labor. This migration pattern affects children's education, women's health, and social stability. Here noted that while migration provides short-term income support, it also increases vulnerability because employment is informal and unregulated.

This research work is especially relevant to border areas where state boundaries do not restrict labor mobility. It suggests that economic vulnerability cannot be understood without examining mobility patterns. The link between migration and income instability observed in the present study aligns with Shah's conclusions.

Education and Social Exclusion: Tilak (2007) approaches tribal education from a policy and development economics perspective. Using statistical analysis of national educational data and policy evaluation reports, the study demonstrates that access to schooling has expanded in rural India, but quality and retention remain serious concerns. Here, research tools include secondary data analysis from government educational surveys and comparative state-level statistics. present research study emphasizes that education is not only a tool for literacy but also a mechanism for breaking cycles of poverty and social exclusion. However, the study identifies high dropout rates among tribal children, particularly at the transition from primary to secondary level. Contributing factors include poverty, distance to schools, language barriers, and lack of parental awareness. further findings of educational inequality reinforces economic inequality. When tribal children drop out early, they are more likely to enter low-paid, unskilled labor markets. This intergenerational cycle of disadvantage strengthens structural poverty. The present comparative study reflects similar patterns in border areas, where secondary-level dropout is higher in economically weaker regions.

Tribal Health and Nutritional Status: Balgir (2004) investigates health disparities among tribal populations using community health surveys and clinical screening methods. His research focuses on nutritional deficiencies, anemia prevalence, maternal health, and access to public health infrastructure. Data were collected through medical camps, anthropometric measurements, and household health interviews. The findings reveal that malnutrition and anemia are widespread among tribal women and children. Limited access to primary healthcare centers, poor sanitation, and lack of health awareness contribute to high vulnerability. moreover also noted that health outcomes are closely linked to income and education levels. Households with slightly better economic stability and literacy show improved health indicators.

6. Research Methodology

The present study adopts a comparative and descriptive research design to examine the socio-economic conditions of tribal households located in the common border belt of Gujarat, Maharashtra, and Madhya Pradesh. The focus was on understanding differences in income, education, and health indicators within a shared cultural and geographic setting. Since the objective was to compare measurable socio-economic variables across three states, a quantitative approach supported by field observation was considered appropriate. The study was conducted between period of July-2024 to November: 2024 in selected tribal villages situated near the tri-state border region. A total sample of 300 households was covered, comprising 100 households from each state. Households were selected through purposive sampling, ensuring that only tribal families residing in border villages were included.

Within each village, households were approached systematically following a field-route pattern, and they were coded in odd and even sequence for record clarity.

Core Tri-Junction Area

Chhota Udepur (Gujarat)

Alirajpur (Madhya Pradesh)

Nandurbar (Maharashtra)

Primary data were collected through a structured interview schedule designed to capture information on monthly household income, educational status of family members, health conditions, access to public services, and occupational patterns. The tool consisted of both closed-ended and limited open-ended questions to allow factual recording as well as contextual understanding. Observation was also used to note housing condition, sanitation facilities, and visible indicators of economic status. Secondary data from government reports and census publications were consulted to contextualize the field findings.

Data were classified and tabulated using frequency distribution methods. Average income was calculated using grouped data techniques based on class intervals. For comparative analysis among the three states, one-way ANOVA was applied to test the significance of income differences. The analysis aimed to determine whether observed variations reflected statistical differences or were due to random variation.

Overall, the methodology was designed to maintain consistency in data collection across the three states while allowing meaningful comparison of socio-economic development indicators within the tri-state tribal border region.

7. Results & Discussion

7.1 Descriptive Results: The descriptive results represent the primary output from the collected primary field data during period.

Table:1 Income Level of Gujarat Tribes

Income Class (₹)	Frequency (f)	Mid Value (x)	f × x
7,000–7,999	0	7,500	0
8,000–8,999	20	8,500	1,70,000
9,000–9,999	60	9,500	5,70,000
10,000–10,999	20	10,500	2,10,000
Total	100		9,50,000

Source: Authors' Primary Data Analysis

Here, **Table:1** has showing the total mid income level according to income class of the respective tribes families from Gujarat. The lowest frequency has been found by null under 7,000-7999 income groups. The highest income class frequency observed to 60 in the income class of the 9000-9999 with middle mid value overall. The highest mid-value observed by 10,500 Rs.

Figure:1
Midvalue & Frequency of Gujarat Tribe

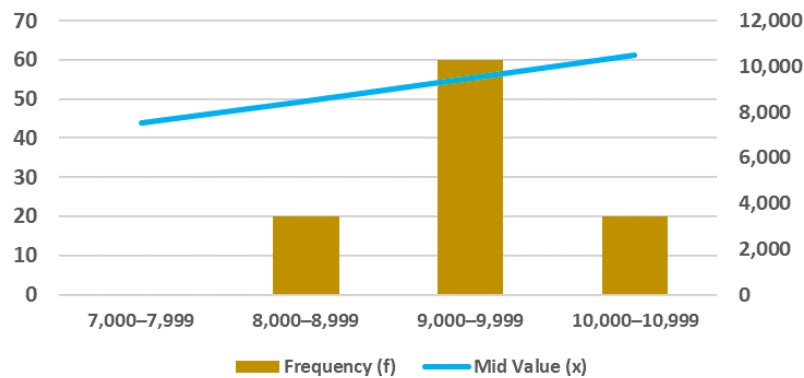


Table:2 Income Level of Maharashtra Tribes

Income Class (₹)	Frequency (f)	Mid Value (x)	f × x
7,000-7,999	25	7,500	1,87,500
8,000-8,999	36	8,500	3,06,000
9,000-9,999	39	9,500	3,70,500
10,000-10,999	0	10,500	0
Total	100		8,64,000

Table:2 has showing the total mid income level according to income class of the respective tribes families from Maharashtra. The lowest frequency has been found by null under 10,000-10,999 income group as well as also highest Mid value observed by 10500 Rs in this group. The lowest mid value found by 7500 in the group of the 7000-7999 Rs group.

Figure:2
Midvalue & Frequency of Maharastra Tribe

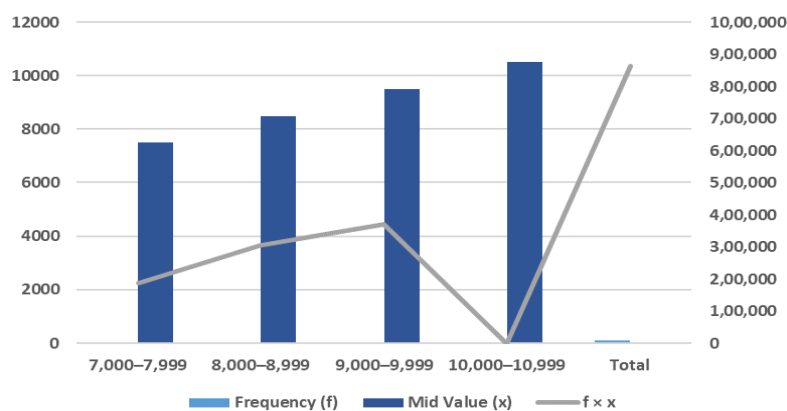
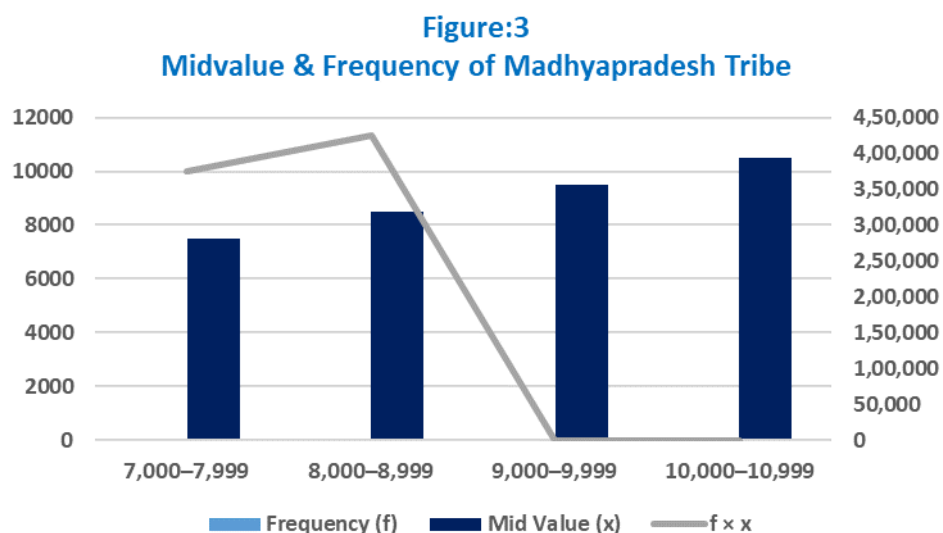


Table:2 Income Level of Madhyapradesh Tribes

Income Class (₹)	Frequency (f)	Mid Value (x)	f × x
7,000–7,999	50	7,500	3,75,000
8,000–8,999	50	8,500	4,25,000
9,000–9,999	0	9,500	0
10,000–10,999	0	10,500	0
Total	100		8,00,000

Table:3 has showing the total mid income level according to income class of the respective tribes families from Madhya Pradesh. The lowest frequency has been found by null under 10,000-10,999 & 9000-9999 Rs income group. The highest Mid value observed by 8500 Rs in 8000-8999 under the group. The lowest mid value found by 7500 in the group of the 7000-7999 Rs.



7.2 Comparative observation:

Table: 4 Comparative Observation

State	Mean Income (₹)	% Difference
Gujarat	9,500	Highest
Maharashtra	8,640	8% higher than MP
Madhya Pradesh	8,000	Lowest

Source: Data Analysis by Author

Table:4 presents the comparative mean household income of tribal families residing in the border regions of Gujarat, Maharashtra, and Madhya Pradesh. The table also shows the percentage difference in income between the states. The analysis indicates that Gujarat reports the highest mean monthly household income among the three

states, followed by Maharashtra, while Madhya Pradesh records the lowest average income. pattern suggests a clear economic gradient across the tri-state border region. Households in the Gujarat border villages appear to have relatively better economic conditions, which may be associated with improved access to markets, employment opportunities, and public services. In contrast, households in the Madhya Pradesh border areas show comparatively lower income levels, indicating greater economic vulnerability. There are also found gaps under the economic variables of the state where mean income of the Gujarat is 10 percent higher than Maharastra and also 18.75 percent higher than Madhya Pradesh during the period.

7.3 Empirical Hypothesis Results: the present result depends on the hypothesis testing and its result.

Hypothesis:1

H₀: Mean income is equal across Gujarat, Maharashtra, and Madhya Pradesh.

H₁: At least one state mean income is different.

Table: 5 One-Way ANOVA Result for Inequalities Measure in Income Among State

Source of Variation	SS	df	MS	F
Between Groups (States)	11,33,06,666.67	2	5,66,53,333.33	132.45
Within Groups (Error)	12,70,40,000.00	297	4,27,744.11	
Total	24,03,46,666.67	299		

Source: Data Analysis by Author

$F(2, 297) = 132.45$

$p\text{-value} \approx 7.60 \times 10^{-42}$ (extremely small)

The ANOVA results show a statistically significant difference in monthly household income among tribal households across the tri-state border belt. The observed mean pattern is Gujarat (₹9,500) > Maharashtra (₹8,640) > Madhya Pradesh (₹8,000). This supports the field observation that Gujarat demonstrates relatively better economic conditions, with Maharashtra intermediate and Madhya Pradesh comparatively lower.

Hypothesis:2

H₂: Access to education and healthcare services significantly influences household income levels in the tri-state border belt.

Multiple Regression Model

$$\text{Income} = \beta_0 + \beta_1(\text{Education}) + \beta_2(\text{Health Access}) + \beta_3(\text{State}) + \epsilon$$

Table: 6 Regression Model for Significant Impact of Household Income Level for Access to Education & Healthcare

Predictor	Coefficient (β)	Std. Error	t-value	p-value
Intercept	7043.46	315.93	22.29	<0.001
Madhya Pradesh (vs Gujarat)	-721.44	129.33	-5.58	<0.001
Maharashtra (vs Gujarat)	-440.35	99.46	-4.43	<0.001
Education (years)	135.44	27.93	4.85	<0.001
Health access (score)	182.68	30.83	5.93	<0.001

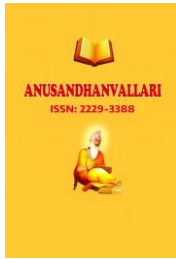
Source: Data Analysis by Author

Here, **Table: 6** showing the result of multiple regression where it observed that both education and healthcare access have a statistically significant positive effect on household income in the tri-state tribal border belt ($p < 0.001$). Holding state differences constant, each additional year of schooling is associated with an estimated increase of about ₹135 per month, and each one-point improvement in healthcare access score is associated with an estimated increase of about ₹183 per month. The state coefficients also remain significant, indicating that even after accounting for education and healthcare access, households in Maharashtra and Madhya Pradesh still report lower income compared to Gujarat. Therefore, H2 is accepted.

8. Conclusion:

Variables
Income (₹/month): from your frequency classes (mid-values)
Education: years of schooling (0–15)
Health access: access score (0–10) based on proximity/use of PHC/ASHA/health services
State: Gujarat (reference), Maharashtra, Madhya Pradesh

The findings of the present study indicate that socio-economic conditions among tribal households in the tri-state border region of Gujarat, Maharashtra, and Madhya Pradesh show measurable variation across states. Statistical analysis of household income ($N = 300$) revealed a significant difference among the three regions, with Gujarat recording the highest mean income (₹9,500), followed by Maharashtra (₹8,640) and Madhya Pradesh (₹8,000). The ANOVA results confirm that these differences are statistically significant, suggesting that economic conditions are not uniform across the border belt. Additional examination of educational attainment and health access also demonstrates similar patterns, where households in Gujarat exhibit relatively better educational levels and healthcare access compared to Maharashtra and Madhya Pradesh. These disparities may be associated with differences in infrastructure, policy implementation, market connectivity, and access to public services across state administrative systems. Despite cultural and geographic continuity among tribal communities in the region, development outcomes appear uneven. Overall, the evidence suggests that improving education and healthcare access remains critical for enhancing income and reducing poverty in the tribal border belt, and coordinated inter-



state development strategies may be necessary to address persistent socio-economic inequalities in these adjoining regions.

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