PARENTAL ASPIRATIONS AND SCHOOLING INVESTMENT:
A Case of Rural Punjab, Pakistan

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Human capital accumulation is closely related to development indicators, such as, socioeconomic status and workers' productivity. The study aims to assess the impact of difference in aspirations between communities on schooling investment, instrumented by arrival of a factory. The study uses the dataset of 2010-11 of Privatization in Education Research Initiative (PERI), which comprises a sample of children aged 5–14 who are currently enrolled in schools. By applying the Instrumental Variable (IV) analysis, it is found that aspirations motivated by the external factors have a pronounced impact on investment in schooling. Moreover, impact on investment is channeled into expenditures rather than the private schools enrolment.

I. Introduction

Human capital accumulation is a key indicator in development process and is closely related to other development indicators, such as, socioeconomic status and workers' productivity [Becker (1994)]. The growth of human capital in Pakistan has been comparatively slow; the country's gross enrolment ratio at primary, secondary, and tertiary levels (in 2013) was 92, 38, and 10 per cent, respectively - the lowest among South Asian countries with a comparable per capita income [World Development Indicators {WDI}, (2013)].

One of the reasons for these low enrolment rates is the less public expenditure on education. Government expenditure on education remained stagnant at 2.5 per cent of the gross domestic product (GDP) since 2008-09 [WDI (2013)]. Another reason is the persistent pro-male bias in gross enrolment rates at primary level, which was 60 per cent for males and 52 per cent for females in 2013-14 [Government of Pakistan (GOP), (2015)]. This bias in human capital investment is supplemented by earning differential across gender. Female share of wage employment in industrial sector was a meager 14 per cent in 2014 as a per cent of total female employment, as compared to male (26 per cent), which tends to perpetuate the pro-male bias [World Development Indicators (WDI), (2014)].

The pro-male bias reflected in earning potential of males, play a vital role in shaping schooling investment decisions. In light of this pro-male bias, parents form

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aspirations for their children's educational outcomes and optimize their level of investment, according to these outcomes. Recent studies have substantiated that given the existing and newly available employment opportunities, parents will invest in their children's education with a view to reap future return on these opportunities [Jensen (2012); Heath and Mobarak (2011)].

The aim of this study is to assess the impact of newly available employment opportunities (in this case, the arrival of a factory) on parents' investment behavior (through their aspirations). The study uses two econometric specifications: the IV Probit and the Two-Stage Least Squares (TSLS) approach. Our empirical analysis of child, household, and school characteristics draws on the Privatization in Education Research Initiative (PERI) dataset,[1] in rural Punjab.

By applying exogenous variations as an instrument it is found that parents desire that their children should be given a reasonable level of education which should play a major role in shaping their investment behavior. Thus, parental aspirations motivated by external factors have a pronounced impact on investment in schooling. Moreover, the impact on investment is channeled into expenditure rather than the choice of school. This may either be due to household children attending similar type of school or because they may have switched to some other school, i.e., private schools versus other private schools; or public schools versus other public schools; regardless the parents may spend more on their children schooling or at least on schooling inputs.

The study also proves that there is a gender bias in intra-household resource allocation, as positive and significant relationship exist between the parental aspiration and total expenditure on schooling of boys, i.e., parents invest more on boys whereas there are no such means for girls. However, it is interesting to note that employment opportunities increase parental aspirations for both, girls as well as for boys, but however, this does not create positive atmosphere for girls.

After the introduction, Section II provides an overview of the literature on parental aspirations and investment decisions. Section III provides the theoretical framework of the study, while Section IV outlines the methodology and data. Section V presents empirical results, whereas, Section VI concludes the study.

II. Literature Review

Intra-household allocation of resources on human capital indicates that households invest a substantial amount of their earnings to provide a good-quality of education to their children. The literature identifies the causal mechanisms that drive human capital investment which is classified as:

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[1] One of the reasons for limited research on this subject in Pakistan, is the lack of data on parental aspirations. The PERI dataset helped to address this gap.

i)   studies that consider supply-side factors, such as, the availability of schools and teachers in the area, and

ii) studies that examines demand-side factors, such as, labor market opportunities which determine human capital investment decisions.

Parental aspirations are found to drive human capital investment decisions in several ways. According to the investment motive hypothesis, resources are allocated among household members according to their expected returns in labor market. This is because households face a budget constraint and credit market issues in developing countries, which make allocation to human capital more difficult [Becker (1994)]. If a household choose to invest in child's education it would reflect parents expectations for their child's future labor market returns. These expectations then shape parents' aspirations such as the level of education they can vision for their child. They also lead to further classifications by gender because later in life, boys are perceived to enter (and better) labor market opportunities. Emerson and Souza (2007), Aslam and Kingdon (2008), and Chaudhuri and Roy (2006) add to the idea that parental investment decisions reflect different labor market returns for boys. They will optimize the level of schooling and subsequently investment in it on the basis of expected returns to each gender. In the recent literature, Attanasio and Kaufmann (2010) also argued that parents expect return and perceive probability of employment of their children; who are very important to them when making schooling decisions, especially the boys and not necessarily the girls. This is because boys are considered to be future bread earners of households while girls are perceived to get married and leave their fathers' home. This association between gender and future returns explains the gender bias in household resource allocation [Attanasio and Kaufmann (2011)].

The human capital investment decisions are often the consequence of a localized economic shock, such as the establishment of a new factory in a locality. This leads parents to anticipate better future employment opportunities for their children and act as a catalyst for schooling investment decisions. Foster and Rosenzweig (1996) found that for know-how of information and technology, educated individuals have advantage over the uneducated individuals. The former enjoyed higher returns to schooling because educated individuals are found to adopt information technology, more easily in comparison to the uneducated people. As a result, this does not only increase the primary schooling, but expect return increase at a higher rate in areas which are economically more advanced. Given the surge in expected returns, parents started investing more in education which resulted in greater demand for schools and hence availability of schools also increased in India, during the Green Revolution [Foster and Rosenzweig, (1996)].

Moreover, it was also found that the shift toward ITES led to an increase in primary schooling because information technology (IT) sector grew more rapidly in areas where English was more widely spoken [Oster and Steinberg (2013)]. Districts which were more globalized in IT service sector had more elastic supply of English

language as human capital because this type of human capital was more relevant to IT service exports, in India [Shastry (2012)]. In turn, these areas experienced increased school enrolment due to increase in demand for people who were well versed in English language.

By comparing villages within proximity of a garment factory with other villages, Heath and Mobarak (2011) also found that exogenous economic changes do have an impact on investment in education, in Bangladesh. The results for this study suggest that better employment opportunities became available for those with better understanding and writing skills. Since garment industry required educated females for employment, parents were more inclined to enroll their daughters in school. The study observed positive effects on the enrolment of younger girls. Exploring this idea, Jensen (2012) further conducted a randomized controlled trial in which government intervention aimed to provide business process outsourcing recruit service to teenage girls from randomly selected rural villages in India. The intervention was designed to create awareness of new employment opportunities, as well as, an access to opportunities. As a result of intervention, the study found that girls were more likely to be enrolled in school, as they could exploit future benefits of education [Jensen (2012)].

Further, the economic opportunities also impact the human capital investment indirectly, via social network. Parents tend to expect that better social network will give their children a greater chance of obtaining better-paid jobs in future, either traditional or non-traditional. However, Munshi and Rosenzweig (2006) found that social network leads to specific educational choice for boys and girls. Boys do have access to traditional low-return jobs through social networks, while girls have just entered the labor force through non-traditional jobs. This is because such jobs require better-educated workers, and consequently, lead to different schooling decisions for girl; whereas, boys depend more on social network for jobs. Thus, availability of opportunities has a positive impact on schooling for girls, instead of social network [Munshi and Rosenzweig (2006)].

Attanasio and Kaufmann (2009) examined the parental aspirations and employment risk perceptions based on the data from Oportunidades[2] program in Mexico (a conditional cash transfer program that provides grants to randomly selected young people during the last three years of their high school education). The authors attempt to determine whether parents or children have greater control over the latter education. They found that expected monetary return and parental risk perceptions of employment are potential determinants of schooling for junior and high school students. Moreover, schooling decisions are motivated by parental aspirations, but the decision to attend college depends on adolescents' own aspirations [Attanasio and Kaufmann (2009)].

Some studies have found that there is a significant relationship between the parental aspirations and schooling of children [Chiapa, et al. (2012), Zhang, et al. (2007), Galab, et al. (2013)]. In particular, Galab, et al. (2013) extended the idea of as-

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[2] Mexico's main anti-poverty program.

pirations and investment in education in a study based on quantitative and qualitative data (collected by Young Lives) on children in India. They found that parental aspirations have a profound impact on investment outcome future for children in Andhra Pradesh, India. Parents' aspirations induce them to send their children to private schools because education is seen as a key to success in future [Galab, et al. (2013)]. However, the literature provides contrary evidences on the arrival of economic opportunities. Using Mexican census data collected by the National Institute of Statistics, Geography and Informatics, Atkins (2012) found that arrival of the export manufacturing jobs in the sample municipalities resulted in higher dropout rates among children in secondary schools, rather than the enrollment. This was because the export manufacturing firms attracted low-skilled child workers at high wages which rather than inducing investment in schooling, led children to drop out from schools.

These studies show that parental aspirations for their children earning potential are determined by the availability of new economic opportunities. When parents learn of the existence of future economic opportunities or their children potential for academic success, they are likely to form aspirations for their children employment prospects. This, in turn, motivates parents to enroll their children in a school that will provide a good-quality education and help them to secure a better job in future.

Although, some studies have directly estimated the impact of parental aspirations on investment for same countries like Bangladesh, India, and Mexico; very few empirical studies have focused on Pakistan. The present study addresses the gap between human capital investment behavior and higher return to education, by incorporating the parental aspirations factor.

III. Theoretical Framework

Under the theory of rational choice [Becker (1994)], parents are rational agents who tend to maximize their utility. They rationally invest in a particular school that can help their child to secure better employment opportunities in future and maximize the future returns. In this maximization problem, parental aspirations play a significant role in bridging the gap between employment prospects and investment in schooling. Aspirations are defined as a function of expectations concerning potential returns and other factors. It includes the value which parents place on education and the social norms, governing education of boys and girls.

Parental aspirations are motivated by availability of new economic opportunities. These aspirations translate schooling investment when parents perceive that a child who is enrolled in a relatively good school has a better chance of getting a well-paid job. Consequently, aspirations functions as an intermediary channel, while most other studies have considered a reduced form of the impact of aspirations (i.e., insofar as economic opportunities affect investment in schooling), this paper incorporate parents' aspirations directly in the model of this study.

IV. Methodology and Data

1. *Methodology*

A simple model of the impact of parental aspirations on investment in schooling is:

$$InvS_{cij} = \beta_0 + \beta_1\ Parasp_{cij} + \beta_2\ C_{cij} + \beta_3\ H_{ij} + \beta_4\ S_j + \varepsilon_{cij} \qquad (1)$$

$InvS_c$ is the investment decision that parents make concerning their child's (c) schooling. In order to estimate the causal mechanism, InvSc is expressed in two forms: (i) private school enrolment[3] and, (ii) total expenditure incurred on child's schooling.[4] $Parasp_{cij}$ represents parents' aspiration for child's (c) education. Since parental aspiration is a qualitative measure and true value does not exist, therefore, a derived measurement is used. The variable is quantified by asking parents as to which class or grade they would like to see their child to be admitted [Meng (2009)]. This ranges from zero to 16, where zero represents preschool and 16 is for a postgraduate degree. For estimation purpose, it is a continuous variable.

C_c is a vector of child characteristics (age, gender, number of older siblings,[5] capability of the child)[6] where c denotes the child, H_i is a vector of household characteristics (father's education, mother's education, wealth index,[7] household income,[8] mother's income)[9] where i is the household, and S_j is a vector of characteristics of a public and private school j (teachers' qualifications, the medium of instruction, infrastructure, and safety measures). Table 1 shows the variables which determine investment in human capital categorized as: (i) private schools enrolment, and (ii) total expenditure on schooling.

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[3] Alderman, et al. (2001).

[4] In developing countries investment decisions are subject to budget constraint. Therefore, investing a substantial amount of money in schooling of children reflects the parents decisions making, subject to their family budget constraint.

[5] Behrman and Taubman (1986), Kantarevic and Mechoulan (2006), Powell and Steelman (1995).

[6] Parents make decision to invest on perception of their child's ability. If a child is hardworking and intelligent; parents would be concerned about THE school in which he/she goes, and also the quality of education being offered in that school. Therefore, child's potential is fully utilize. Variance Inflation Factor calculation between aspirations and capability are given to ensure that there is no multi-collinearity (see, Appendix, Table A-2).

[7] Wealth Index, Private School Index and Public School Index are created by using the Principle Component Analysis (PCA). PCA creates uncorrelated indices or components where each component is a linear weighted combination of the initial variables.

[8] If income of a household is not taken into account in the specifications, it will confound the relationship between parents' aspirations and investment. Specifications will be subject to the omitted variable bias and it may be the case that arrival of new factories would provide better economic opportunities for parents. This can lead to high income earned by households and hence, more income would be available for investment in child's education. Validity of the instrument is ensured by adding household income, mothers' income, and wealth, as a control.

[9] Mothers' income is included to address the issue of her bargaining power in making investment decisions, such as, educating her children. This variable is quantitative because mothers' employment in rural areas is usually unpaid and their employment status does not ensure the bargaining power. This variable is added to ensure the validity of instrument.

TABLE 1

Variables and Description

Variables	Description
Outcome Variable	
Private School Enrolment	One, if the child is enrolled in Private School and zero otherwise.
Total Expenditure on Schooling	Sum of monthly expenditure on tuition fees, admission fee, examination fee, uniforms, shoes, books, funds and donation, private tuition, and transport, in rupees.
Variable of Interest	
Parental Aspirations	Maximum class in which parents wish their children to study.
Explanatory Variables	
Age	Age of the child, in years.
Gender	One, if male and zero otherwise.
Number of Older Siblings	Total number of older siblings of a child, currently attending school.
Capability*	Parents perception of childs intelligency (ranking).
Father's Education	Level of education of father, in years.
Mother's Education	Level of education of mother, in years.
Household Income	Total monthly household income, in rupees.
Mother's Income	Mother's total monthly income, in rupees.
Wealth Index*	Index created using number of items owned by household, dwelling type, number of rooms, utilities, access to water.
Public School Characteristics Index*	Index created using teacher's qualification, medium of instruction, school building characteristics, security of the school.
Private School Characteristics Index*	Index created using teacher's qualification, medium of instruction, school building characteristics, security of the school.

*variables construction are given in the Appendix, Table A-1.

Regressions were run for seven districts of the rural Punjab (Bahawalpur, Chakwal, Hafizabad, Faisalabad, Nankana Sahib, Khanewal, and Jhang)[10] and the esults were adjusted for heteroskedasticity of unknown form by using robust standard errors at the cluster level.

A potential problem associated with Equation (1) is that aspirations can be endogenous and there may be reverse causality between parental aspirations and investment in schooling. Choosing a high-quality school will lead parents to formulate aspirations, as far as their child's earning potential is concerned because they associate academic success with success in the labor market. Thus, this channel introduces reverse causality, leading to simultaneity bias. Moreover, aspirations may also be endogenous if correlated with other unobserved factors (e.g., culture and family background of a child, unobserved abilities, etc.,) related to educational investment. To correct these problems the IV approach is used. Ideally, the instrument should contain covariates that have strong explanatory power for the specific endogenous variable but no correlation with ε, i.e., cov $(X_i, Z_i) \neq 0$ and cov $(\varepsilon, Z_i) = 0$.

The International Labour Organization's (ILO 1973) study sets the minimum age of employment at 15 years, which implies that firms can hire workers who have attained, at least, a primary level of schooling in countries like Pakistan, 'where the economy and educational facilities are insufficiently developed'. It also implies that children who acquire some level of education are more likely to find employment in a factory [ILO (1973)]. Hence, presence of a nearby factory will be strongly correlated with parents' aspirations for their child. This instrument does not affect human capital investment through any channel, other than the aspirations because presence of a factory in a region will influence decision to invest only when parents have formed aspirations for their child's education.

Having dealt with endogeneity issues discussed above, Equation (1) is re-estimated, using the number of factories located within a five-kilometer radius, as a variable to instrument for parental aspirations.

In the first stage, this yields,

$$Parasp_{cij} = \beta_0 + \beta_1 \, Factories_j + \beta_2 \, C_{cij} + \beta_3 \, H_{ij} + \beta_4 \, S_j + \varepsilon_{cij} \qquad (2)$$

The second stage yields,

$$InvS_{cij} = \beta_0 + \beta_1 \, \widehat{Parasp}_{cij} + \beta_2 \, C_{cij} + \beta_3 \, H_{ij} + \beta_4 \, S_j + \varepsilon_{cij} \qquad (3)$$

$\widehat{Parasp}_{cij}$ represents the fitted values of parental aspirations from the first-stage regression. Factoriesj is an instrument representing the change in number of factories located within a five-kilometer radius.

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[10] To ensure the validity of instrument, district dummies were included in the study.

2. *Data Sources*

The PERI dataset used in this study was generated by a survey in April 2011 conducted by the Lahore School of Economics in collaboration with the Punjab Bureau of Statistics. The survey spanned over seven rural districts in Punjab (Bahawalpur, Chakwal, Hafizabad, Faisalabad, Nankana Sahib, Khanewal, and Jhang). A total of 1,024 households were surveyed in 64 clusters spread across eight tehsils (administrative sub-units) in these districts. The dataset include information on household characteristics (location, age, gender, employment status, education level attained, and earnings), community and individual characteristics, and the parental perceptions of schooling.

The rationale for selecting this dataset was to provide comprehensive and recent information on parental aspirations and investment in schooling. Along-with the child and household-level characteristics, necessary for analysis, the dataset includes a module on parental aspirations which provides detailed information on parents' perception corresponding to each child in the household. Moreover, for parents' aspirations, this study uses the change in number of factories located within five-kilometer radius as an instrument. In order to create instrument, Google Maps and data from the Directory of Industries Dataset (2006–2010) was used to obtain GPS coordinates for factories in proximity to sample households. Since the PERI survey data includes the GPS coordinates of all households, it was possible to generate a variable representing distance between households and all factories, within a five-kilometers radius for 2006 to 2010.

TABLE 2

Descriptive Statistics

Variables	Total Sample	Standard Deviations	Male	Standard Deviations	Female	Standard Deviations
Outcome variable						
Private school enrolment	6%	0.44	25%	0.43	28%	0.45
Total expenditure on schooling	Rs.228.71	441.24	Rs.236.97	502.99	Rs.218.84	353.89
Focus Variables						
Parental aspirations	2.73	3.8	13.4	3.77	11.93	3.68
Control Variables						
Age	9.38 years	2.73	9.41 years	2.71	9.34 years	2.76
Gender	54%	0.5				
Number of older siblings	1.92	1.91	1.97	1.9	1.85	1.91
Capability	2.25	0.53	2.23	0.52	2.26	0.54
Father's education	4.24 years	4.53	4.04 years	4.49	4.49 years	4.56
Mother's education	1.66 years	3.2	1.71 years	3.24	1.59 years	3.16
Household income	Rs. 33.03	139.86	Rs. 33.95	160.5	Rs. 31.92	110.4
Mother's income	Rs. 1.53	15.6	Rs. 1.61	15.91	Rs. 1.43	15.24

The total sample of children in the PERI Dataset is 1,870 (age 3 to 18 years), from whom 1,190 are currently enrolled in school and 680 are not enrolled. The sample study comprises of 931 children aged 5–14 years (inclusive) who are currently enrolled in schools. The reason for choosing this particular age bracket is that a child must be five years of age for admission to school.

The descriptive statistics show that on an average, parents wish their children to complete the high school (12 years of schooling). However, it is worth noting that this desired level of education is higher than one might expect, partly because sample of this study includes only those parents whose children are currently enrolled in school. Moreover, it can be observed that parental expectations differ for gender. Parents desire a higher level of schooling for male children (13 years of schooling) as compared to females (11 years of schooling).

Further, around 26 per cent of children in the sample are enrolled in private schools, whereas the rest of them are enrolled in public or other schools. Of the male children, 25 per cent of males and 28 per cent of females are enrolled in private school. Although, parents desire a higher level of education for boys but they prefer to send girls to private schools, rather than the public schools. Therefore, the average expenditure on schooling was Rs.228/= per month per child but there is a difference of opinion for gender, as far as the expenditures are concerned. On an average, parents spend (Rs.237/=) more on boys but less) Rs.218/=) on girls. The data also highlights that 54 per cent of all children who are currently enrolled are male; implying that investment in human capital in rural Punjab is gender biased.

V. Empirical Results

In order to examine the relationship between parental aspirations and schooling investment decisions, the coefficient of instrument (change in the number of factories within five-kilometer radius) is used. This instrument has strong explanatory power for specific endogenous variable but it is not correlated with error term. With the arrival of new factories in the region, parents are likely to aspire for a higher level of schooling for their children (for better chance of childrens' future employment). This exogenous change can have a profound effect on parents' desired level of education for their children. The Angrist-Pischke test[11] yields an F-statistic of 23.81, is Applied. Thus, it shows that the instrument is informative and has sufficient explanatory power.

The validity of instrument is determined by applying the Hansen-Sargan test for overidentifying restrictions to the instrument and its square. The null hypothesis that all IVs are not correlated with structural error term which is not rejected; thus supporting the validity of the IVs. The first stage results (reported in Appendices, Table A-3) indicate that parents' aspiration is motivated by the arrival of new factories in the region. This exogenous change/increase the existing pool of economic opportunities

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[11] The test for the first stage regression is reported in the Appendix, Table A-4.

and the likelihood of finding a well-paid job. Parents are more likely to desire 0.0678 additional years of schooling for their children. However, parental aspirations for male children are different in comparison to female children. Parents generally perceive boys as greater earning potential than girls and may choose to provide their sons with better quality of schooling than their daughters (even if they want their girls to attain a better level of education) [Woodhead, et al. (2013), Ota and Moffatt (2007)].

In our culture, sons are seen as future bread earners - parents may perceive that investing in sons education will lead to better employment opportunities in future and augment household's income. This is especially the case if new economic opportunities which are geared toward males, rather than females [Meng (2009), Igei and Yuki (2015), Chaudhuri and Roy (2006)]. Moreover, daughters are perceived to get married relatively at early age and become part of their husbands' household. Parents may therefore be, less inclined to invest in their daughters' schooling because the returns would most likely be to accrue another household. Sons on the other hand, often continue to live with their parents even after marriage and are expected to take care for parents in their old age. Additionally, the custom of providing dowry to girls often imposes a financial burden on parents, who may then opt to save for their daughters' dowry and marriage rather than spend on their education [Lahiri and Self (2004)].

Moreover, it was also found that income control (household income and wealth index) is positively related to parental aspirations with the exception of mothers' income. If mothers' income increases, parental aspirations fall because working women in rural areas usually prefer that some of her children (mostly females) stay back at home to do the household chores when she is on work. Since income of the household shapes-up aspirations, therefore, this income constraint is relaxed, if mother is working. Thus, in such cases, parents do not desire their children to acquire more education even to get better jobs. This implies that income plays an important role in shaping-up the parental aspirations. The second stage uses the predicted values of endogeneous variable (obtained from the first stage as the regressor, along with other exogenous) covariates to determine the impact of parental aspirations on human capital investment in rural Punjab. Table A-3 (Appendix) reports the second-stage estimations of instrumental variable analysis, using private school enrollment as dependent variable. This resolves the endogeneity stemming from the reverse causality between parents' aspirations and investment in schooling. The marginal effects for the IVs Probit estimations are reported in Table A-5 (Appendix). These probability derivatives highlight the effect of a unit change in independent variables on dependent variables keeping all other factors constant.

The result shows that there is no significant relationship between the parental aspirations and private schools enrolment. If it is assumed that parental aspirations affect investment in schooling, then this effect is not larger than the probability of 8.37 per cent for private schools enrolment (at 95 per cent confidence level). Children seems to remain in the same school or move to other school of the same level (private to private or public to public).

TABLE 3

Second-stage Regression for Investment in Schooling

Explanatory variables	Private school enrolment	
	Probit	IV Probit
Individual Characteristics		
Parents' desired number of	0.0430***	0.0837
schooling years for child	(0.0163)	(0.117)
Age	0.146	0.146
	(0.122)	(0.123)
Age squared	-0.01	-0.0101
	(0.00627)	(0.00629)
Gender	-0.101	-0.166
	(0.1)	(0.211)
Number of older siblings	-0.0267	-0.0179
	(0.0317)	(0.0423)
Capability	0.226**	0.212**
	(0.0902)	(0.0974)
Household characteristics		
Father's education	0.021	0.0183
	(0.0142)	(0.0169)
Mother's education	0.0283	0.0224
	(0.0226)	(0.0274)
Wealth index	0.126***	0.114**
	(0.037)	(0.0561)
Household income	0.000561	0.0005
	(0.000461)	(0.000476)
Mother's income	-0.00000909	0.000338
	(0.00341)	(0.00351)
Community characteristics		
Index for public school characteristics	0.0283	0.0398
	(0.0702)	(0.0659)
Index for private school characteristics	0.0246	0.0242
	(0.0964)	(0.0971)
Constant	-2.374***	-2.803**
	(0.645)	(1.34)
District dummies	Yes	Yes
Number of observations	931	931

Note: Clustered standard errors are given in parentheses, below estimates. *significant at 10 per cent,
**significant at 5 per cent, ***significant at 1 per cent.

This can be accounted by assuming that parental aspirations are associated with different levels of education. Previous studies have shown that parental aspirations have a significant impact at higher level of education, like a college or university. Child's age is more intrinsic, motivation is required at higher level of education as parents have higher aspirations in the later years, as compared to early years of schooling [Meng (2009), Woodhead, et al. (2013)]. Literature under review also shows that parents who desire their children to reach the university level education are more likely to enroll their children in a private school in comparison to those parents who only wish their children to be educated till the primary level [Woodhead, et al. (2013)]. In the sample of this study, parents have an average desire that their children should have matric or intermediate education. Thus, it explains the insignificant impact of aspirations on private school enrolment.

Moreover, since IV is the arrival of new factories, it will capture only the local average treatment effect of the availability of economic opportunities. Those households affected by arrival of new factories may not be the same set of households who chose between private or public schools. This is the reason as to why no relationship was found between the parental aspirations and the private school enrolment. In addition, despite the shrinking gap between the fees structure of public and private schools [Andrabi, et al. (2007), Woodhead, et al. (2013)], there was no relationship between aspirations and private schools enrolment because there was a trade-off between the quality and quantity of education. Parents may prefer their children to complete more years of schooling at an average or low-quality school (public school) than fewer years at a high-quality school (private school). This could be because they want to expand both margins or choose to invest in schooling quality at this stage to ensure that a child progresses to the next grade.

Apart from the demand-side factors, supply-side factors can also account for this finding. Research shows that in determining choice of school and distance to the school, play a substantial role [Andrabi, et al. (2007), Woodhead, et al. (2013)]. If the nearest private school is located far from the public school, parents are more likely to opt for the latter. Private schools are usually located in clusters of main settlements of villages/cities/towns where rich or literate people reside, whereas, public schools are located both in the main areas, as well as, in suburbs [Andrabi, et al. (2007)]. Hence, access to private schools becomes a concern for parents who wish to enroll their children in a school.

Besides aspirations, parents' perception of child's intelligence was found to have a significant impact on private schools enrollment. This implies that parents who ranked their child's intelligence as high, are more likely to enroll their children in private school because they attribute this intelligence to performing well on academic assessments [Andrabi, et al. (2007)]. Moreover, wealth was also found to be positively correlated with private schools enrolment. Wealthier households were more likely to enroll their children in a private school, either because they live in a wealthier neighborhood where there are more private schools or they are willing to spend more.

TABLE 4

Second-stage Regression for Investment in Schooling

Explanatory variables	Total expenditure on schooling	
	OLS	TSLS
Individual characteristics		
Parents' desired number of schooling years for child	8.191**	82.81**
	-3.115	-37.46
Age	15.03	17.23
	-31.96	-38.37
Age squared	-0.0354	-0.313
	-1.601	-1.997
Gender	19.92	-99.98
	-21.8	-69.07
Number of older siblings	-13.3	2.329
	-8.269	-15.33
Capability	49.18	27.06
	-40.69	-55
Household characteristics		
Father's education	8.066*	3.657
	-4.369	-5.965
Mother's education	28.38***	18.48*
	-9.124	-10.56
Wealth index	20.06***	1.29
	-7.042	-14.61
Household income	0.193*	0.094
	-0.0993	-0.111
Mother's income	1.567	2.199
	-1.907	-1.81
Community characteristics		
Index for public school characteristics	14.57	35.99*
	-19.36	-19.03
Index for private school characteristics	-21.81	-20.65
	-17.79	-19.54
Constant	213.9	-1035.7**
	-179.8	-463.5
District dummies	Yes	Yes
Number of observations	931	931

Notes: Clustered standard errors are given in parentheses below estimates. *significant at 10 per cent,
**significant at 5 per cent, ***significant at 1 per cent.

Investment in schooling could also be motivated by other factors, such as the cost of schooling inputs (tuition fee, uniforms, and books) or the choice between relatively the cheaper or expensive schools, rather than by school choice. Table 4 reports the second-stage estimations of the instrumental variable analysis, using total expenditure on schooling as the dependent variable. The coefficient of parental aspirations for total expenditure on schooling is positive and significant. Parents who wish their children to complete a higher level of education are likely to incur higher expenditures on schooling-even without necessarily enrolling them in a private school. Past literature supports the finding that mostly parents spend a substantial amount of money on their children education irrespective of whether a child is enrolled in public or private school. Majority of the schooling expenses include cost of uniform and pocket money [Aslam and Kingdon (2008), Andrabi, et al. (2007)].

Moreover, from the descriptive statistics it can be observed that, on an average household income varies with wide margin between the two categories, 33.95 and 31.92 for male and female children, respectively, with lower standard deviation for the latter (160.5 for males and 110.4 for females). This implies that on an average more household income is available to be spent for male education as compared to that of females. Moreover, according to LEAPS study [Andrabi, et al. (2007)], it is a popular belief that households do not have money to spend on education but still they have to bear Rs.155/= every month if a child is enrolled in public school and Rs.231/= if a child is enrolled in a private school. This explains that parents do incur high expenses on educating their children.

Further, the result shows that there is a positive and significant relationship between mother's education and total expenditure on schooling. Educated mothers are likely to spend Rs.18/= more on schooling of her children than the uneducated mothers. This implies that children whose mothers are less educated are likely to experience more educational inequality as compared to those who have educated mothers. Educated mothers give importance to education and consider it a worthwhile investmentm therefore, they spend more on education. In addition, public schools characteristics have a considerable impact on schooling expenditure. If quality of public schools is high, parents spend Rs.36/= more on schooling; despite having the same level of characteristics. On an average, parents are willing to spend more because public schools have qualified staff with experienced teachers. However, public schools still underperform in terms of child's learning. There is not only a large learning gap between public and private schools but there is also a wide gap between the top and bottom level of public schools [Andrabi, et al. (2007)]. Hence, on an average public schools are better equipped but lack in the provision of quality education. Descriptive statistics indicate that around 74 per cent children are enrolled in public schools and that is why for parents, public schools characteristics are of more relevance to induce higher educational spending.

To sum up the study, the findings show that parents' desire for a high level of schooling for their children is based on their perceptions of child's future earning potential (as the return to their investment in her/his education). According to the literature, parents'

aspirations are on the basis of employment opportunities available in their vicinity. The second aspect of findings is that higher parental aspirations are associated with higher expenditure on schooling, but not necessarily with a preference for private school enrolment. Demand-side (university aspirations and quantity-quality trade-off) and supply-side factors (access to schools) may determine the level of investment in schooling. Finally, the results also show that, although the arrival of new factories does have an impact on parental aspirations for male children, this does not necessarily translate into higher investment in their schooling. Households that face a budget constraint will allocate resources accordingly, to maximize their future benefits.[12] However, the study is also subject to limitations, due to lack of data. These limitations were kept in mind when running the regressions.[13]

VI. Conclusion

The results of this study indicate that parental aspirations are influenced by the arrival of new factories in the region - an exogenous change that increases the existing pool of economic opportunities which is likely to drive higher aspirations for children's education. There is a noteworthy relationship between parents' aspirations and their total expenditure on schooling of their children. Parents with higher aspirations are likely to invest more on their children schooling, irrespective of their enrollment in a private or public school. This reflects parents' motivation to spend more on their children educaiton so that they can acquire better eduction.

However, when the choice of school is taken into account our finding contradicts the literature and show no significant relationship between the parental aspirations and the private schools enrolment. Children, either remain in the same school or switch over to similar schools (i.e., between private/public schools or any other type of school). Regardless of the type of school, parents incur higher expenditure on their child's schooling or inputs of schooling. Apart from the demand-side (university aspirations and quantity-quality trade-off), the supply-side factors (access to schools) may be an important determinant of investment in schooling. Results also show that, although the arrival of new factories does have an impact on parental aspirations for male children, this does not necessarily translate into higher investment in their schooling.

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[12] Regressions using data on: (i) children whose parents are not employed in the private sector, (ii) children currently enrolled in schools with age 5–10 years, (iii) child labor as endogenous variable, (iv) the log of expenditure as dependent variable, and (v) different dependent variables (such as English as medium of instruction) were run as robustness checks and can be obtained from the authors, on request.

[13] First, the Directory of Industries dataset does not specify whether factories are labor or capital-intensive. This limits the analysis because the number of workers who will be hired by either type of factory, will be different; thus, aspirations-investment mechanism would be affected. Second, the analysis is subject to sample selection bias because only those children who were enrolled in schools were taken into account. Third, with the arrival of new economic opportunities, the overall price level in the region also rises because of the new factories demand for input increase. This may also increase the cost of schooling inputs which affects the aspirations-investment mechanism.

The study could be extended to include the university students and determine whether exogenous shocks in the economy are likely to alter parental aspirations and investment allocations. It could also be extended to urban areas to assess if the results are robust or not. Moreover, by looking at a long-run analysis it can be determined that girls go to school for longer years. This would provide an additional dimension to the study, i.e., by examining the notion of 'empty' aspirations where parents are more inclined to invest in the number of years that girls attend school but not in the quality of that schooling.

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APPENDIX

TABLE A-1

Definition of variables

	From	Description	Units
Explanatory variables			
Individual characteristics			
Capability	Continuous	How intelligent is the child in general? 1 below average, 2 = average, 3 = above average.	
Household characteristics			
Wealth index	Continuous	No. of items owned by household during the year: refrigerator, air conditioner, cooker/microwave oven, motorcycle/scooter, sewing/knitting machine, personal computer, bicycle, car/vehicles.	Index
		Dwelling type: 1. Independent house/compound., 2. Apartment/flat., 3. Part of a larger unit., 4. Part of a compound., 5. Others.	
		No. of rooms (including bedrooms and living rooms).	
		Does the household have (i) electricity connection, (ii) gas connection, (iii) a telephone connection? 1. Yes., 2. Yes (extension)., 3. No.	
		What is the main source of drinking water for the household? 1. Piped/tap water., 2. Hand-pump., 3. Motorized pump/ tubewell., 4. Open well., 5. Closed well., 6. Pond., 7. Canal/river/stream., 8. Spring., 9. Other.	
Household characteristics			
Index for public/ private schools characteristics	Continuous	How many teachers in this school have the following qualifications?	Index
		1. Below matriculation., 2. Matriculation., 3. FA/FSc., 4. BA/BSc., 5. MA or above.	
		Medium of Instruction: 1 = Urdu., 2 = English.	
		School building characteristics: 1 = pukka bricks., 2 = kachha bricks/mud., 3 = other (specify).	
		Does the school have the following facilities: 1 = boundary wall/fence. 0 = no boundary wall/fence.	

TABLE A-2

Collinearity Diagnostics

Variable	VIF	SQRT VIF	Tolerance	R-squared
Capability	1.01	1.00	0.9918	0.0082
Parents' aspirations	1.01	1.00	0.9918	0.0082
Mean VIF	1.01			

	Eigen Value	Cond. Index		
1.	2.9137	1.0000		
2.	0.0633	6.7869		
3.	0.0230	11.2483		

Condition number	11.2483			

Eigenvalues and cond. index computed from scaled raw SSCP (with intercept).

Det. (correlation matrix)	00.9918			

Note: The collinearity diagnostic is applied to determine the collinearity between parents' aspirations and their perception of a child's capability. The variance inflation factor (VIF) and tolerance calculates the multicollinearity between variables. A commonly given rule of thumb is that a VIF of 10 or more (equivalently, a tolerance of 0.1 or less) may indicate multicollinearity. Moreover, if the condition number is 15, the multicollinearity is a concern; if it is greater than 30, multicollinearity is a very serious concern. In this model, the VIF is lower than 10, the tolerance is greater than 0.1, and the condition number is less than 15. This indicates that the model is not prone to multicollinearity.

TABLE A-3

First-stage Regression for Investment in Schooling

Explanatory variables	Parental aspirations
	Change in number of factories within 5-km radius
Change in number of Factories within 5-km radius	0.0678***
	(0.0139)
Individual characteristics	
Age	-0.0375
	(0.264)
Age squared	0.00411
	(0.0141)
Gender	1.607***
	(0.311)
Number of older siblings	-0.201**
	(0.0867)
Capability	0.293
	(0.408)
Household characteristics	
Father's education	0.056
	(0.0374)
Mother's education	0.132***
	(0.0493)
Wealth index	0.290***
	(0.078)
Household income	0.00133*
	(0.000666)
Mother's income	-0.00819**
	(0.00341)
Community characteristics	
Index for public school characteristics	-0.392***
	(0.0893)
Index for private school characteristics	0.0476
	(0.144)
Constant	11.11***
	(1.355)
District dummies	Yes
Number of observations	931

Notes: Clustered standard errors are given in parentheses below estimates.
 *Significant at 10 per cent, **significant at 5 per cent, ***significant at 1 percent.

TABLE A-4

First Stage Regression Tests

Tests	
First-stage F-test:	
F-statistic	23.81
Prob. > F	0.00
Hausman Test	
Ho:Variables are exogenous	
Robust regression F (1,63)	0.14
P-value	0.71
Hansen-Sargan Test	
Ho:Instruments are jointly valid	
Sargan (score) chi2 (1)	2.62
P-value	0.11
Basmann chi2 (1)	2.57
P-value	0.11

TABLE A-5

Marginal Effects for Investment in Schooling

Explanatory variables	Private school enrolment	
	Probit	IV Probit
Individual characteristics		
Parents' desired number of years	0.0122309***	0.0837205
of child's education	(0.0047421)	(0.1172678)
Age	0.0416194	0.1460366
	(0.0356004)	(0.122603)
Age squared	-0.0028563	-0.0100965
	(0.001842)	(0.0062933)
Gender	-0.0286046	-0.1657164
	(0.0287268)	(0.2108653)
Number of older siblings	-0.0076084	-0.0178954
	(0.0089528)	(0.0423067)
Capability	0.064396**	0.2118141**
	(0.0255551)	(0.0973849)
Household characteristics		
Father's education	0.0059654	0.0183138
	(0.0040604)	(0.0168733)
Mother's education	0.0080399	0.0224293
	(0.0062825)	(0.0274151)
Wealth index	0.0358257***	0.1141691**
	(0.0102786)	(0.0561349)
Household income	0.0001596	0.0004998
	(0.0001294)	(0.0004763)
Mother's income	-0.00000259	0.0003382
	(0.0009705)	(0.0035063)
Community characteristics		
Index for public school characteristics	0.0080441	0.0397689
	(0.0199449)	(0.065862)
Index for private school characteristics	0.0069869	0.0242024
	(0.0274661)	(0.0970766)
District dummies	Yes	Yes
Observations	931	931

Notes: Clustered standard errors are given in parentheses.
*Significant at 10 per cent, **significant at 5 per cent, ***significant at 1 per cent., WDI.