Chapter 10
Pattern and Determinants of Household Expenditure on Higher Education: Evidence from Rural Odisha

Pradeep Kumar Choudhury

Introduction

The Indian higher education (HE) sector has undergone massive expansion, though not uniformly, during the seven decades following independence. However, looking at the growth pattern of HE reveals that in post-1990s, there is greater intervention of the private sector in providing higher education in India and simultaneously the role of the state towards this sector has become quite insignificant. The growth in the number of private universities established during the last 5 years is unprecedented as out of the total 235 state private universities, 168 have been established after the year 2010 (UGC 2016). There are more than 78% colleges running in private sector (aided and unaided taken together) that caters more than two-thirds of the total enrolment. It is argued that the growth of higher education, particularly in the post-liberalization period, is a market-mediated process facilitated mostly through private institutions (Varghese 2015).

In the early 1960s, public funding and philanthropic contributions for higher education were the major part of the resource to this sector in India, and the contribution from private sources in terms of tuition fee and other payments from students were negligible. The trend has shifted towards private funding of higher education, particularly with the implementation of the New Economic Policy of 1991. The higher education in India is moving towards the conception of private good largely financed by households (Panchamukhi 1990; Mathew 1996; Rani 2004; Chakrabarti and Joglekar 2006; Indira

The chapter is based on an ICSSR-sponsored study titled 'Effectiveness of Select Scholarship Schemes for the Improvement in Access and Retention of Scheduled Caste and Scheduled Tribe Students in Odisha'.

P. K. Choudhury (✉)
Zakir Husain Centre for Educational Studies, School of Social Sciences,
Jawaharlal Nehru University, New Delhi, Delhi, India
e-mail: pradeepchoudhury@jnu.ac.in

S. Bhushan (ed.), *The Future of Higher Education in India*,
https://doi.org/10.1007/978-981-32-9061-7_10

2006; Chattopadhyay 2007; Prakash 2007; Varghese 2013). In the process, apart from increasing student fees in private HEIs in India, many public universities have initiated efforts to generate additional resources through the offering of 'self-financing courses' where the major part of the cost is borne by students. Several studies in India reveal that in the post-1990s, households bear a significant proportion of the costs in the form of fee (particularly tuition fee) and non-fee expenditures incurred on purchasing books, stationery, uniform, conveyance, private coaching and other necessary expenses related to their children's higher education compared to the pre-1990s. However, there is less evidence on the changing pattern of household spending on higher education in recent years, though few studies are available in the domain of school education (e.g. Tilak 2002; Kingdon 2005; Azam and Kingdon 2013). Also, there is hardly any study on this in the context of Odisha, a state with a low level of socioeconomic and human development. More importantly, there are very few studies on household costs of higher education in rural areas and also with a focus on marginalized sections of the society such as scheduled castes, scheduled tribes and other backward classes. Considering these research gaps, this chapter examines the variability of household expenditure on higher education among the students of lower social groups in rural Odisha and its relationship with their individual, household and institutional charateristics. This chapter uses the data collected through a student survey in two tribal dominated districts of Odisha (Mayurbhanj and Keonjhar) in 2016–2017.

Past Studies

A considerable body of research suggests that the amount of household investment on education differs significantly with their socioeconomic settings, particularly by gender, family income, parents' education and location of the household (rural-urban). Past studies that have discussed these four important factors in detail are reviewed briefly in this section. A theoretical analysis of household decision-making in the investment in education by gender is discussed in Pasqua (2005). Circumstantial evidence for the existence of pro-male bias in household spending on education has been documented in many countries across the world, including India (Panchamukhi 1990; Subramaniam and Deaton 1991; Li and Tsang 2003; Gong et al. 2005; Kingdon 2005; Lancaster et al. 2008; Zimmermann 2012; Masterson 2012; Saha 2013; Iddrisu et al. 2018). Preference of the households to invest in the education of boys rather than girls is widely prevalent in India and such difference widens further in case of higher education (Chaudhuri and Roy 2006; Kambhampati 2008; Kaul 2018). Many studies have confirmed that the variation in household investment in education by gender is due to the parents' preference for better quality education for boys (by investing more) over girls (Aslam and Kingdon 2008; Himaz 2009; Azam and Kingdon 2013; Saha 2013).

A positive relationship between household income and investment in education has been found in many studies (King 1998; Acevedo and Salinas 2000; Psacharopoulos and Mattson 2000; Urwick 2002; Psacharopoulos and Papakonstantinou 2005; Tansel

and Bircan 2006; Omori 2010; Shafiq 2011; Acar et al. 2016). Examining the determinants of household expenditure on school education in rural India, Tilak (2002) has found that households tend to spend more on education with the increase of their income, the value of the income elasticity coefficient being 0.20. Educated parents (also other educated adult members of the household) are more aware of the benefits of education and hence spend more on it, which has been established in many studies, both in India and elsewhere (Kanellopoulos and Psacharopoulos 1997; Psacharopoulos and Mattson 2000; Tilak 2002; Dang 2007; Omori 2010; Masterson 2012; Saha 2013). Saha (2013, p. 233) has reported that the higher the educational level of the parents/guardians, the greater is the spending on education of their offspring in India. In a recent study, Chandrasekhar et al. (2019) have found that rural households spend 15.3% of their total expenditure on average in higher education while it is 18.4% inn urban areas. However, there are limited studies that examine the pattern and determinants of family spending on rural HEIs and socially disadvantaged students like scheduled castes, scheduled tribes and other backward classes and also in the context of Odisha. This study examines the variability in household expenditure on higher education in rural Odisha by including a set of factors (individual and household characteristics, students' academic background and institutional factors) that are expected to influence household's decision to invest in it.

Data and Methodology

The study uses the data collected from the primary survey conducted in 19 higher education institutions (HEIs) located in two tribal dominated districts (Mayurbhanj and Keonjhar) of Odisha in 2016–2017. The survey covers 563 students (169 SC, 353 ST and 41 OBC) pursuing their undergraduate and post graduate courses in these two sample districts[1]. The representation sample students by type of institution, gender, caste, religion and region are provided in Table 10.6 in Appendix. Majority of the students (95%) surveyed are from undergraduate courses (three-fourths being from B.A. programme only), as in most of the HEIs there have no postgraduate courses except North Orissa University and MPC Autonomous College. Out of the total respondents, 48.5% are from aided colleges, 29.5% from unaided HEIs and 22% from government colleges[2]. Around three-fourths of students surveyed are female.

[1] Institution-wise students surveyed are given in Table 10.5 in appendix.

[2] In Odisha, degree colleges are classified into five groups on the basis of fund they receive from the Government of Odisha. These are: government, aided, block grant, unaided, and self-financing. The government HEIs receive highest fund (almost all the expenses) from the Odisha Government, aided and block grant colleges get partial funding while unaided and self-financing colleges do not get any money from the government. For this chapter, the sample colleges are categorised into three groups: government, aided (aided and block grant colleges taken together) and unaided (unaided and self-financing combined).

The pattern of household expenditure on higher education in rural Odisha is discussed by students' individual characteristics, household and institutional factors. Two separate household expenditure functions are estimated using Ordinary Least Square (OLS) technique to analyse potential factors determining household expenditure on higher education: first, for total household spending on higher education (fees and non-fee items) and second, the household spending on education that includes only non-fee items. Examining the factors determining household spending on non-fee items is attempted separately as it constitutes a major share of the total expenditure on higher education. Also unlike fees, the expenses on non-fee items are elastic to income/needs of the students after enroling the HEIs.

Pattern of Household Expenditure on Higher Education

The survey results show that the total expenditure per student per annum is about Rs. 61,490 which constitutes approximately 30% of the annual family income. Of the total household expenditure on HE, students spend only about 5% on fees and the rest on non-fee items like food and accommodation, textbooks, transport, tuitions, computer classes, mobile and Internet (Table 10.1). Amongst the non-fee expenditure, major proportion of expenses are made in food and accommodation (29.43%) followed by textbooks (19.31%), private tuition or coaching (18.46%), computer class (9.41%), transport (8.99%), mobile (4.75%) and Internet (4.57%). Households have spent a reasonable share of their income on private tuition or coaching. It is observed from the interaction with the students that majority of them go for private tuition as the quality of teaching in the colleges is very poor. As the students belong to socially backward communities and also in many cases being first generation learners, they need more support to perform better in class and also

Table 10.1 Annual per student household expenditure on higher education

Items of expenditure	Per student household expenditure (in Rs.)	Percentage of total
Fee	**3129.93**	**5.09**
Non-fee expenditure		
Food and accommodation	18098.16	29.43
Textbooks and study materials	11874.93	19.31
Transport	5525.08	8.99
Private tuition/coaching	11349.35	18.46
Computer class	5784.92	9.41
Mobile	2917.80	4.75
Internet	2810.05	4.57
Total non-fee	**58,360.31**	**94.91**
Total expenditure (fee and non-fee)	**61,490.24**	**100**

Source: Compiled by the author from the field survey data

Table 10.2 Annual per student non-fee household expenditure on higher education for hostel students and day scholars

	Hostel students		Day scholars	
Items of expenditure	Per student household expenditure	Percentage of total	Per student household expenditure	Percentage of total
Food and accommodation	30974.35	50.80	14362.07	34.63
Textbooks and study materials	14965.28	24.54	10364.49	24.99
Transport	1299.64	2.13	3069.95	7.40
Private tuition/ coaching	8003.57	13.13	5757.51	13.88
Computer class	1262.36	2.07	3697.12	8.91
Mobile	2410.07	3.95	2321.53	5.60
Internet	2059.29	3.38	1903.87	4.59
Total	**60974.56**	**100**	**41476.54**	**100**

Source: Compiled by the author from the field survey data

to continue with higher education successfully. Being from socially disadvantaged strata of the society, students have difficulty in learning and completing their courses. Interestingly, fee paid for private tuition or coaching is relatively high for science streams, followed by commerce and then arts.

Often, it is argued that the household expenditure on non-fee items (particularly on food and accommodation) varies substantially between hostellers and day scholars, while fees paid by them are more or less similar. This is also found to be true in this study as students residing in the hostel spend Rs. 19,498 more on non-fee items such as food and accommodation, textbooks and study materials, transport, private tuition/coaching, computer class, mobile and internet annually than the day scholars[3]. Per student annual household expenditure on non-fee items was Rs. 60,974 for hostel students and Rs. 41,476 for day scholars. Interestingly, students residing in the hostel spend more than half of the total non-fee expenses on food and accommodation. Also, the expense of hostellers on this is more than two times of the expenses by day scholars[4]. As expected, day scholar spends about Rs. 250 per month on transport which is close to three times the expenses incurred by the students residing in hostels. This reveals the expected trend as day scholars commute to the college from home and henceforth spend more on transportation. Similarly, expenses on mobile and Internet are more for the students residing in the hostel as compared to day scholars as they wish to remain in contact with their families regularly (Table 10.2).

[3] Out of the total students surveyed (563), only about 20% stay in the hostel and this share varies significantly by type of HEIs. More than half (54%) of the students in government institutions avail hostel facilities while it is 11.36% in aided institutions and 10.24% in unaided institutions and this variation is largely due to the availability of such facility in sample HEIs.

[4] The expenditure of the day scholars incurred on food and accommodation largely includes their occasional spending in college canteen and short-term stay in private accommodation during examination time.

Table 10.3 Annual per capita household expenditure on higher education by type of institution, gender, caste and annual family income (in Rs.)

	Fees	Non-fee (hosteller)	Non-fee (day scholar)	Total (hosteller)	Total (day scholar)
Type of institution					
Government	2893.73	72310.15	41048.64	75203.89	43942.37
Aided	2964.38	48019.60	44774.23	50983.97	47738.61
Unaided	3572.95	40494.35	36542.18	44067.29	40115.13
Gender					
Male	3283.37	51113.46	45632.15	54396.83	48915.52
Female	3076.19	62048.56	39777.90	65124.75	42854.09
Caste					
SC	3183.56	57038.06	44147.34	60221.62	47330.90
ST	3041.58	56277.00	38443.12	59318.58	41484.69
OBC	3664.44	102100.4	54388.28	105764.8	58052.72
Annual family income					
Lower income	3007.02	55873.85	34952.00	58880.87	37959.03
Lower middle income	3002.25	50726.53	43064.99	53728.78	46067.24
Upper middle income	3169.66	77735.04	43140.44	80904.70	46310.10
Higher income	4512.70	77733.60	37918.15	82246.30	42430.85

Source: Compiled by the author from the field survey data

The pattern of household spending on higher education by type of institutions reveals few important points. First, students pursuing their course from government and aided HEIs have spent more than the students enrolled in unaided higher education institutions, and interestingly, this difference is largely due to the difference in the payment of non-fee items such as private tuition, food and accommodation, transport, Internet, etc. (Table 10.3). This finding does not go in line with the results of many other studies which show that students attending unaided/private HEIs spend more than the government and aided institutions. It is largely because the binary between government and private HEIs discussed often in the literature is not the same here. The unaided and self-financing colleges in rural Odisha (included as sample in this study) largely offer undergraduate courses on liberal arts, basic sciences and commerce. The total cost of attending these colleges is comparatively less than the government and aided colleges as these are located in remote rural areas and very close to the vicinity of the students, and therefore households do not spend much on non-fee items such as food, accommodation and transport. The private colleges also not charge much on fees due to the fee regulation policy of the state government and also this will be a major barrier for getting students in the college. These colleges are providing higher education for long (in some cases for the last 25 years) with the expectation that they will be converted to aided colleges that will

help them to get financial support from government, particularly to cover teacher's salary and fund for infrastructure. The conversion of colleges from unaided to aided is a practice followed in past by the government of Odisha, though it is not smooth and often teachers go for long strikes to put their demand.

The analysis finds that male students spend more on higher education than female students on fees. Also, in non-fee items there exists pro-male bias for the day scholars. However, female students residing in hostels spend more (Rs. 62,048) than male students (Rs. 55,113) on non-fee items. The annual per capita household expenditure on higher education is substantially higher among OBC students followed by SC students and ST students, and there is not much variation in the pattern of spending between hostellers and day scholars (Table 10.3). As expected, the annual average household expenditure on higher education increases with the increase in the annual income of the family and it is true for both fee and non-fee items except some variations between lower income and lower middle-income groups[5].

Determinants of Household Expenditure on Higher Education: OLS Results

This section estimates two separate household investment functions on higher education using the OLS technique. The first model considers the total household expenditure (fees and non-fee items), while the second model includes the spending on non-fee items. The OLS equations used for the estimation are as follows:

$$lnEducost1 = \alpha_1 + \beta_i X_i + \varepsilon_1 \tag{10.1}$$

$$lnEducost2 = \alpha_2 + \gamma_i X_i + \varepsilon_2 \tag{10.2}$$

Where,

lnEducost1 = Natural logarithm of annual total household expenditure on higher education (expenses on fees and non-fee items taken together)

lnEducost2 = Natural logarithm of annual household expenditure on non-fee items of higher education

α_1 and α_2 = intercept terms

β_i and γ_i = regression coefficients that measure the influence of explanatory variables on the household expenditure on higher education

X_i = explanatory variables

ε_1 and ε_2 = error terms

[5]The families are classified under four different groups according to their annual family income which ranges from Rs. 5000 to Rs. 2,35,000. These are lower income (< Rs. 20,000), lower middle income (≥Rs. 20,000 but < than Rs. 40,000), upper middle income (≥ Rs. 40000 but < Rs. 60,000), and higher income (≥Rs. 60,000 but < Rs. 2,50,000).

The explanatory variables used in the regression are broadly categorized as follows: individual characteristics, household factors and institutional factors. Several other determinants of household expenditure on education like household size, household budget for items other than education, opportunity cost of studying higher education, etc. are not considered in the analysis because of data limitations. The notation, definition and summary statistics of the explanatory variables used in estimating household expenditure functions on higher education are presented in Table 10.7 and Table 10.8, respectively, in Appendix.

The issue of gender bias in household expenditure on education has been a topic of much research, particularly in the context of developing countries. The regression results show that female students spend 14.8% less than the male students on higher education in rural Odisha. The pro-male bias in household spending is more visible for non-fee items (lnEducost2) as the value of the coefficient is 15.3% (Table 10.4). Though in some households parents send both sons and daughters to colleges, they prefer better quality education for boys (by investing more) over girls, and it is more so in rural settings and also among marginalized sections of the society. Several other

Table 10.4 OLS estimate of the determinants of household expenditure on higher education in Odisha

	lnEducost1		lnEducost2	
Variable	Coefficient	Robust standard error	Coefficient	Robust standard error
Gender	−0.148***	0.056	−0.153***	0.061
SC	−0.211*	0.122	−0.234*	0.129
ST	−0.384***	0.121	−0.429***	0.129
OBC	Reference			
Religion	−0.088	0.093	−0.073	0.100
Father_edn	0.004	0.006	0.003	0.007
Mother_edn	0.006	0.007	0.007	0.007
Father_occpn	0.074	0.075	0.085	0.081
Family_size	0.007	0.009	0.007	0.010
*ln*Family_income	0.017*	0.028	0.018*	0.031
Government	0.264***	0.085	0.322***	0.090
Aided	0.148***	0.056	0.181***	0.062
Unaided	Reference			
Stud_accomdn	0.052*	0.035	0.045	0.041
Parttime_job	−0.021	0.065	−0.027	0.070
PMSS_regular	0.044	0.057	0.052	0.063
*ln*PMSS_amnt	0.001***	0.001	0.002***	0.002
Constant	10.370***	0.317	10.263***	0.344
R square	0.118		0.116	
F value	4.55		4.73	
No. of observations	522		522	

Note: ***significant at 1% level of significance; **significant at 5% level of significance; * significant at 10% level of significance

studies, both in India and outside (Panchamukhi 1990; Kingdon 2005; Lancaster et al. 2008; Jensen 2012; Zimmermann 2012; Saha 2013), support this finding.

Though some studies have found that students from lower social class (SCs and STs) have significantly less chance of attending higher education and it is particularly low in professional courses (Azam and Blom 2009; Chakrabarti 2009), there is hardly any study that shows the variation in household investment on higher education by caste, particularly in the context of Odisha and in rural areas. The OLS result shows that SC and ST students spent around 21% and 38% less on higher education respectively as compared to OBC students in Odisha. More or less similar picture is also visible in the household spending on non-fee items. The difference in the spending may be larger if compared with the general category students whose data is not collected in the survey as the study was on marginalized sections of the society. Gangopadhyay and Sarkar (2014), using household-level data from West Bengal, find that SC households spent significantly less on private coaching of their children compared to other households, and this finding is consistent with the results of this study.

The regression coefficient for the annual income of the family (*lnFamily_income*) is found to be positive and statistically significant in both the models, with a marginally higher effect on non-fee items than total household expenditure on higher education. Results support the findings of many other studies which reveal that rich households spend more on the education of their children than poor households (King 1998; Acevedo and Salinas 2000; Tilak 2002; Acar et al. 2016). Quite surprisingly, parents' education (father and mother education taken separately in the equation) did not come out to be statistically significant in explaining the variation of household spending on higher education in Odisha, though the coefficients give expected sign. This may be due to the lack of heterogeneity in the parents' educational pattern, as close to two-thirds have attended below the primary level of education, and a similar pattern is also found among mothers.

Students enrolled in government and aided higher education institutions have spent more (on both *lnEducost1* and *lnEducost2*) than the students of unaided institutions. More clearly, students from government institutions spent 26% more and unaided institutions spent 15% more on higher education than the students studying in unaided institutions. Both the coefficients are statically significant at 1% level of significance. Similarly, students of government and aided institutions spent around 32% and 18% more respectively on non-fee items as compared to unaided institutions. The finding here does not go with the common understanding that students of unaided/private HEIs usually spend more as compared to the government institutions. Therefore, it is important to note that the unaided HEIs covered in this study are the undergraduate colleges that offer courses in liberal arts and are located very close to the vicinity of the students. Thus, students (particularly from marginalized sections of the society) access these colleges with low cost. But, students enrolled in government and aided HEIs usually stay in the hostels or private accommodations (as these institutions are largely located in district headquarters) and spend more on non-fee items. Also, majority of the students accessing these institutions belong to relatively well-off families (within lower social groups) and therefore spend more on their education.

Several studies reveal that the probability to enrol and continue in higher education increases with the availability and accessibility of financial assistance to students, as it helps them to spend more (Glocker 2011; Iriti et al. 2017). Furthermore, it helps better to the students belonging to poor and marginalized sections of the society as they are not in a position to cover their costs for higher education. The regression results show that the amount of the scholarship received by the students (*lnPMSS_amount)* is positively related to the annual per capita total household expenditure on higher education and the household spending on non-fee items. The regression coefficient of *lnPMSS_amount* for the first household expenditure function (*lnEducost1*) finds that If the amount of scholarship is increased by 1%, we expect total household spending on HE to increase by 1%, and the expenditure on non-fee items of HE will go up by 2%.

Conclusion

This chapter examines the variability of household expenditure on higher education in rural Odisha, one of the backward states of India, using the data collected through a student survey in two tribal dominated districts of Odisha (Mayurbhanj and Keonjhar) in 2016–2017. The findings suggest that the annual average household expenditure on higher education among marginalized sections of the society in rural Odisha is around 30% of the annual family income. Of the total household expenditure on HE, students have spent only about 5% on fees and the rest on non-fee items such as private tuition, food and accommodation, transport, Internet, etc. Interestingly, the non-fee expenses on higher education by the households vary significantly between the students residing in hostels and day scholars. Households have spent close to one-fifths of their total expenditure on higher education annually on private tuition or private coaching. It is observed from the interaction with the students that majority of them go for private tuition as the quality of teaching in the colleges is very poor. As the students belong to socially backward communities and are mostly first generation learners, they need more support to perform better in class. Fee paid for private tuition or coaching is relatively high for science streams, followed by commerce and then arts. While discussing about this with the institution heads, shortage of teachers came as a serious issue to provide quality higher education to the students as many HEIs appoint temporary/guest teachers to teach. However, a detail discussion on this issue is outside the scope of this chapter, though it is an important issue and needs urgent attention both in academics and policy domain.

Students enrolled in government and aided HEIs have spent more than the students enrolled in unaided higher education institutions and interestingly, this difference is largely due to the difference in the payment of non-fee items. The regression results suggest that the ‘type of institution’ had a significant effect on household expenditure on higher education. Students enrolled in government and aided institutions have incurred higher level of expenditure than the students studying in unaided

institutions and this is true in both total and non-fee household expenses. This suggests that though students access low cost higher education in unaided colleges (as these are located close to vicinity), quality is a serious concern. Many of these undergraduate colleges in rural Odisha are running with very few teachers and seriously lack physical infrastructure that were evident from the fieldwork.

The household expenditure on higher education in rural Odisha varies widely across socioeconomic groups such as gender, caste and family income. The results presented show pro-male bias in household spending on higher education, i.e. the household expenditure on higher education is more for male students than for female students in rural Odisha. The pro-male bias in household spending is little more in case of non-fee items than the total household expenditure on higher education. The analysis of the annual per capita household expenditure on higher education by caste shows that OBC students spend more than SC and ST students in both fee and non-fee items. Thus, ST students spend the least on their higher education and it may be due to their poor economic status. As expected, students belonging to poor households have invested less on higher education than the households with better income. Thus, from a policy perspective, reducing the financial burden of poor households in rural areas is the need of the hour to provide wider access to HE among them – a target that is being set up since independence and emphasized consistently thereafter. This may be possible by allocating more public funds on need-based scholarships to the students belonging to the marginalized sections of the society, particularly in rural areas.

When considering and interpreting the findings of this chapter, some limitations should be borne in mind. First, the willingness of the household to investment on higher education is shaped by their choice for institutions and courses of study and thus, it could be argued that a discussion on parental preferences for HEIs and relating it with household expenditure would have been better. Second, the data is collected from students who are currently pursuing undergraduate and postgraduate courses of select disciplines, and therefore it may not provide the complete picture of household investment on HE in rural Odisha (e.g. the expenses on costly disciplines like engineering and management are not taken into account). Third, an interaction with parents and getting their experiences on managing the expenses on HE of their wards should have been done to provide a better picture on the issues discussed in this chapter. Despite these caveats, this chapter makes a contribution to the economics of education literature by unfolding the story of household investment in higher education among marginalized sections of the society in the context of rural Odisha – an area which is grossly ignored both in academia and policy domain. The analysis in this chapter should be useful to policymakers seeking to design interventions aimed at increasing participation in higher education in rural Odisha, particularly among marginalized sections of the society.

Appendix

Table 10.5 Institution-wise number of students surveyed for the study

S. No.	College name	District	Institution type	Students
1.	North Orissa University	Mayurbhanj	Government	26
2.	MPC (Autonomous) College	Mayurbhanj	Government	39
3. [a]	Government Women's College, Baripada	Mayurbhanj	Government	15
4.	Utkalmani Gopabandhu B.Ed. College	Mayurbhanj	Government	3
5. [a]	Government Women's College, Keonjhar	Keonjhar	Government	34
6.	Anandapur Anchalika Training College	Keonjhar	Government	7
	Total (government)			**124**
7.	BB College, Baiganbadia	Mayurbhanj	Aided	58
8.	Seemanta Mahavidyalaya, Jharpokharia	Mayurbhanj	Aided	35
9.	Anandapur College, Anandapur	Keonjhar	Aided	21
	Total (aided)			**114**
10.[a]	Shree Maa Mahila Mahavidyalaya	Mayurbhanj	Block grant	69
11.	Anchalika Mahavidyalaya, Hatadihi	Keonjhar	Block grant	45
12.[a]	Kanaka Manjari Women's College	Keonjhar	Block grant	45
	Total (block grant)			**159**
13.	Baripada Degree College	Mayurbhanj	Unaided	15
14.	Sriram Chandra Bhanj Degree College	Mayurbhanj	Unaided	43
15.[a]	Biswa Tarini Women's College	Keonjhar	Unaided	33
16.	Pateswar Mahavidyalaya, Suakati	Keonjhar	Unaided	4
17.	Santoshi Maa Regional College	Keonjhar	Unaided	19
18.	Baula Degree College, Soso	Keonjhar	Unaided	21
19.	Laxmi Narayan College, Pipilia	Keonjhar	Unaided	31
	Total (unaided)			**166**
	Grand total			**563**

Note: [a]Women's colleges
Source: Compiled from the Field Survey Data

Table 10.6 Sample students by type of institution, gender, caste, religion and region

Institution Type	Gender		Caste			Religion		Region		Total
	Male	Female	SC	ST	OBC	Hindu	Others	Rural	Urban	
Government	25 (20.16)	99 (79.84)	24 (19.35)	89 (71.77)	11 (8.87)	117 (94.35)	07 (5.65)	108 (87.10)	16 (12.90)	124 (100)
Aided	71 (26.01)	202 (73.99)	71 (26.01)	188 (68.86)	14 (5.13)	253 (92.67)	20 (7.33)	258 (94.51)	15 (5.49)	273 (100)
Unaided	49 (29.52)	117 (70.48)	74 (44.58)	76 (45.78)	16 (9.64)	160 (96.39)	06 (3.61)	158 (95.18)	08 (4.82)	166 (100)
Total	145 (25.75)	418 (74.25)	169 (30.02)	353 (62.70)	41 (7.28)	530 (94.14)	33 (5.86)	524 (93.07)	39 (6.93)	563 (100)

Notes: (i) Figures in parentheses are the percentage of students by type of institution; (ii) 'others' category in religion includes all non-Hindu religion students
Source: Compiled from the Field Survey Data

Table 10.7 Notation and definition of the variables used in the regression analysis

Notation of the variable	Name of the variable	Definition of the variable
Dependent Variable		
lnEducost1	Household expenditure on higher education (fee and non-fee)	Annual per student household expenditure on higher education (in logarithmic form)
lnEducost2	Household expenditure on higher education (non-fee)	Annual per student household expenditure on non-fee items (in logarithmic form)
Independent Variables		
Gender	Gender of the students (dummy variable)	= 1, if the student was female = 0, male
Caste	Caste of the students (dummy variables)	
SC	Scheduled caste	= 1, if the student belongs to SC = 0, otherwise
ST	Scheduled tribe	= 1, if the student belongs to ST = 0, otherwise
OBC	Other backward class	= 1, if the student belongs to OBC = 0, otherwise
Religion	Religion of the students (dummy variables)	= 1, if the student belongs to Hindu = 0, otherwise
Father_edn	Father's schooling	Years of schooling of the father
Mother_edn	Mother's schooling	Years of schooling of the mother
Father_occpn	Occupation of the father (dummy variables)	= 0, if the father is an agricultural worker = 1, otherwise
Family_size	Size of the family	Family size of the student
*ln*Family_ income	Annual income of the family	Annual income of the family (in logarithmic form)
Institution_type	Type of institution (dummy variable)	Cont...
Government	Government higher education institutions	= 1, if the students have enrolled in government institutions = 0, otherwise
Aided	Aided higher education institutions	= 1, if the students have enrolled in aided institutions = 0, otherwise
Unaided	Unaided higher education institutions	= 1, if the students have enrolled in unaided institutions = 0, otherwise
Stud_accomdn	Student accommodation (dummy variable)	= 1 if students stay in hostel = 0, otherwise
Parttime_job	Whether students do part-time job during their course or not (dummy variable)	=0, if the students do part-time job =1, otherwise
PMSS_regular	Whether students are getting PMS regularly (dummy variable)	=0, if the students receive PMS regularly = 1, otherwise
lnPMSS_amnt	Amount receive from PMSS	Annual amount of scholarship money students receive (in logarithmic form)

Table 10.8 Summary statistics of the variables used in the regression analysis

Variables	N	Mean	Standard Deviation	Min	Max
lnEducost1	522	10.53	0.60	8.57	12.98
lnEducost1	522	10.43	0.66	7.50	12.98
Gender	524	0.73	0.44	0	1
SC	524	0.30	0.46	0	1
ST	524	0.64	0.48	0	1
OBC	524	0.06	0.25	0	1
Religion	524	0.06	0.24	0	1
Father_edn	524	7.47	5.07	0	17
Mother_edn	524	5.09	5.00	0	17
Father_occpn	524	0.15	0.36	0	1
Family_size	524	5.90	2.44	2	24
*ln*Family_income	524	10.14	0.87	7.24	13.30
Government	524	0.21	0.40	0	1
Aided	524	0.49	0.50	0	1
Unaided	524	0.30	0.46	0	1
Stud_accomdn	524	0.54	0.87	0	4
Parttime_job	524	0.79	0.41	0	1
PMSS_regular	524	0.68	0.47	0	1
lnPMSS_amnt	524	8.35	0.69	5.70	9.46

Note: The number of observations (NOB) is 524 except for some variables with missing information. Weighted means and standard deviations (SD) are reported, which were corrected for the differences in sampling probabilities

References

Acar Elif Oznur, Seyit Mümin Cilasun, & Burak Günalp. (2016). *An analysis of education expenditures in Turkey by income groups* (Working Paper 991). The Economic Research Forum, Egypt.

Acevedo, G. L., & Salinas, A. (2000). *Marginal willingness to pay for education and the determinants of enrolment in Mexico* (World Bank Policy Research Working Paper No. 2405). Washington, DC: World Bank.

Aslam, M., & Kingdon, G. G. (2008). Gender and household education expenditure in Pakistan. *Applied Economics, 40*(20), 2573–2591.

Azam, M., & Bolm, A. (2009, April). Progress in participation in tertiary education in india from 1983 to 2004. *Journal of Educational Planning and Administration*, *23*(2), 125–167.

Azam, M., & Kingdon, G. G. (2013). Are girls the fairer sex in India? Revisiting intra-household allocation of education expenditure. *World Development, 42*, 143–164.

Chakrabarti, A. (2009, July/December). Determinants of participation in higher education and choice of disciplines: Evidence from urban and rural Indian youth. *South Asia Economic Journal*, *10*(2), 371–402.

Chakrabarti, A., & Joglekar, R. (2006). Determinants of expenditure on education: An empirical analysis using state level data. *Economic and Political Weekly, 41*(15), 1465–1472.

Chandrasekhar, P., Rani, G., & Sahoo, S. (2019). Household expenditure on Higher education what do we know and what do recent data have to say? *Economic and Political Weekly, 54*(20), 52–60.

Chattopadhyay, S. (2007). Exploring alternative sources of financing higher education. *Economic and Political Weekly, 42*(42), 4251–4259.

Chaudhuri, K., & Roy, S. (2006). Do parents spread educational expenditure evenly across the two genders? Evidence from two North Indian States. *Economic and Political Weekly, 41*(52), 5276–5282.

Dang, H. (2007). The determinants and impact of private tutoring classes in Vietnam. *Economics of Education Review, 26*(6), 683–698.

Gangopadhyay, K., & Sarkar, A. (2014). Private investment in education – Evidence across castes and religion from West Bengal. *Economic and Political Weekly, 49*(13), 44–52.

Glocker, D. (2011). The effect of student aid on the duration of study. *Economics of Education Review, 30*(1), 177–190.

Gong, X., Soest, A., & Zhang, P. (2005). The effects of the gender of children on expenditure patterns in rural China: A semiparametric analysis. *Journal of Applied Econometrics, 20*(4), 509–527.

Himaz, R. (2009). *Is there a boy bias in household education expenditure? The case of Andhra Pradesh in India based on Young Lives data* (Working Paper No. 46). Young Lives, Department of International Development, University of Oxford.

Iddrisu, A. M., Danquah, M., Quartey, P., & Ohemeng, W. (2018). Gender bias in households' educational expenditure: Does the stage of schooling matter. *World Development Perspectives, 10–12*, 15–23.

Indira, M. (2006). Can self-financing be a viable source of resource in traditional universities. *Journal of Educational Planning and Administration, 20*(1), 109–123.

Iriti, J., Page, L., & Bickel, W. (2017). Place-based scholarships: Catalysts for systems reform to improve postsecondary attainment. *International Journal of Educational Development, 58*, 137–148.

Jensen, R. (2012). Do labor market opportunities affect young women's work and family decisions? Experimental evidence from India. *Quarterly Journal of Economics, 127*(2), 753–792.

Kambhampati, U. S. (2008). *Does Household Expenditure on Education Depend upon Returns to Education in India?* (Henley Business School Working Paper No. 060). University of Reading.

Kanellopoulos, C., & Psacharopoulos, G. (1997). Private education expenditure in a 'free education' country: The case of Greece. *International Journal of Educational Development, 17*(1), 73–81.

Kaul, T. (2018). Intra-household allocation of educational expenses: Gender discrimination and investing in the future. *World Development, 104*, 336–343.

King, E. (1998). Who really pays for education? The roles of government and families in Indonesia. In C. Colclough (Ed.), *Marketising education and health in developing countries: Miracle or mirage?* (pp. 165–182). New York: Oxford University Press.

Kingdon, G. G. (2005). Where has all the bias gone? Detecting gender bias in the intra-household allocation of educational expenditure. *Economic Development and Cultural Change, 53*(2), 409–451.

Lancaster, G., Maitra, P., & Ray, R. (2008). Household expenditure patterns and gender bias: Evidence from selected Indian states. *Oxford Development Studies, 36*(2), 134–157.

Li, D., & Tsang, M. C. (2003). Household education decisions and implications for gender inequality in education in rural China. *China: An International Journal, 1*(2), 224–228.

Masterson, T. (2012). An empirical analysis of gender bias in education spending in Paraguay. *World Development, 40*(3), 583–593.

Mathew, E. T. (1996). Financial aspects of privatisation of higher education: Issues and options. *Economic and Political Weekly, 31*(14), 866–869.

Omori, M. (2010). Household expenditures on children, 2007–08. *Monthly Labor Review* (9), September 3–16.

Panchamukhi, P. R. (1990). *Private expenditure on education in India: An empirical study*. Unpublished report of Indian Institute of Education, Pune.

Pasqua, S. (2005). Gender bias in parental investments in children's education: A theoretical analysis. *Review of Economics of the Household, 3*(3), 291–314.

Prakash, V. (2007). Trends in growth and financing of higher education in India. *Economic and Political Weekly, 42*(31), 3249–3258.

Psacharopoulos, G., & Mattson, R. (2000). Family size, education expenditure and attainment in a poor country. *Journal of Educational Planning and Administration, 14*(2), 169–186.

Psacharopoulos, G., & Papakonstantinou, G. (2005). The real university cost in a "free" higher education country. *Economics of Education Review, 24*(1), 103–108.

Rani, G. P. (2004). Economic reforms and financing higher education in India. *Indian Journal of Economics and Business, 3*, 1) 1–1)30.

Saha, A. (2013). An assessment of gender discrimination in household expenditure on education in India. *Oxford Development Studies, 41*(2), 220–238.

Shafiq, N. M. (2011). What criteria should policy-makers use for assisting households with educational expenditure? The case of urban Bangladesh. *South Asia Economic Journal, 12*(1), 25–37.

Subramaniam, S., & Deaton, A. (1991). Gender effects in Indian consumption patterns. *Sarvekshana* April–June, pp. 1–30.

Tansel, A., & Bircan, F. (2006). Demand for education in Turkey: A Tobit analysis of private tutoring expenditures. *Economics of Education Review, 25*(3), 303–313.

Tilak, J. B. G. (2002). *Determinants of household expenditure on education in rural India* (Working Paper Series, No. 88). New Delhi: National Council of Applied Economic Research.

UGC. (2016). *Annual report 2015-16*. New Delhi: University Grants Commission.

Urwick, J. (2002). Determinants of the private costs of primary and early childhood education: findings from plateau state, Nigeria. *International Journal of Educational Development, 22*(2), 13–44.

Varghese, N. V. (2013). *Private higher education – The Global surge and India concerns* (India Infrastructure Report 2012) (pp. 145–156). New Delhi: Routledge.

Varghese, N. V. (2015). *Challenges of massification of higher education in India* (CPRHE Research Paper 1). New Delhi: Centre for Policy Research in Higher Education, National University of Educational Planning and Administration.

Zimmermann, L. (2012). Reconsidering Gender Bias in Intra-Household Allocation in India. *The Journal of Development Studies, 48*(1), 151–163.