Challenges In Education For Scheduled Tribes: Evidence From Primary Data

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Abstract:

This research investigates the challenges on education of scheduled tribes in the undivided Koraput, Bolangir and Kalahandi (KBK) districts of Odisha, India. The study utilises secondary data collected from 510 households through a well-designed interview schedule during 2016-17. This study investigates the effects of diverse supply and demand factors that affect the enrolment of tribal children, employing tables, percentages, ratios, and the Probit regression model as analytical tools. The enrolment of children from Scheduled Tribes is notably influenced by a range of supply-side factors, such as the proximity to educational institutions, linguistic barriers, school operating hours, curriculum demands, and inadequate infrastructure. Challenges on the demand side encompass parental poverty, large family size, cost of education, parental illiteracy, and domestic responsibilities. The phenomenon of economic hardship serves as a significant determinant of low enrolment rates, particularly affecting children from socio-economically disadvantaged backgrounds. This demographic, especially females involved in domestic labour, encounters elevated opportunity costs and extended working hours, which further exacerbate their educational challenges. Regression analysis indicates a positive correlation between enrolment and variables such as family economic status and parental education, while the proximity to forested areas has a discernible impact on attendance rates. Enrolment exhibits an inverse relationship with the distance from educational institutions and a positive correlation with the quality of school infrastructure. Thus, parental motivation is considered crucial for reducing dropout rates and enhancing enrolment among ST children. Improving the enrolment ST children requires that educational institutions located in residential areas are sufficiently equipped with essential infrastructure amenities.

Key words: Constraints, education, tribal, KBK districts, Odisha, India

I. INTRODUCTION

The nation prioritised the development of education and economic interests, particularly for the scheduled castes and scheduled tribes, soon after independence. Accordingly, numerous educational policies underscore the importance of achieving equity among scheduled castes, scheduled tribes, and their non-scheduled counterparts across all levels of education. The government has undertaken systematic initiatives through a range of incentive programs aimed at enhancing the educational standing of Scheduled Tribes. Notwithstanding the numerous initiatives undertaken, the Scheduled Tribes remain significantly disadvantaged in terms of educational achievement compared to the Non-Scheduled Tribes (Das & Sahoo, 2012). Urban contexts significantly differ from rural settings in the educational attainment of Scheduled

Tribes (Borooah, 2010). Gender disparity is also evident in the educational participation of Scheduled Tribes (Sujatha, 2002; Govinda & Biswal, 2006; Nambissan, 2010; Das & Sahoo 2012). Women belonging to Scheduled Tribes significantly elevate the prevalence of illiteracy (Jha & Jhingran, 2005). Numerous factors, such as pervasive poverty, high unemployment rates, and similar issues, contribute to the educational deficiencies observed among the Scheduled Tribes (Sujatha, 2002). Mukhopadhaya and Rajaraman (2007) identified that the tribes experienced the most significant incremental unemployment during the early 21st century. The absence of educational qualifications impedes their prospects for employment (Nambissan, 2000; Borooah, 2010). Primary education, among the various tiers of education, is considered the foundational element of social and economic advancement within a nation (Tilak, 2007; UNESCO, 2014). The foundational stage of education fosters the development of reasoning and calculation abilities in learners while simultaneously influencing their attitudes toward life (Bransford et al., 2000). Primary education provides individuals with a foundation in both cognitive and non-cognitive skills (Heckman, 2006). It facilitates the capacity for critical thinking and the formulation of rational decisions (Bruner, 1977; UNESCO, 2016). Consequently, this study addresses the challenges encountered by ST children in accessing primary education. This chapter undertakes an analysis of the constraints affecting the educational participation of Scheduled Tribe children in the tribal-dominated and underdeveloped region of the KBK districts in Orissa.

The document consists of seven separate sections. The introductory section focuses on providing an overview. The next section deals with review of literature. The third section addresses the study's objective. The fourth section examines the data and methodology used for the analysis. Section five presents a thorough analytical assessment of the constraints of tribal education in the KBK districts. The final portion outlined the key findings along with policy recommendations.

II. REVIEW OF LITERATURE

Significant challenges in tribal education, as noted in academic literature, encompass linguistic and sociocultural barriers, financial limitations, geographic isolation, and policy constraints (Awasthi, 2008; Rao & Verma, 2013). Tribal communities frequently demonstrate distinct cultural beliefs and practices that diverge from those of mainstream society, resulting in possible conflicts with formal educational systems. Research shows that educational curricula rarely incorporate tribal values and traditional knowledge systems, leading to a disconnect between the education offered and the cultural identities of communities (Sujatha, 2002). Furthermore, comprehensive studies highlight challenges such as early marriage, gender discrimination, and insufficient awareness regarding the significance of formal education as obstacles to enrolment and retention, particularly for girls in tribal regions (Nambissan, 1995). Pande (2001) contends that traditional attitudes predominantly influence girls' enrolment rates. Chakraborty (2006) demonstrated that parental educational exposure and neo-literacy, especially among mothers, have a significant impact on children's educational attainment. The educational attainment of fathers positively influences the enrolment rates of their children (Debi, 2001; Pande, 2001; Jayachandran, 2003). Child labour is prevalent in many tribal households, which constrains their educational opportunities due to poverty. Rao (2014) found that children frequently assume household economic responsibilities due to parental financial instability and constrained career opportunities, leading to higher dropout rates. Research indicates that government

scholarships and free materials are not widely recognised or accessible to indigenous populations (Rani, 2011). Koppikar (1956) noted that children assist their parents with livestock care and various household responsibilities, as well as gathering dried leaves and fuel from forests (Sachidananda, 1967; Chakraborty, 2006; Debi, 2001; Pande, 2001). The geographical isolation of schools often leads to considerable distances that hinder regular attendance, thereby increasing absenteeism rates (Debi, 2001; Ghosh, 2007). Gulzar (2014) and Pande (2001) established a correlation between the proximity of residential areas to forests and drinking water sources and the rates of non-enrolment and dropout among children aged 5 to 14 years. Diverse languages and dialects in tribal communities present a significant challenge to tribal education. Most Indian educational institutions provide their curriculum in regional or national languages, resulting in considerable linguistic disparity (Munda & Mahapatra, 2015). Studies show that inadequate linguistic support leads to reduced performance in tribal students, which in turn increases dropout rates and contributes to feelings of alienation from the mainstream education system (Sachidananda, 1967; Deka, 2009). Chaudhary (2013) argues that despite the enactment of legislation like the Right to Education Act, a gap remains in effectively serving marginalised populations, due to inadequate teacher training, lack of community engagement, and issues with resource allocation. Saxena (2011) research indicates that initiatives such as Ashram schools and scholarship programs aim to enhance educational accessibility; however, their effectiveness is constrained by limited scope and frequently insufficient implementation. The school environment, characterised by teacher absenteeism (Dasgupta, 1963; Kundu, 1994), a scarcity of tribal educators, inadequate infrastructure, and insufficient classroom space (Ambasht, 1970), as well as a lack of female educators (Heyneman & Luxley, 1983; Fuller, 1986), contributes to the underperformance of tribal pupils. Sujatha (1994), Kumar (2004), and Vaidyanathan and Nair (2001) discovered that the presence of female educators, along with consistent instructor attendance, markedly improved student attendance in educational institutions. Thus, tribal education faces linguistic, economic, and geographical barriers; early marriage impedes enrolment, particularly for girls; inadequate teacher training and resources exacerbate the issue, restricting access to and retention in tribal education.

III. OBJECTIVE OF THE STUDY

The primary objective of this study is to analyse the challenges faced by the tribal children in KBK districts of Odisha.

IV. DATA AND METHODOLOGY:

Data:

The study is based on primary data which is collected through a sample survey technique. The multistage sampling technique was employed. The sample comprised the undivided three KBK districts of Odisha i.e. Koraput, Bolangir, and Kalahandi. The reorganisation of districts in 1992 led to the establishment of eight districts from the original three. One district was sampled from each of the three old districts. The sample selection was based on the Human Development Index (HDI) of the districts as reported in the Odisha Human Development Report 2011. The selected districts were those exhibiting the lowest Human Development Index (HDI) among the older districts. For instance, the Kalahandi and Nuapada districts were established from the former Kalahandi district, with Nuapada selected for sampling due to its lower Human

Development Index (HDI) compared to Kalahandi. Bolangir and Malkangiri were included in the sample as components of the former Bolangir and Koraput districts (Table 1).

Table 1.1 Districts Clubbed under KBK Districts and Sample Districts

Old KBK Districts	KBK Districts	Human Development Index	HDI Rank in the old districts	Sample Districts
Kalahandi	Kalahandi	0.731	1	Nuapada
	Nuapada	0.703	2	
Bolangir	Sonepur	0.691	1	Bolangir
	Bolangir	0.671	2	
Koraput	Rayagada	0.567	1	Malkangiri
	Nawarangpur	0.564	2	
	Koraput	0.558	3	
	Malkangiri	0.517	4	

Source: Human Development Report 2011

In the subsequent phase, we selected two blocks from each sample district based on their respective literacy rates. We identified two districts, one representing the highest literacy rate and the other the lowest, based on their respective rates. This selection will not only yield a comprehensive overview but will also elucidate the distribution of disparities. Therefore, we selected six blocks, as shown in Table 1, for further analysis. In the subsequent phase, we selected two villages from each sample block, one belonging to a tribal community and the other to a non-tribal community. In order to facilitate a comparative analysis between rural and urban contexts, the urban sample included two district headquarters alongside one NAC. During the final stage of sample selection, we selected 30 households from each sample village and 50 households from each urban centre to administer household questionnaires. We sampled households from diverse caste categories within a village and urban centre based on the proportional representation of each caste in the overall population. The study comprised a sample size of 510 households, with Scheduled Tribe (ST) households accounting for 212 (41.57%) and Non-Scheduled Tribe (NST) households comprising 298 (58.43%).

We administered a meticulously designed questionnaire to the selected sample households. We formulated the presented enquiries to extract information about the economic circumstances, income, assets, occupation, and educational attainment of the respondent households. The duration of a person's formal schooling often reflects their level of education. The data collection began in June 2016 and concluded in its entirety by May 2017. *This study exclusively concentrated on elementary education, specifically Grades I through VIII.*

Tools used:

Simple tabular analysis along with percentages, ratios, and Probit regression techniques were used for analysing the data. The following measures were also estimated.

Probit Model:

This research applies a Probit model to examine the impact of various demand and supply side factors on the enrolment of scheduled tribe children in the KBK districts of Odisha. In this context, enrolment is considered as the dependent variable, whereas the factors pertaining to both demand and supply are grouped as independent variables.

The dependent variable is defined as the probability of enrolment, represented by '1' for children who are enrolled and '0' for those who are not enrolled. The independent variables include the age of the student, the sex of the student, the educational attainment of parents, per capita income, caste, a dummy variable representing the type of village, distance to school, an index of school infrastructure, the pupil-teacher ratio, the percentage of female teachers and the percentage of Scheduled Tribe teachers. The employed model was:

$$P_i/(1-P_i) = \beta_0 + \beta_1 A_y + \beta_2 A_s + \beta_3 M_d + \beta_4 F_e + \beta_5 M_e + \beta_6 P_i + \beta_7 W_p + \beta_8 S_d + \beta_9 V_h + \beta_{10} V_l + \beta_{11} D_f + \beta_{12} D_s + + \beta_{13} I_s + \beta_{14} P_t + \beta_{15} F_t + \beta_{16} T_s + U_i$$

Where,

P_i : the probability that 'i'th child participates in school

$1- P_i$: the probability that 'i'th child does not participate in school

A_y : Age of the student (in Years)

A_s : Age Square

M_d : Dummy, '1' if Male, '0' Otherwise

F_e : Education of Fathers (in Years)

M_e : Education of Mothers (in Years)

P_i : Per Capita Income of the Household (in Rs)

W_p : Work Participation Rate

S_d : Dummy, '1' if ST, '0'

V_h : Dummy, '1' if Village is high ST, '0' Otherwise

V_l : Dummy, '1' if Village is low ST, '0' Otherwise

D_f : Distance to Forest (in Kms.)

D_s : Distance to School (in Kms.)

I_s : School Infrastructure Index

P_t : Pupil Teacher Ratio

F_t : Per cent of Female Teachers

T_s : Per cent of ST Teachers

V. CONSTRAINTS ON TRIBAL EDUCATION

The factors influencing school enrolment of the children can be broadly grouped under two heads: (i) supply side factors, and (ii) demand side factors.

Supply Side Factors

Supply side factors pertain to the accessibility of educational facilities and infrastructure within schools, as well as the proximity of a child's residence to their school. The supply side constraints are mainly *school related factors* and these are discussed in the following paragraphs.

Distance to School

The distance between residence and school negatively affect children's participation in educational programme (Govinda, & Biswal, 2006). It is particularly important for girls and they have special needs for physical protection and privacy. Parents are more conscious about their privacy and social reputation in the regions where culture forces girls to be in seclusion and this factor has a great impact on female enrollment. Parents hesitate to get their daughters enrolled unless schools are close home, have lavatories for girls and have female teaching staff. The more distantly situated is the school, the more concern/hesitation is shown by the parents to send their wards, particularly girls to school, though it is not the same for boys. It is found Table 2 that 78.4 per cent of children have their schooling within 1 km distance (Table 2). But there are still some children who have to cover more than 3 kms distance to reach a school. The more is the distance, the less is the attendance and enrolment of children.

Table 2 Distance Covered by Children to Reach School (per cent)

Selected Districts	Schools Covered by Children Within		
	≤1 kms.	1-3 kms.	Above 3km.
Bolangir	75.7	15.7	8.6
Malkangiri	79.7	15.7	4.6
Nuapada	78.1	14.6	7.3
Total	78.4	15.5	7.1

Source: Primary Survey, 2016-17

Incentive Schemes

Incentives like waiving of fees, provision of free textbooks and ashram schools, etc. were combined with compulsory education to give the tribal enrollment a boost. It is found from Table 3 that Nuapada has the highest proportion of all types of incentive schemes availed by its children followed by Malkangiri. Across the incentive schemes, the benefits for Mid-Day Meals and text books are found to be the highest followed by ICDS. It may be noted here that the free text books and uniforms are expected to be made available to all the students and more particularly to the tribal students. But contrary to this it is observed that 62.9 per cent to 73.3 per cent of the children receive the benefit of text books and 31.1 per cent to 40.5 per cent of the students receive the benefit of free uniforms. Free ships and scholarships are availed only by less than 4 per cent of the students. The incentive schemes which are meant for the children at the primary level when not made available to them particularly to the economically backward children, it is not possible for them to go for education because of their high opportunity cost.

Table 3 Student Beneficiaries from Different Incentive Schemes (%)

Districts	Schemes								
	MidDay Meal	Scholar-ships	Free Ships	Text Books	Note Books	Free Uniforms	Ashram School	ICDS	Hostel Facilities
Bolangir	92.3	0.3	1.2	62.9	11.2	31.1	18.1	49.3	5.2
Malkangiri	95.1	0.3	2.0	72.2	22.1	33.6	18.3	55.1	6.4
Nuapada	96.9	0.3	3.3	73.3	24.8	40.5	23.2	59.7	7.0
Total	95.1	0.3	2.2	68.3	22.3	35.6	18.4	55.0	6.2

Source: Primary Survey, 2016-17

Infrastructure Facilities

Physical facilities available in schools can create incentive in children to attend school. A good building would catch the imagination of a child. Special facilities like boundary walls around the schools and lavatories are required for the privacy and protection of girls. Parents get concerned about their daughters while sending them to schools without these facilities.

Table 4 Physical Infrastructure Facilities in Schools (per cent)

Selected District	Drinking Water	Toilets	Separate Toilet for Girls	Play-ground	Road to School	Electrification	Compound Wall
Bolangir	81.8	45.5	18.2	9.1	63.6	9.1	10.2
Malkangiri	71.5	39.4	15.4	8.2	61.5	5.8	7.1
Nuapada	83.0	48.1	19.3	10.2	65.8	10.5	8.3
Total	**79.3**	**43.9**	**17.9**	**9.1**	**64.5**	**8.5**	**8.6**

Source: Primary Survey, 2016-17

From Table 4 it is found that drinking water facilities are not available in about one-fifth of schools. There are toilets in only 43.9 per cent of schools. More than 35 per cent of schools are not connected by good roads. Most of the schools (91.5 per cent) do not have electricity. More than 80 per cent of schools do not have separate toilets for girls and only 8.6 per cent of schools do have compound walls. In tribal areas, with forests and wild animals around, it is really not safe for the schools not to have compound walls. Inadequacy of physical infrastructure fails to arouse children's interest in studies.

In addition to the physical infrastructure, the teaching infrastructure is also equally important for attracting the children particularly the tribal children to schools. Table 5 presents the information about the teaching infrastructure in the schools. It may be noted that all the facilities are better in Bolangir district followed by Nuapada and Malkangiri districts. This indicates that comparatively under developed districts with high density of tribal population are deprived of teaching infrastructure facilities. This may be one of the major supply side constraints for low participation of tribals in education.

Table 5 Teaching Infrastructure Facilities in Schools (Per cent)

District	Library	Labo-ratory	Science Kit	Sports Kit	Music Kit	Craft Instruments	Teaching Learning Material	Water Can/ Glasses
Bolangir	65.4	0.0	56.7	22.3	6.7	13.3	76.7	76.7
Malkangiri	55.3	0.0	26.7	18.3	2.5	25.0	59.4	60.4
Nuapada	57.2	0.0	36.4	17.8	5.3	36.4	62.7	46.4
Total	59.7	0.0	46.7	18.2	3.3	23.3	62.3	63.3

Source: Primary Survey, 2016-17

School Timing

The timing of schools is a significant factor contributing to the low participation of tribal children in educational institutions. In our sample, approximately 65 percent of parents indicated that the standard school timings do not align with those of tribal children, resulting in either absenteeism or dropout from schools.

Language Problem

Mathematics and Science present significant challenges for tribal children due to the absence of these subjects in their native language. Textbooks tend to represent images and illustrations from mainstream society, failing to accurately depict the distinct culture and lifestyle of tribal communities. When depicted, these individuals are often portrayed as passive, lacking intelligence, and unsuitable for the conventional

roles associated with tribes residing in remote forested regions. The identified shortcomings impede tribal participation in education and restrict their access to higher-paying employment opportunities. The primary survey revealed that 31.2 percent of respondents indicated discrepancies between home language and school language. The figures for selected districts are 25.4%, 34.5%, and 33.4% for Bolangir, Malakangiri, and Nuapada districts, respectively.

Curriculum load

The curriculum designed for the general population is regarded as a significant constraint for tribal children. The general curriculum presents significant challenges for these children, particularly as many are first-generation learners and the standards are exceptionally high. Approximately 75 percent of the parents in our sample indicated that the curriculum load is excessively burdensome for the child.

VI. Demand Side Factors

Household demand for education is heterogeneous. Each household determines its educational requirements based on its unique family characteristics. A ST family may perceive education in a manner distinct from that of an NST family. The social environment, cultural traditions, and economic conditions influence a family's perspective on their children's education. Not all factors are regarded as equally significant by everyone in the context of children's education. The study examines the constraints affecting demand for children's education among Scheduled Tribes (STs) independently from those impacting Non-Scheduled Tribes (NSTs).

Demographic Factors

Of several demographic factors that might influence educational participation of children, number of children in the family has attracted a considerable amount of attention among the researchers. There is an inverse relationship between number of children in a family and their education (Desai, & Andrist, 2010). Table 6 clearly indicates that the percentage of school dropouts rises with an increase in the number of children in the family. The overall school dropout rate for the sample was 15 percent among families with two or fewer children. The situation is analogous for both STs and NSTs. The school dropout rate increases to 52 percent when families have more than four children. The attitudes of the ST and NST sample households regarding the impact of family size on children's education were identical.

Table 6 Number of Siblings and School Dropout

HHs with Children	ST		NST		ALL	
	Total Children	Dropout (per cent)	Total children	Dropout (per cent)	Total Children	Dropout (per cent)
≤ 2	68	8	126	21	194	15
>2<4	132	36	110	32	242	33
>4	60	56	22	47	82	52

Source: Primary Survey, 2016-17

Family Income

Participation of children in education is influenced by economic factors. Income is considered a precise measure of a family's economic condition. It is generally believed that higher the level of income, higher is the participation in schooling and lower the level of income, lower is the non-participation of children in school. Table 7 clearly indicates that the proportion of out-of-school children is higher among low-income households. In households with an annual income below Rs. 10,000, the percentage of out-of-school

children was 54.32%. This figure significantly decreased to 1.23% when the annual household income exceeded Rs. 30,000. This applies to both STs and NSTs. A higher proportion of ST children compared to NST children either dropped out or did not enrol in schools across all income levels. Among the income ranges of Rs. 20,000/- to Rs. 30,000/- and higher, the percentage of out-of-school children among Scheduled Tribes (STs) was 15.87 per cent and 1.59 per cent, respectively. It indicates that factors beyond income contribute to the non-attendance of ST children in schools.

Table 7 Out of School Children (6-14 years age group) by Family Income (%)

Income Range (in Rs.)	ST			NST			All		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
below 10,000	60.00	48.84	52.38	60.00	61.54	61.11	60.00	51.79	54.32
10,000-20,000	25.00	32.56	30.16	40.00	30.77	33.33	28.00	32.14	30.86
20,000-30,000	15.00	16.28	15.87	00.00	07.69	05.56	12.00	14.29	13.58
Above 30,000	00.00	02.33	01.59	00.00	00.00	00.00	00.00	01.79	01.23

Source: Primary Survey, 2016-17

Cost of Education

The financial implications of education represent a significant factor for parents when determining the feasibility of enrolling their children in school, especially within the context of economically disadvantaged households. Lowering expenses could encourage economically disadvantaged families to enrol their daughters in school alongside their sons, as they often perceive the education of girls to be more costly and less advantageous for the family unit. Although primary education is ostensibly offered at no cost to all children, the reality often diverges from this ideal. In addition to the tuition, which is waived, there are expenses associated with clothing, stationery, and other materials that must be borne privately. The financial burdens imposed by these expenses are considerable for the economically disadvantaged households within the region. The expenditures for the ST children in the sample area range from Rs. 501/- to Rs. 582/- per child annually, while for the NST children, the corresponding range is from Rs. 537/- to Rs. 613/-. Table 8 illustrates the correlation between the cost of education and the school participation rates of children within the sampled districts. The data presented in the table indicates that the cost of education is minimal in Nuapada district, amounting to Rs. 537 per child annually, whereas it reaches its peak in Bolangir district at Rs. 613 per child per annum. The dropout rates among children in these two districts are nearly identical, approximately 5 percent. Conversely, the dropout rate among children in Malkangiri district is notably high, recorded at 12.25 percent, where the expenditure per child for education amounts to Rs. 570. It is noteworthy that the per capita income in Malkangiri district is the lowest among the regions assessed. While the overall expense associated with education in Malkangiri district is comparatively minimal, it represents a significant fraction of the average family income, thereby negatively influencing their choices regarding the enrolment of children in educational institutions. In the context of socioeconomic status, it is particularly evident that Scheduled Tribes exhibit a higher level of poverty in comparison to Non-Scheduled Tribes.

Table 8 Private Expenditure of School Going Children and School Dropout Rate

District	Average Expenditure (Rs. per annum /per child)			School Dropout Rate (per cent)		
	ST	NST	All	ST	NST	All
Bolangir	522	768	613	8.60	0.00	4.97
Malkangiri	582	751	570	23.60	3.48	12.25
Nuapada	501	789	537	3.85	6.67	5.23
Total	**513**	**767**	**556**	**12.31**	**3.49**	**7.92**

Source: Primary Survey, 2016-17

Opportunity Cost of Children

The empirical evidence suggests that the actual opportunity cost associated with the education of tribal children surpasses that of their non-tribal counterparts. Consequently, the family's limited financial resources compel their children to terminate their educational pursuits (Tilak, 2002). Table 9 shows that the amount of time dedicated to work by children from Scheduled Tribes significantly exceeds that of their non-Scheduled Tribe counterparts. The engagement rate of children within ST households surpasses that of their Non-ST counterparts. In the Bolangir district, the proportion of Scheduled Tribe children participating in wage-earning activities is the lowest, whereas Malkangiri exhibits the highest percentage, along with the greatest number of hours worked.

Table 9 Children Engaged in Wage Earning Activities by Social Category

District	Category	Percentage of Children	Average Hours	Average Wage in Rs.
Bolangir	**ST**	9.10	3.51	25
	Non ST	3.20	2.75	35
Malkangiri	**ST**	12.21	4.97	28
	Non ST	7.60	2.42	30
Nuapada	**ST**	11.56	4.11	27
	Non ST	6.82	2.03	32

Source: Primary Survey, 2016-17

Parents' education:

It is anticipated that parents with a strong educational background would desire their offspring to attain greater accomplishments. It is possible that illiterate parents are more motivated to help their children's education in order to avoid them from experiencing the same deprivations and disadvantages as they did. Table 10 illustrates that, across the entire sample, the enrolment of children in school is positively correlated with the educational attainment of their parents. In instances where parents lack literacy, the enrolment rate of their children in school stands at merely 66.84 percent. Conversely, when the average educational attainment of parents reaches 6 to 7 years, the enrolment rate for their children rises significantly to 98.56 percent. This trend of enrolment was noted in both the instances of Scheduled Tribes and Non-Scheduled Tribes. The disadvantage experienced by children with special needs due to their parents' lack of education was comparable to that of their neurotypical peers. However, the importance of parental education is more pronounced in the case of Scheduled Tribes as opposed to Non-Scheduled Tribes. In the context of educational enrolment, it is noteworthy that 82.76 percent of children from illiterate NSTs were sent to school, whereas the analogous figure for STs was merely 53.77 percent.

Table 10 Parents Education and Children's Education

Caste Groups	Mean Education of Parents	Status of Children's Education			
		Enrolled	Never Enrolled	Dropout	Total
ST	0	57 (53.77)	26 (24.53)	23 (21.70)	106 (100.00)
	1-5	80 (86.02)	5 (5.38)	8 (8.60)	93 (100.00)
	6-7	60 (98.36)	0 (0.00)	1 (1.64)	61 (100.00)
	Total	197 (75.77)	31 (11.92)	32 (12.31)	260 (100.00)
NST	0	72 (82.76)	9 (10.34)	6 (6.90)	87 (100.00)
	1-5	91 (97.85)	0 (0.00)	2 (2.15)	93 (100.00)
	6-7	77 (98.72)	0 (0.00)	1 (1.28)	78 (100.00)
	Total	240 (93.02)	9 (3.49)	9 (3.49)	258 (100.00)
All	0	129 (66.84)	35 (18.13)	29 (15.03)	193 (100.00)
	1-5	171 (91.94)	5 (2.69)	10 (5.38)	186 (100.00)
	6-7	137 (98.56)	0 (0.00)	2 (1.44)	139 (100.00)
	Total	437 (84.36)	40 (7.72)	41 (7.92)	518 (100.00)

Source: Primary Survey, 2016-17
Note: Figures in Parentheses show percentages

An educated mother is often regarded as having a significantly greater influence on the educational development of her children. She has the potential to facilitate the education of the entire family by instructing the children, providing guidance, and serving as a source of inspiration for them. It is, consequently, pertinent to examine the ways in which family education is enhanced when both the head of the household and their partner possess educational qualifications. Table 11 indicates that 62.83 percent of girl children from illiterate mothers attended school, whereas 97.33 percent of children whose mothers had upper primary education were enrolled. This applies to both ST and NST. Illiteracy among ST mothers significantly hindered girls' education more than illiteracy among NST mothers. Among illiterate ST mothers, only 48.33 percent of their daughters were enrolled in schools, whereas 79.25 percent of daughters of illiterate NST mothers were enrolled. Consequently, maternal education holds relatively greater importance for the educational attainment of daughters among Scheduled Tribes. All children of upper primary educated NST mothers were enrolled in school, whereas 94.29 percent of children of upper primary educated ST mothers attended school.

Table 11 Mothers' Education and Daughters Education

Social Groups	Level of Education of Mothers	Status of Daughter's Education			
		Enrolled	Never Enrolled	Dropout	Total
ST	Illiterate	29 (48.33)	15 (25.00)	16 (26.67)	60 (100.00)
	Primary	32 (76.19)	3 (7.14)	7 (16.67)	42 (100.00)
	Upper Primary	33 (94.29)	0 (0.00)	2 (5.71)	35 (100.00)
	Total	94 (68.61)	18 (13.14)	25 (18.25)	137 (100.00)
NST	Illiterate	42 (79.25)	5 (9.43)	6 (11.32)	53 (100.00)
	Primary	45 (95.740	0 (0.00)	2 (4.26)	47 (100.00)
	Upper Primary	40 (100.00)	0 (0.00)	0 (0.00)	40 (100.00)
	Total	127 (90.71)	5 (3.57)	8 (5.71)	140 (100.00)
ALL	Illiterate	71 (62.83)	20 (17.70)	22 (19.470	113 (100.00)
	Primary	77 (86.52)	3 (3.37)	9 (10.11)	89 (100.00)
	Upper Primary	73 (97.33)	0 (0.00)	2 (2.67)	75 (100.00)
	Total	221 (79.78)	23 (8.30)	33 (11.91)	277 (100.00)

Source: Primary Survey, 2016-17

Note: Figures in Parentheses show percentages

Domestic Work

The poor parents expect their children to help them in agricultural field and in domestic work. They hold back their children from attending school or withdraw them for help at work. Mothers engage girl child in domestic chores or in taking care of younger siblings. Longer hours of domestic activities work as a disincentive for children to attend school. The validity of the hypothesis has been examined in the present study.

Table 12 Time Spent on Domestic Work and Out-of-School Children (%)

Time Spent on Domestic Work	ST			NST			Total		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
≤ 2 hours	13.76	16.08	14.92	11.25	16.28	13.79	12.57	16.23	14.45
<2>4 hrs	32.14	31.31	31.73	32.68	31.60	32.19	32.24	31.54	32.05
>4 hrs	54.10	52.61	53.35	56.07	52.12	54.02	55.19	52.23	53.50
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Primary Survey, 2016-17

It is evident from Table 12 that the need to attend to domestic work stands in the way of children's education. When children worked 2 hours or less at home in a day, the proportion of out of school among them was only 14.45 per cent, but the proportion kept on increasing when their working hours at home increased. In the case of children working >2 <4 hours and more than that, proportion of out of school increased to 32.05 per cent and 53.50 per cent respectively. However, both ST and NST children exhibited uniform behaviour

in attending school as regards domestic work. Therefore, it is not a unique constraint faced by the ST children.

Multivariate Analysis

The influence of demand and supply side factors, as previously discussed, has been clearly articulated. This section examines the net influence of each determinant while controlling for other factors, utilising multiple regression models and maximum likelihood Probit estimates. This study investigates the influence of various factors on the probability of children's enrolment, characterised as a dichotomous variable.

The study incorporated a range of variables to further examine the observed heterogeneity among families. The model incorporates significant variables related to home and child, including the child's age and sex, parental education levels, household per capita income, work participation rate, and caste, among others. The model incorporates community variables such as the types of villages, specifically those with high and low Scheduled Tribe (ST) populations, as well as the distance to the forest. The supply-side variables associated with schools include the distance to school, percentage of Scheduled Tribe teachers, female teachers, pupil-teacher ratio, and school infrastructure incorporated in the model. It is presumed that the absence of a school in a nearby village or within the village leads to children either not attending school or dropping out before completing a specific level of education. The dependent variable, enrolment, is a dichotomous choice variable estimated using the maximum likelihood Probit model. The regression equation has been estimated independently for each sample and for three districts.

Table 13 displays the regression outcomes for the KBK districts collectively. The age of the child is inversely related to the years of schooling of the child. This indicates that the participation of children is less likely at the higher classes. In other words, the dropout rate of children increases at the post primary stage. It was observed that children after a particular stage (post primary) either join paid work or assist the parents in agriculture/domestic work in rural areas. The coefficient of sex is positive and statistically significant which implies that boys have a better chance of schooling than the girls. The demand for education by the households is higher for male children than that of female children. The coefficients of education of father and mother are positive and statistically significant indicating that children are more likely to participate in education if the father and mothers are educated. It is found that the coefficient value of mothers' education is more compared to fathers' education indicating that education of the former has greater impact than the latter in enhancing the probability of child's enrolment.

The impact of per capita income, which serves as an indicator of economic status, reveals a positive and statistically significant correlation with the enrolment of tribal children. The analysis reveals that the coefficient of the work participation rate is negative and statistically significant, suggesting that an increase in the work participation rate correlates with a decreased likelihood of children's participation in education. The potential explanation for this phenomenon is that increased workforce participation among Scheduled Tribes may necessitate that some children remain at home to manage domestic responsibilities and care for younger siblings, thereby diminishing their demand for educational opportunities. The negative coefficient associated with the caste variable, specifically for scheduled tribes, suggests that enrolment is adversely impacted when children are from scheduled tribes.

Incorporating the village dummy within the model indicates that the coefficient linked to villages with a higher Scheduled Tribes population is negative and statistically significant. However, the coefficient associated with villages exhibiting a low Scheduled Tribe population is also positive and statistically significant. This suggests that in regions with a significant ST population, the demand for education is considerably influenced, whereas in areas with a low ST population, this demand remains largely unaffected. It is noteworthy that the coefficient associated with the distance to forest is both negative and statistically significant. This suggests that an increased distance from the forest to the home may correlate with a decreased likelihood of children's participation in school. This phenomenon can be attributed to the involvement of tribal children in the collection of minor forest products such as tendu leaves, mahua flowers, and fuel, which they undertake early in the morning. The period designated for the collection of forest produce aligns with the academic calendar, resulting in a significant number of missed school days for the students involved.

The presence of ST teachers and female educators has been noted to have a positive and statistically significant influence on the participation of ST children in the KBK districts of Odisha. The availability of educational institutions accessible to children contributes to an increase in their enrolment rates. The regression coefficient pertaining to the distance to school from residence suggests that with increase in the distance, the likelihood of children's participation in school diminishes. The infrastructure of educational institutions exerts a beneficial impact on the learning experiences of children. In essence, the presence of adequate infrastructural facilities within educational institutions—such as well-maintained roads, appropriate building structures, accessible sanitation facilities, designated restrooms for female students, and comprehensive teaching resources—substantially enhances the probability of increased student enrolment. The regression outcomes for the three districts, when analysed individually, exhibit a pattern similar to that observed in the regression results of the overall sample (Table 13).

Table 14 Determinants of Enrolment of Children in KBK Districts of Odisha

(Results of Maximum Likelihood Probit Estimates)

Variables	Bolangir		Malkangiri		Nuapada			
	Coef. Values	t-values	Coef. Values	t-values	Coef. Values	t-values	Coef. Values	t-values
Constant	-8.65	5.92*	2.68	3.59*	-7.49	-4.39*	1.59	12.30*
Age	-0.59	-5.73*	-0.72	-4.96*	-0.61	3.86*	-0.74	- 4.13*
Age Square	-0.004	-1.01	-0.09	-2.95**	-0.07	-1.89**	-0.01	-2.564**
Sex	0.32	3.91*	0.39	3.96*	0.36	3.92*	0.17	3.51*
Education of the Father	0.17	5.15*	0.37	4.89*	0.30	3.67*	0.29	3.12*
Education of the Mother	0.25	4.13*	0.43	4.76*	0.35	3.99*	0.51	3.67*
Per Capita Income (Rs)	0.12	3.76*	0.15	3.49*	0.11	2.97**	0.09	2.92**
Work Participation Rate	-0.22	3.91*	-0.39	3.96*	-0.30	3.92*	-0.33	-2.22*
Caste (ST)	-0.31	-0.12	-0.002	-1.32	-0.31	-3.78*	-0.13	-2.89**
Village Type (High ST)	-0.09	-2.09**	-0.27	-3.91*	-0.11	-2.29**	-0.15	-2.23**
Village Type (Low ST)	0.12	2.19**	0.25	3.75*	0.19	2.04**	0.16	2.79**
Distance to Forests from house.	-0.11	-2.15**	-0.28	-3.48*	-0.31	-4.25*	-0.18	-2.85**
Distance to School from house.	-0.09	-2.16**	-0.26	-5.12*	-0.17	-6.21*	-0.17	-4.86*
School Infrastructure Index	0.20	4.71*	0.21	3.77*	0.29	3.69*	0.15	3.39*
Percent of ST Teachers	0.19	2.13**	0.33	4.06*	0.28	3.14*	0.25	6.21*
Percent of Female Teachers	0.17	4.91*	0.31	3.56*	0.30	4.42*	0.22	3.41*
Pupil Teacher Ratio	0.06	1.21	0.07	2.56**	0.05	2.21**	0.02	0.09
Pseudo R2	0.56		0.66		0.63		0.57	
Log Likelihood	-463.74		-581.62		-423.56		-482.15	
N	161		204		153		518	

*Note: * Significant at 1 per cent level*

*** Significant at 5 per cent level.*

VII. CONCLUDING OBSERVATIONS AND POLICY SUGGESTIONS

The major supply side factors affecting the enrolment of ST children are distance of the school from the residence, linguistic challenges faced by Scheduled Tribe children, school timings, the burden of the curriculum, and the lack of sufficient infrastructure. The educational pursuits of Scheduled Tribe children are impeded by several factors on the demand side, including parental poverty, large family size, the financial burden of education, parental illiteracy, and the necessity of attending to domestic responsibilities. The parents who were interviewed identified their economic hardship as the primary influence on their decision to enrol their children in school. The analysis revealed that the opportunity cost associated with ST children in these districts is significantly elevated. Scheduled Tribe children work longer hours than their non-Scheduled Tribe counterparts. Female students are involved in domestic labour for a greater number of hours compared to their male counterparts. This situation primarily arises due to the unfavourable economic circumstances faced by the family.

The regression analysis reveals a positive association between children's enrolment and the economic status of families, as well as the educational attainment of parents, across all districts and caste categories. The proximity of forests has a substantial impact on children's attendance rates. The enrolment of Scheduled

Tribes exhibits an inverse relationship with the distance to educational institutions across all districts, while simultaneously demonstrating a positive association with the quality of school infrastructure. The outcomes of the regression analysis exhibit consistency across all districts.

Based on the preceding analysis, it is posited that enhancing the enrolment of Scheduled Tribe children at the primary level of education necessitates a significant emphasis on parental motivation. Additionally, the establishment of educational institutions in residential areas must be adequately equipped with essential infrastructural facilities.

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