



An Empirical study of primary education expenditure among tribal households in Telangana, India

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Abstract

This study investigates the expenditure patterns on primary education among tribal households in Telangana, India, addressing the critical issue of educational investment in marginalized communities. Despite government initiatives aimed at improving educational access, tribal populations often face socio-economic barriers that limit their ability to allocate adequate resources toward their children's education. The primary objective of this research is to empirically analyze the extent and determinants of educational expenditure in tribal households and to identify factors influencing spending behavior.

The study employs a quantitative research methodology, utilizing primary data collected through structured household surveys conducted across selected tribal regions in Telangana. Statistical tools such as descriptive analysis, regression models, and correlation analysis are used to assess expenditure patterns and their socio-economic correlates.

Findings reveal significant disparities in education spending among tribal households, influenced by income levels, parental education, household size, and proximity to educational institutions. Despite relatively low expenditure, households prioritize primary education, indicating a recognition of its importance. However, costs related to school supplies, transportation, and supplementary tuition pose substantial challenges. The study also highlights the limited effectiveness of government schemes in fully bridging the expenditure gap.

The research concludes that targeted policy interventions are necessary to reduce financial burdens and improve educational outcomes in tribal areas. Recommendations include enhanced scholarship programs, community awareness campaigns, and infrastructure improvements to make education more accessible and affordable. This study contributes to a deeper understanding of the economic challenges tribal households face in educational investment and offers insights for policymakers aiming to promote inclusive education in Telangana.

Keywords: Primary Education, Tribal Households, Educational Expenditure, Telangana, India, Socio-economic Factors, Marginalized Communities, Educational Access

Introduction

Education is widely recognized as a pivotal driver of socio-economic development and poverty alleviation, particularly in developing countries such as India. The importance of primary education in shaping the foundational skills of children cannot be overstated, as it significantly influences their future educational trajectory and employment opportunities. Despite various national and state-level efforts to universalize primary education, disparities in educational access and expenditure persist, especially among vulnerable groups like tribal populations. In India, tribal communities—officially recognized as Scheduled Tribes (ST)—constitute about 8.6% of the total population (Census of India, 2011), and they are disproportionately affected by poverty, limited infrastructure, and social exclusion. Telangana, a state with a significant tribal population concentrated mainly in districts like Adilabad, Bhadradi Kothagudem, and Mulugu, faces unique challenges in improving educational outcomes for these communities.

Background and Context

The tribal population in Telangana is characterized by distinct socio-cultural identities and historically limited access to mainstream economic and educational opportunities. According to the Telangana Scheduled Tribes Department (2023), over 7% of the state's population belongs to tribal groups, many of whom reside in remote and forested areas with inadequate schooling facilities. The government has implemented several schemes, such as the

Sarva Shiksha Abhiyan (SSA) and the Tribal Sub-Plan (TSP), to promote education among tribal children. However, the actual financial investment from tribal households in education, especially primary education, remains under-researched. Understanding household expenditure on education is critical because it reflects both the capacity and willingness of families to invest in schooling amidst competing financial needs.

Primary education expenditure encompasses not only school fees but also indirect costs such as textbooks, uniforms, transportation, and supplementary tuition. For tribal households, where incomes are often irregular and subsistence-based, even these seemingly minor expenses can be significant barriers. Studies by Kingdon (2007) and Tilak (2002) emphasize that household education spending strongly influences enrollment and retention, particularly in marginalized communities. In Telangana, the literacy rate among Scheduled Tribes stands at 55.2%, markedly lower than the state average of 66.5% (Census 2011). This educational gap underscores the urgency of examining the economic dynamics that affect tribal children's schooling.

Importance of the Research

This research is important for several reasons. First, primary education is foundational to lifelong learning and skill development, especially for children from disadvantaged backgrounds. If tribal children are unable to access or complete primary education, it perpetuates cycles of poverty and social exclusion. Second, while government programs aim to alleviate the financial burden of education, their

reach and impact are not uniform across tribal areas. Quantifying the actual expenditure by tribal households helps identify gaps in policy effectiveness and areas where additional support may be needed.

Third, education expenditure studies often overlook tribal households, focusing instead on broader rural or urban populations. Tribal communities have unique socio-economic profiles, cultural practices, and livelihood patterns that influence educational decisions differently. This study fills a critical knowledge gap by providing empirical data specific to tribal households in Telangana. Finally, insights from this research can inform targeted interventions—such as scholarships, infrastructure development, and community engagement initiatives—to enhance educational outcomes for tribal children.

Literature Review

A substantial body of literature has examined educational expenditure and its determinants in India and other developing contexts. However, studies focusing exclusively on tribal households are relatively scarce.

Kingdon (2007) highlights that household income, parental education, and distance to school are significant determinants of education expenditure and schooling outcomes in rural India. Similarly, Azam and Bhatt (2015) found that tribal households spend a lower proportion of income on education compared to non-tribal households, influenced by both financial constraints and cultural factors. They emphasize that lower education spending correlates with reduced enrollment and higher dropout rates among tribal children.

Tilak (2002) argues that while government spending on education has increased, household contributions remain critical for sustaining school attendance, especially for expenses not covered by public schemes. This is particularly relevant in tribal areas where schools may lack adequate resources, prompting parents to spend out-of-pocket for supplementary needs.

Studies focusing on Telangana are limited but informative. Rao and Reddy (2018) investigated the role of household socio-economic factors in educational attainment among tribal children in the Bhadrachari Kothagudem district, revealing that poverty and low parental literacy were primary obstacles. The research by Sinha (2020) further demonstrated that tribal households in Telangana allocate less than 10% of their monthly income to education, compared to 15-20% in non-tribal rural households.

International research also sheds light on the relationship between educational expenditure and outcomes in indigenous populations. For example, Duryea et al. (2003) studied indigenous communities in Latin America and found that household spending patterns were heavily influenced by cultural priorities and economic uncertainty, echoing patterns seen in India.

Despite these insights, key gaps remain. Most studies focus on enrollment or attainment without a detailed breakdown of expenditure categories among tribal households. Furthermore, there is limited analysis of how external factors like government schemes, infrastructure availability, and community attitudes intersect with household spending behavior. This study aims to address these gaps by providing a comprehensive empirical analysis of primary education expenditure, incorporating socio-economic, geographic, and policy dimensions.

Research Objectives and Questions

The overarching objective of this study is to empirically assess the patterns and determinants of primary education expenditure among tribal households in Telangana. Specifically, the study seeks to:

1. Quantify the average expenditure on primary education among tribal households and its components (tuition, supplies, transportation, etc.).
2. Identify socio-economic factors (income, parental education, household size) influencing educational expenditure.
3. Examine the impact of geographic factors such as distance to schools on expenditure patterns.
4. Evaluate the role of government schemes and subsidies in reducing household educational costs.
5. Analyze how expenditure patterns relate to educational outcomes like enrollment and attendance.

Based on these objectives, the study poses the following research questions:

- What is the average primary education expenditure incurred by tribal households in Telangana, and how is it distributed across various cost categories?
- Which socio-economic and geographic factors significantly influence educational spending among tribal households?
- To what extent do government programs alleviate the financial burden of education in tribal communities?
- How does household education expenditure relate to primary school enrollment and retention in tribal areas?

Scope and Structure of the Paper

This research focuses specifically on primary education (grades 1-5) among Scheduled Tribe households in Telangana. The geographic scope includes key tribal-dominated districts such as Adilabad, Bhadrachari Kothagudem, and Mulugu, selected for their representative tribal populations and varying degrees of educational infrastructure. The study limits itself to household expenditure, excluding institutional or government expenditure, to understand the economic choices and constraints at the family level.

The paper is structured as follows: After this introduction, the methodology section outlines the data collection process, sampling strategy, and analytical techniques employed. The results section presents empirical findings on expenditure patterns and influencing factors. The discussion interprets these findings in the context of existing literature and policy frameworks. Finally, the conclusion summarizes key insights, policy implications, and directions for future research.

Methods

This study employed a quantitative, survey-based research design to empirically examine primary education expenditure patterns among tribal households in Telangana. A quantitative approach was chosen because it enables systematic measurement and statistical analysis of expenditure data, socio-economic variables, and other relevant factors. The use of structured surveys allowed for the collection of standardized information directly from households, ensuring consistency and comparability across respondents. This design also facilitates replication by other

researchers interested in similar demographic groups or geographic regions.

Sampling Method and Population

The target population for this study consisted of Scheduled Tribe households residing in the tribal-dominated districts of Telangana, specifically Adilabad, Bhadradi Kothagudem, and Mulugu. These districts were selected due to their significant tribal populations and representativeness of diverse tribal groups in the state. A multi-stage stratified random sampling method was employed to select households. First, within each district, tribal villages were identified and stratified based on population size and proximity to educational institutions (primary schools). From each stratum, villages were randomly chosen to ensure geographic diversity.

Within selected villages, households were listed with the help of local village authorities and tribal welfare officers. From this list, households with at least one child enrolled in primary school (grades 1 to 5) were randomly sampled. The final sample consisted of 450 tribal households, which was deemed sufficient to allow for robust statistical analysis and to capture variations across socio-economic and geographic factors. The sample size was calculated based on an estimated population proportion, confidence interval of 95%, and a margin of error of 5%, following standard sampling formulae.

Data Collection Tools

Primary data were collected through a structured questionnaire administered in face-to-face interviews with the head of the household or primary caregiver. The questionnaire was developed based on existing literature and adapted to the local context through preliminary field visits and pilot testing. It included sections on household demographics, income sources, education expenditure details (fees, textbooks, uniforms, transportation, tuition fees, etc.), access to government education schemes, and educational outcomes such as enrollment status and attendance patterns.

Local enumerators fluent in the regional languages (Telugu and tribal dialects) were recruited and trained to conduct the interviews. Training emphasized accurate data recording, ethical conduct, and sensitivity to cultural nuances. To enhance data reliability, the questionnaire was translated and back-translated, and pilot testing helped refine ambiguous questions.

Analytical Tools and Techniques

The collected data were coded and entered into SPSS (Statistical Package for the Social Sciences) version 26 for cleaning and analysis. Initial data cleaning involved checking for inconsistencies, missing values, and outliers. Descriptive statistics such as means, medians, and frequency distributions were computed to summarize expenditure patterns and demographic characteristics.

To identify factors influencing education expenditure, multiple linear regression analysis was conducted with total primary education expenditure as the dependent variable. Independent variables included household income, parental education level, household size, distance to school, and access to government schemes. The regression model tested the strength and significance of relationships while controlling for potential confounders.

Additionally, correlation analysis was performed to examine associations between expenditure and educational outcomes such as enrollment and attendance rates. The results were interpreted in light of existing theories and empirical findings on education investment behavior.

Ethical Considerations

Ethical protocols were strictly followed throughout the research process. Prior to data collection, approval was obtained from the relevant institutional ethics review board to ensure compliance with ethical standards. Informed consent was secured from all participants after explaining the study's objectives, procedures, risks, and benefits in a language they understood. Participants were assured of confidentiality and anonymity, with personal identifiers removed from the dataset.

Interviewees were informed of their right to withdraw at any time without penalty. Data were securely stored and accessed only by authorized researchers. Special care was taken to respect cultural norms and avoid any form of coercion or discomfort to participants during the interviews.

Results

The analysis of data collected from 450 tribal households across Adilabad, Bhadradi Kothagudem, and Mulugu districts provides a comprehensive picture of primary education expenditure and its determinants in Telangana's tribal communities. This section presents the findings in an organized manner, beginning with household demographic characteristics, followed by education expenditure patterns, socio-economic influences, and statistical relationships.

Demographic Profile of Sampled Households

The sampled households exhibited considerable diversity in socio-economic status and composition. The average household size was 5.8 members (SD = 1.9), with most families consisting of parents and three to four children. The mean monthly household income was INR 8,200 (approximately USD 100), reflecting subsistence-level earnings primarily from agriculture, daily wage labor, and forest-based activities. Parental education levels varied, with 56% of household heads being illiterate and only 12% having completed secondary education. The average distance from the household to the nearest primary school was 3.7 kilometers, with some villages located up to 10 kilometers away, highlighting accessibility challenges.

Patterns of Primary Education Expenditure

On average, tribal households reported monthly primary education expenditures of INR 350 (about USD 4.25), accounting for approximately 4.3% of their total monthly income. This expenditure comprised several categories: tuition fees (including supplementary tuition) accounted for 40% of the total, school supplies such as textbooks and stationery made up 25%, uniforms 15%, transportation costs 12%, and miscellaneous expenses (e.g., exam fees, extracurricular activities) 8%. It is notable that while government schools typically do not charge tuition fees, many households spent money on private supplementary classes or tuition to support their children's learning.

There was considerable variation in expenditure both between and within districts. Households in Bhadradi Kothagudem spent an average of INR 400 per month on education, higher than Adilabad's INR 320 and Mulugu's INR 300. This variation correlated with differences in household income, school availability, and local economic conditions. Additionally, expenditure was generally higher for households with children attending private or semi-private schools compared to those sending children to government schools.

Socio-Economic Factors Influencing Expenditure

The regression analysis revealed several key determinants of education expenditure. Household monthly income showed a significant positive association with expenditure ($\beta = 0.52$, $p < 0.001$), indicating that wealthier families tend to allocate more resources to their children's education. Parental education level, especially that of the mother, also positively influenced spending ($\beta = 0.23$, $p = 0.015$), suggesting that educated parents are more aware of educational needs and willing to invest financially.

Household size had a negative but modest effect on expenditure per child ($\beta = -0.18$, $p = 0.032$), reflecting the financial constraints of larger families. Distance to the nearest primary school was negatively associated with education expenditure ($\beta = -0.20$, $p = 0.022$), with families living farther away spending less, likely due to lower enrollment or attendance.

Access to government education schemes such as scholarships and mid-day meal programs was reported by 64% of households. Those benefiting from such schemes spent on average 25% less on education-related expenses, although this difference was not statistically significant at the 0.05 level ($p = 0.08$). This suggests some cost alleviation but also indicates the persistence of other out-of-pocket costs.

Relationship Between Expenditure and Educational Outcomes

Correlation analysis was conducted to examine the association between household education expenditure and primary school enrollment and attendance rates. Enrollment rates among the sampled children were high, at approximately 92%, reflecting successful initial access to schooling. However, regular attendance rates averaged 78%, with absenteeism linked to financial and logistical barriers.

A moderate positive correlation ($r = 0.43$, $p < 0.001$) was found between education expenditure and attendance rates, suggesting that higher spending is associated with more consistent school attendance. Similarly, a weaker but significant correlation ($r = 0.31$, $p = 0.005$) existed between expenditure and enrollment status, indicating that families investing more resources were more likely to enroll their children and keep them in school.

Expenditure by Child's Gender and Age

Analysis of expenditure patterns by child demographics revealed minor gender differences. Boys received marginally higher educational spending (mean INR 360) compared to girls (mean INR 340), although the difference was not statistically significant ($p = 0.12$). Expenditure also varied with the child's grade level; households tended to spend more on children in higher primary grades (4th and

5th), likely due to increased academic demands and costs associated with higher-grade learning materials.

Conclusion

This study provides a detailed empirical analysis of primary education expenditure among tribal households in Telangana, highlighting the economic challenges and investment patterns that shape educational access in marginalized communities. The findings reveal that tribal families allocate a significant portion of their limited income—approximately 4.3%—toward primary education expenses, primarily on tuition, supplies, and transportation. Household income, parental education, household size, and proximity to schools are key factors influencing expenditure levels. Although government schemes help reduce some costs, they do not fully alleviate the financial burden faced by these households.

Importantly, higher education expenditure is positively associated with better school enrollment and attendance rates, underscoring the crucial role of household investment in sustaining educational participation. The minimal gender disparity in spending indicates progress toward equitable education access, while the increased costs in higher primary grades highlight the need for targeted support to prevent dropouts.

The study's insights emphasize the need for comprehensive policy interventions that address both direct and indirect education costs, improve school accessibility, and promote parental education. By focusing on the specific financial realities of tribal households, this research contributes valuable knowledge to the ongoing efforts to improve educational equity and quality in Telangana's tribal regions. Ultimately, supporting tribal families in overcoming economic barriers is essential to achieving inclusive and sustainable educational development.

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