Does household expenditure on education in India depend upon the returns to education?

Uma S. Kambhampati
University of Reading, UK

April 2008
CIP Working Paper No. 2008-060

u.s.kambhampati@reading.ac.uk
www.reading.ac.uk/cip
Does household expenditure on education in India depend upon the returns to education?\(^1\)

Uma S. Kambhampati

Centre for Institutional Performance and Department of Economics, The University of Reading Business School, The University of Reading, Whiteknights, PO Box 218, Reading RG6 6AA.

E-mail: les98usk@reading.ac.uk.

Abstract:

This paper analyses whether the amount households spend on education depends upon the returns to education prevalent in the region in which they live. To this end, we estimated rates of return to education separately for boys and girls in 33 states and UTs in India. These rates of return were then included in our education expenditure model. Our results clearly indicated that the rate of return to education was highly significant in increasing the amount spent on education by the household both for boys and girls. However, we find that the impact of this variable is much larger at secondary level and for girls.

JEL: I21, I22, R22.

Keywords: Education, Returns to education, India, household expenditure.

---

\(^1\) The author is grateful to Geeta Kingdon for advice regarding returns to education in India. The author is also grateful to the Suntory Toyota International Centre for Economics and Related Disciplines at the LSE for support, while this paper was being written.
Does Household Expenditure on Education Depend upon Returns to Education in India?

The issue of expenditure on education in India has generally been studied from a macroeconomic perspective, considering in particular the extent of public expenditure on education. This has partly arisen from the perception that education is cheap and even free in the context of the availability of free public schools. Household contribution to educational investment has therefore tended to be underestimated. This has changed recently with two papers by Tilak (2002) and Kingdon (2005), which have considered household expenditure on education in India in more detail using data provided by the National Council of Applied Economic Research in India. Tilak (2002) highlighted the significant financial contribution made by households to education expenditures in rural India. Kingdon (2005) analyses the gender bias in such educational expenditures and finds that much of the bias arises in differential enrolment rather than in differential expenditures, once enrolled.

In this paper, we push this analysis further to consider whether the amount that households spend on education is related to the differential returns that may be expected to this education for boys and girls. In this context, we also consider the broader determinants of household expenditure on education. It has often been argued that households invest less in girls because girls experience lower returns to education (Kingdon, 1998). There have been very few studies of this issue in India (as can be seen from Psacharopoulos and Patrinos’ (2004) review of the literature which quotes only one Indian study (Kingdon, 1998)). Taking gender bias as our starting point, in this paper, we consider the amount spent on the education of sons and daughters by households. We find that returns to education significantly increase the expenditure on
education undertaken by households. We also find that after controlling for differences in returns across states, other state-level factors including state expenditure on education, state prosperity and agricultural intensity of the state also influence household expenditure on education.

This paper makes a number of contributions to the existing literature. First, it is one of the few papers that directly analyses the impact of returns to education on the educational expenditure of households. Second, it analyses a wide range of determinants of household allocation of educational expenditure across individuals, focusing particularly on factors that vary across region. In this context, we consider the role of personal and household variables as well as regional variables like state prosperity, state expenditure on education and so on. In particular, we argue that differences across states are likely to be particularly important in situations where the state provision and subsidisation of education is significant. Third, even on the issue of gender bias, we bring a new dataset to bear on the issues and while confirming the findings of Kingdon (2005), we attempt to clarify the many routes through which girls may face a bias. Thus, for instance, household expenditure is complementary to the scholarships received by boys at secondary school level but this is not true for girls.

I. Literature Review

National Accounts Statistics in India reveal that household expenditures on education are sizeable. Thus, Tilak (2002) found that households spent approximately Rs.387 per annum even on children in free elementary education in India in 1994. The typical rural household spent Rs.341 per child per year on primary education and Rs.474 per annum on a child in upper primary school. Using the NACER data on household expenditure,
Tilak (2002) concludes that discrimination against girls varies by state. In fact, he argues, that it is largely confined to 4 states – Haryana, Maharastra, Punjab and Rajasthan. However, Subramanian and Deaton (1991), analysing this issue on children in rural Maharashtra, find no evidence of gender bias in education expenditures on 5-9 year olds and only weak evidence amongst 10-14 year olds.

Kingdon (2005), using the same dataset as Tilak asks, ‘Where has the gender bias gone?’. Analysing household expenditures on education by state, she finds that in the basic education age groups, the discriminatory mechanism is via differential enrolment rates for boys and girls. Most studies to date, she argues, are unable to pick this up because they use aggregated household expenditures and therefore suffer from aggregation bias. Also, these studies use OLS estimation, which fails to allow for the large number of zero expenditures on education. Lancaster, Maitra and Ray (2003) find significant evidence of gender bias in education expenditures in rural Bihar and Maharashtra amongst 10-16 year olds but not amongst 6-9 year olds.

As indicated earlier, Kingdon (1998) is one of the few studies to consider the impact of returns to education on the investment of households in education. She considers this issue in the state of Uttar Pradesh in India by decomposing the gross gender differential in earnings using the Blinder-Oaxaca method. She concludes that in addition to labour market discrimination, girls face lower returns to education. In addition, she finds that ‘contrary to the conventional pattern, returns to the first five years of education are very low in urban India, both for men and women, and that returns generally rise with education level.’ Duraisamy (2000) in a study of returns to education in India finds that the private rate of return to education increases up to secondary level though the returns
to primary schooling are very low. He also finds that returns are generally higher in rural than in urban areas and are higher for women than men (at least at the middle, secondary and higher secondary levels of education). There are few other known studies of returns to education in India (see Psacharopoulos and Patrinos (2004)).

In this paper, of course, we are concerned not so much with the returns to education per se but with the impact that these returns may have upon the household’s decision to send children to school and their decisions regarding how much to invest in the education of each child and equally important, which children to invest more in.

II. Data

The data for our analysis is obtained largely from the 52nd Round of the National Sample Survey (NSS) of India undertaken in 1995-6. The 52nd Round primarily focused on health care and education of individuals within households across the rural and urban sectors in India. The information collected through the survey has been modelled into two schedules of enquiry -- schedule 25.0 (covering maternity, child care, medical services and aged persons) and schedule 25.2 (covering education). In this paper, we use data from Schedule 25.2, which was designed to collect information on the participation of young individuals in the formal education system, their expenditure on such education as well as the outcomes of such involvement in terms of their performance within educational institutions.

In addition, we also use data from the 50th Round of the NSS, undertaken in 1991-2, to estimate returns to education by gender and state. The 1995/6 data was not used for this purpose for two reasons. First, it is likely that people’s perceptions of returns to
education occur with a lag rather than contemporaneously. Second, Schedule 25.2 does not separate out the wages of individuals within households. It only gives overall household expenditure information.

Insert Table 1 here

Table 1 provides a summary of the kinds of expenditure undertaken by households with children (5-14 year olds) in education. There is some expenditure on education for 51,999 children in our sample, of whom 32478 are boys and 19521 are girls. Thus, there is no expenditure on education for almost half of our sample of children (46,971 children). In addition, households seem to spend more, on average, on the education of boys (Rs.730.58 per annum) than on the education of girls (Rs.621.04 per annum). The table also indicates that while there is no significant difference in the age at which boys and girls start school (5.76 years and 5.68 years respectively), boys on average study for 5.54 years while girls only study for 4.88 years. It is clearly true that tuition fees are paid for only a small subset of the children. But, the difference across boys and girls in these expenditures is stark. Thus, while tuition fees are paid for 5348 boys, they are only paid for 2423 girls. Similarly, while 3522 boys incur transport costs, only 530 girls do so. Thus, boys seem more likely to study even if they have to travel further or alternatively, their parents may send them to schools further away from home because they are better. Finally, 5043 boys and 2612 girls benefit from private tuition.

Insert Table 2 here

Table 2 indicates the types of schools attended by children within our sample. Thus, a majority (40%) of children attend government school while 3.5% attend local schools, 6.2% attend private aided schools and 3.02% attend private schools. Again, a higher proportion of boys than girls attend each of these types of schools, with 46% of boys
attending government schools and only 33% of girls and 7.3% of boys and 4.9% of girls attending private aided schools.

Insert Table 3 here

Table 3 indicates that approximately 9% of children received a scholarship and of the total number of girls answering this question, 7.61% of girls received a scholarship, while 9.65% of boys received one. Education was free for 79% of children (82% of girls and 77% of boys) answering this question, while free lunch was available for 22% of girls and for 17% of boys. What is, of course, not clear from these figures is whether the pro-girl bias is because government policy targets girls or because parents are more likely to send girls to schools where education is free or which serve free lunch while boys go to better schools. 38% of girls travel to school on foot, while 49% of boys do the same and a very small proportion of children (less than 1%) travel by school bus and about 3.6% travel by public transport, again with more boys than girls doing so.

Insert Table 4 here

Analysing the reasons why children may not attend school, we find that more girls than boys do not attend school when their parents are not interested in studies, there is no tradition of education in their households, there are no schooling facilities or when the child is required to attend to domestic chores. More boys are likely not to attend school because they are not interested in studies or they are unable to cope with it or because they are required to work in economically productive activities. Financial constraints affect both sexes though they affect girls marginally more.

Insert Table 5 here

It is clear that household expenditure varies considerably across states (see Table 5). Thus, there is a high of Rs.2122.5 per annum being spent on education by households in Delhi and a low of Rs.282.74 in Lakshdweep. Amongst the states, households in
Karnataka on average spend the least (Rs.407.45 per annum), while those in Nagaland spend the most (Rs.1844 per annum). Households seem to spend more on girls only in Arunachal Pradesh, Kerala, Mizoram and Andaman and Nicobar Islands. In all other states, less is spent on girls than boys. The largest absolute difference is in the Union Territory of Delhi where Rs.1807 more is spent on boys than on girls. The next largest difference is in the neighbouring state of Haryana. However, normalising this difference by the expenditure on boys, we find it greatest in the states of Andhra Pradesh, Madhya Pradesh, Rajasthan, Uttar Pradesh and Delhi.

III. Methodology

As indicated earlier, in this paper we are concerned largely with the factors influencing the amount that households spend on education. We are particularly interested in the role played by returns to education in determining this expenditure. Given the weight of evidence (both from secondary literature as well as our summary statistics) that some gender bias in education expenditures does exist, we model the expenditure on boys and girls separately. In addition, we have seen that such expenditure varies by state. However, this state level variation masks a number of factors including the prosperity of the state, agricultural intensity of the state, the amount that the state spends on education, the availability of schools within it and so on. To try and consider these factors more explicitly rather than simply subsume them within a state level fixed effect, we estimate the model across states allowing for variation across these factors.

We began by estimating the models using both total expenditure of households on the education of each child (TOTEXP) and the share of this education expenditure out of the household’s total expenditure on all goods and services (EDEXPEN). The latter
normalises education expenditure by the size of total household expenditure and therefore is usually considered to be more appropriate. We found that all our results (except the coefficient of the income variable) were very similar using both dependant variables. In the rest of this paper, therefore, we present the results only for the share of household expenditure on education.

As we saw earlier, Tilak (2002) found that the amount spent by households varied by the level of education being acquired. Thus, while average expenditure on a child acquiring primary education is Rs.341, it increases to Rs.474 for upper primary education. Since it is likely that the constraints faced by the household as well as the opportunities and constraints facing children will vary by stage of education, we estimate our model separately for primary and secondary schooling categories. It is possible, for instance, that at secondary school level boys may be able to engage in paid work and this may decrease their enrolment in school. On the other hand, distance travelled to secondary school tends to be higher as there are fewer such schools in the country. This is likely to increase travel costs. In addition, it is possible that education is emphasised at secondary school level so that the costs of books and tuition increase. Similarly, it is possible that at secondary school level, girls are withdrawn from school either to help with household chores or because education is considered useless or wasteful for them. We therefore