Physical Education, Health and Social Sciences

https://journal-of-social-education.org E-ISSN: 2958-5996

P-ISSN: 2958-5988

Fortunate Children of Pakistan: Role of Parental Prestige and Technology in Educational Attainment

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DOI: https://doi.org/10.63163/jpehss.v4i1.1055

Abstract

The purpose of this study is to examine how technology and parental status affect Pakistani children's educational attainment. The data used in this study is district wise data and has been taken from Pakistan Social and Living Standard Measurement (PSLM 2019-20). Our dependent variable is children's years of schooling, for parental prestige and technology we have constructed an index using three variables: mother's education level, father's income level, and the wealth of the household. By employing Ordinary Least Square (OLS), we found that parental prestige and technology played important role in all over Pakistan both in rural and urban areas. Moreover, we analyzed males and females separately, male is always in advantageous as compared to females in terms of educational attainment, this can lead to male dominant society of Pakistan. Furthermore, cohort-wise analysis confirmed the fact that parental prestige and technology are important factors affecting educational attainment positively and significantly regardless of any specific time.

Introduction

It is a fact that education plays an important role in the overall development of a country. More skilled people mean more opportunities and less inequality of opportunities in the labor market. It has been a well-documented fact under empirical literature that countries with more productive human capital, which means more educated individuals, tend to grow at a faster rate which means a higher standard of living. This further implies that it is one of the prime determinants of long-term success in the labor market (Raza and Ugur, 2021). It helps people to acquire the right skills which are pivotal to improving the economic situation (Kazmi et al., 2017). It is further argued as a key determinant in assessing the inequality of opportunities in the labor market (Azam and Bhatt, 2015). Research has shown that many factors play their role in getting higher education like the preferences of parents, the incentives given by the government to educated people, the household characteristics, and many other factors.

Several other factors can be equally classified as being a major determinant of educational attainment. Empirical research shows that various factors are responsible for educational attainment and these factors may vary from region to region. Some of the most widely used factors are the education of parents, the demography, sex of the individual, and the economic condition of the household.

The government of Pakistan is very determined to achieve the goal 4 of SDGs which is about the quality of education. According to this goal, the government must give education and skills to all the people without any discrimination. It also directs the government to improve the educational infrastructure and literacy by giving professional education to the teacher (Pakistan Economic Survey 2020-21). Article 25-A of the constitution of Pakistan also emphasizes on provision of education to all children of age five to sixteen years.

Pakistan has got diverse education system, there are public educational institutions, private educational institutions, and religious education institutions which are called Madrasa. People of different socioeconomic statuses choose different educational institutions like people belonging to higher socioeconomic status choose private institutions where better education is offered. Similarly, people of middle socioeconomic status generally send their children to public educational institutions and poor people generally send their children to madrasa.

To better understand the reasons why parents push their children to attain higher years of schooling. We need to understand the human capital theory, the concept of human capital is to invest in humans to make them more productive, by giving them new skills and enhancing the old skills. In the early 1950s, the concept of growth and production was solely on the possession of physical capital land, and labor (Abbasa and Qaisar, 2007).

According to the (UNICF 2020), the number of registered educational institutions in Pakistan are 260,803 are currently functioning in Pakistan. The number of individuals who are currently studying in these institutions is 41,025,645. Out of the total number of registered educational institutions, 70% are public institutes and the remaining are run by private individuals and non-governmental organizations.

Pakistan is a laggard in the region in terms of education, all the neighboring countries except Afghanistan are doing better than Pakistan in terms of education (Naseem, 2019). According to Pakistan Social and living standards measurement survey (2019-20), the literacy rate above 10 years of age is stagnant at 60% since 2014 (PSLM 2019-20). The successive governments in Pakistan have not been able to provide education to all the children. Pakistan has the second largest population of out-of-school children, an estimated 22.8 million children of age 5-16 are not attaining school, constituting 44% of this age group (UNICEF Report 2020). Similarly, at age of 5-9 years 5 million children have never been enrolled in any school in Pakistan. In different parts of the country, especially in rural Sindh and Baluchistan, the number of out of school poor girls is 58% and 78% respectively (UNICEF Education report 2020). There is a nation-wide phenomenon that girls are less educated in Pakistan (Cheema et al., 2018). The prevalence of social issues like increasing crime rates, and inclination toward terrorist outfits is a result of a lack of education among the youth. To indoctrinate the minds of young uneducated people is quite simple than educated young people. Because the number of out-of-school children is more in rural areas especially those areas where there was war, therefore more uneducated people (PSLM Survey 2019-20). The literacy rate in Islamabad is 82% while it is 23% in the Torghar District. The literacy rate also varies when we study males and females separately. For example, in FATA the culture does not allow people to send their daughters to school, therefore female literacy rate is just 9.5% in FATA. While in Azad Jammu & Kashmir the female literacy rate is very high at 74%. Pakistan has a low literacy rate and has the second largest out-of-school population (16.8 million children) after Nigeria (Hunter, 2020).

Pakistan has the best geostrategic location, and it has plenty of natural resources, but because of a lack of professional individuals, it has remained a poor developing country. The lack of education and having a large chunk of children out of school can be attributed to a lot of factors. Some very pertinent reasons are lack of family planning, the traditional thinking of parents towards the education of children, the consistent weak economic performance of the country, and cultural and traditional myths. The ratio of higher education enrollment in Pakistan is the lowest among the neighboring countries, and even the state of female presence in higher education is abysmal (Mehmood, Chong, & Hussain, 2018). Pakistan has suffered because of the negligence of successive governments in formulating poor friendly policies, lack of equality and prolonged economic stability has contributed to the worse situation of education today. In addition to the bad economic environment, the socioeconomic and cultural factors have also exacerbated the state of education in the country.

Pakistan is a highly unequal society in terms of resources, some people possess billions of rupees and at the same time, there are millions of individual's strivings for food and basic education (Chaudhry, 2007). This menace of inequality creates hurdles for the poor to break the vicious cycle of poverty and that prevails generation after generation. At the same time, privileged people create more opportunities for their children to get access to the best modern education and as a result inequality further increases. People who have money and social status give more time and resources for the betterment of their children, whereas poor people who have low social status and lack money revolve around the vicious circle of poverty and lack of opportunities. The presence of social capital reinforces the possession of money and better educational opportunities (Abrar et al., 2015).

Objectives of the study

The three objectives of our research are

1. To which extent the parental prestige and technology affect the educational attainment of children.
2. To compute the gender differentials while estimating the effect of parental prestige and technology on educational attainment of children.
3. To explore the regional differences such as higher/lower prevalence of the effect of parental prestige and technology on educational attainment of children, in rural or urban areas and cohort wise.

Contribution of the study

This are the following contribution of our study

- This study helps students and policymakers what are the main factors which affect educational attainment in Pakistan.
- This study tries to fill the research gap by studying the composite effect of SES which we have called prestige factors by empirical evidence.
- This study helps government and policymakers to intervene in areas like creating more competitive environments for all the students regardless of socioeconomic status, gender, and area of residence.

Literature Review

Education is one of the main components of the development of a country. Having a good, educated population is of the utmost importance for the development of an economy. Education contributes to the development of a country through human development. Many countries in the world having a skillful population have got strong economies, examples are America, Japan, and many others. On the other hand, countries which have a large population but are not equipped with skills and education lack behind others. There are different reasons for the discrepancy in education among nations and between different classes in the same country. Many studies have been taken to exactly find why there is a difference in educational attainment in a country and between two countries.

Ardil Aakrid et al., (2019) researched the Norwegian population and explored the role of family backgrounds like permanent income and parents' education on the educational attainment of children. Standard ordinary least square was applied to find the role of family background on educational attainment. Karl. R White (1982) exploited the relationship between years of schooling and socioeconomic status using the meta-analysis technique and found that although there is a relationship between socioeconomic status which included the income, wealth, and education of parents, the magnitude is not strong.

When some other factors like home environment and neighborhood were added then the results showed a strong correlation between academic achievements in terms of more years of education

and the socioeconomic status of parents. The results were showing that the relationship was contingent upon the home environment and the grade level in which the data were collected.

Robert H. Bradley and Robert F. Corbyn (2002) researched socioeconomic status and child development and educational attainment, and they had striking results. According to this research socioeconomic status affects children's development through a different mechanism. Socioeconomic status has effects even before birth and remains vital till adulthood. It affects the cognitive development, health, and socioemotional betterment of children. According to this research socioeconomic status affects educational attainment or academic performance through different channels as mentioned above.

To study individual-level household characteristics which are responsible for educational attainment in Bangladesh Pushkar Maitra (2003) took data from the Matlab Health and Socio-Economic Survey which is a representative survey of the Matlab region of Bangladesh. The researcher studied the educational demand of two different age groups. In one group were students of age 6-12 years of age and he studied the current enrolment status. In the other group, there were people aged 13-24 in this group he studied the highest level of education achieved. The first group was studied using a standard probit model whereas the second group was estimated using a censored ordered probit model. The results were interesting that there was no difference in enrollment between boys and girls, but the highest level of education was higher for girls. Another factor like an increase in permanent income had a positive effect on the level of educational attainment. Parents' education has a strong and statistically significant role in educational attainment, but mothers' education has a more profound role in both educational attainment and school enrollment.

Youngmi Kim (2011) studied the role of parental assets on educational attainment using data from Child and Young adult data supplement to the National longitudinal study of youth 1979. The results show that parents' assets are positively and significantly associated with children's later education. Suet-Ling Pong (1997) conducted a study on Malaysian data. Using a second Malaysian family survey to study the discrepancy in educational attainment in the same family sibship. The survey data found the effects of sibship on secondary education attainment in three ethnic groups in Malaysia. The primary analysis found that out of the population 97% had at least one sibling. Among the non-Malay population, the attainment of secondary school education decreased with an increasing number of siblings.

Recent research related to educational achievements in terms of the level of education completed like the primary, middle, and high school education was carried out by Ahmed Raza Cheema et al. (2018) using PSLM data 2010-11. The main variable was educational achievement in terms of the level of education completed. The research method applied was a censored ordered probit model. The findings were as follows. Many variables were responsible for educational achievement in the case of Pakistan. The most prominent variable which played the highest role was the education of the mother, although the education of the father was also positively related, the magnitude was less as compared to mothers' education. Similarly, another interesting result according to this research was that the mother's education was playing more role in the case of daughters whereas fathers' education and educational attainment of sons was positively associated. Another variable that was affecting educational attainment was the ownership of assets by the family. Having assets was beneficial for both boys and girls.

A study focusing female education in rural Pakistan was conducted by Hashmi et al., (2009) in which the reasons behind low educational attainment in Pakistan was studied. This study was based on 700 individuals' ordinal regression was used to find the results. The main variable of the study was educational attainment of females in rural areas, and the independent variables were parental educational level, income of the household, female child labor, status of the family in the community and female educational ratio of the village. The findings of the study were as follow;

the female education ratio of the village, parental education and the income of the family were supportive, which means that these variables helped female in rural areas to acquire more level of education. On the contrary, variables like distances from school, low status of the family played negative role in educational attainment of female in rural areas of Pakistan according to this study.

Human Capital theory

In the field of Economics, every decision is based upon the concept of incentive. So, when we discuss why would people educate their children? The answer is because education gives more return in the future, there is an incentive in education. People consider education as an investment that gives two types of benefits, one is a private return and the other is the social benefit of education. When we say private benefit, it means that education gives individuals skills and abilities, and education helps to get a high-paying job or helps an individual to make wise decisions. On the other hand, the private benefit of education is the positive externalities of education. Positive externalities include giving some prudent solutions to the prevailing problems by educated individuals which benefit the whole community. Similarly, educated people are also rule-abiding citizens and help other people to follow the rules. Another important positive externality is that generally educated people earn more and consequently pay more taxes. So, there are some of the benefits education gives, therefore it is an attractive investment for parents to invest in the education of their children. Many studies have been conducted to find the validity of the human capital theory and these studies have confirmed that human capital is important for the development of the economy, therefore it is a safe and attractive investment. One such research was carried out in Australia namely Human Capital theory and educational policies in Australia. The purpose of this research was to see whether a cut in educational expenditure helped Australia help or not. The results show that investment in education is more desirable because it helps more productivity. (John, 2002). So, our research is supported by the human capital model because people who are rational invest in portfolios that have more returns. In our research people who were more prestigious invested more in education.

Data and methodology

Data source

In all the countries of the world, different surveys are conducted for the collection of data about individuals and communities, and this data is analyzed to formulate different policies to make the quality of life of the citizens better. Like other countries, Pakistan also conducts different surveys under the supervision of the Pakistan Bureau of Statistics. One of such surveys is the Pakistan Social and Living standard Measurements survey which is conducted every year to monitor the SDGs and to monitor the living standards of people. Since 1963 the Pakistan Bureau of Statistics has been conducting this survey to measure the different parameters of households and communities. In the 1990s PBS revised the questionnaire of the survey and included details about the national accounts. Furthermore, in 1999 the questionnaire and data collection method were revised and integrated into the Pakistan Integrated Household survey, and later it was renamed as Pakistan Social and Living Standard Survey (PSLM). In this research, we have used PSLM micro data 2019-20, district-level data. This survey PSLM 2019-20 is the 13th round of surveys conducted by the Pakistan Bureau of Statistics. PSLM survey is the main source of data to monitor the different types of development plans at the district level and the data collected through this survey is used to estimate the multidimensional poverty index. In the PSLM 2019-20 survey, the sample size is 6500 blocks and covers 195000 households, furthermore, the data of AJ&K and Gilgit Baltistan is also included. The main variables or indicators which are covered in this survey are education, health, information communication and technology, disability, migration, housing

water and sanitation, household perception and satisfaction, and food insecurity and experience scale.

Variables description

The PSLM questionnaire asks every individual in the household about the highest education completed in a household. The data set gives values ranging from Montessori up to Ph.D. The numeric value 0 shows that the person has zero years of schooling, whereas we have recorded 18 as the highest education attained by the individual. The other very important variable is prestige which represents the socioeconomic status of the parents. The variable prestige is a composite variable which comprises three main components namely, the income of the father, the education level of the mother, and the wealth of the family or household. All three variables are given equal weight. In previous research, these variables were used separately to measure the effects on the educational attainment of children. But, in this research, we have used a single variable representing all these variables. We have used the index of variable prestige and see the effect of all these variables on the educational attainment of children.

Index creation

When many variables collectively affect any third variable, we construct an index to measure the effect. In this research, we have constructed an index using three variables, which we believe affect educational attainment. The variables are mother education, which is measured in years of schooling completed, father income, which is measured in thousands of rupees measured on monthly basis, and the wealth of the household, which is the current value of the asset in possession of the family. The first step in index construction is to convert all the variables into unit less using the normalization method Sajjad and Chan (2019). First, we normalized the data of each variable using the normalization formula.

$a_i^1 = \frac{(x_i - x_{min})}{(x_{max} - x_{min})}$ For beneficial criteria

This means if any variable is expected to affect the dependent variable positively, for example, many studies have found that mother education positively affects the educational attainment of children.

Similarly, for non-beneficial criteria, we use this equation.

$a_i^1 = \frac{(x_{max} - x_i)}{(x_{max} - x_{min})}$

Here we have a_i^1 is the resultant non dimensional value which is ranged between 0 and 1 for all the district level data. x_{min} And x_{max} are the lowest recorded value in the data and highest recorded value for all the individuals. For example, if we are constructing an index for mother education then the maximum value would be 18 years of education and the minimum value would be 0 for an uneducated mother. Similarly, we have used the same method to find the value for all the three selected variables namely wealth and father income, and mothers' education. In conclusion, all three indices are summed up to get a specific value of prestige which will be ranging from 0 to 3. The reason we converted it into an index is to make a variable that is dimensionless and represents all the three main components that we believe affect the educational attainment of children. There are many other good methods for index construction like principal component analysis (PCA), the reason we have not used this method is that; it sometimes deletes some important variables based on the specific criteria.

Empirical Method

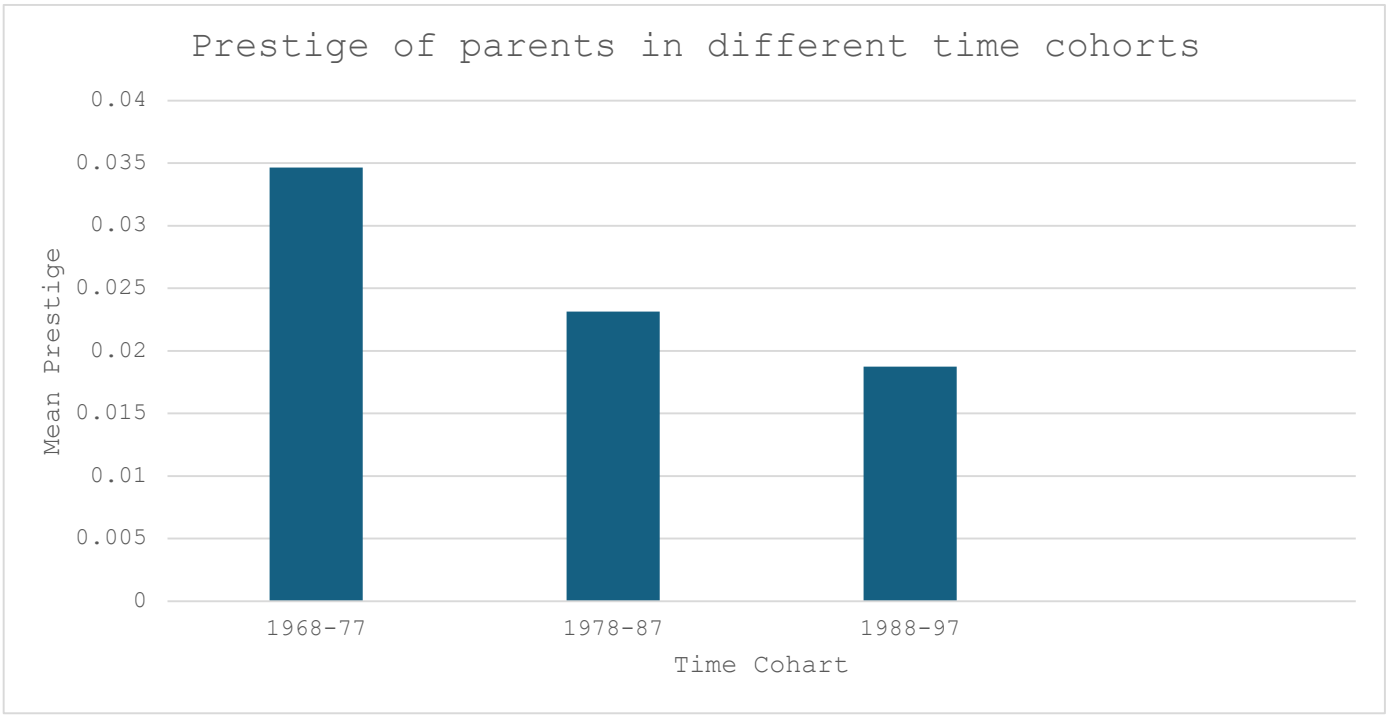
We have used the standard ordinary least square method (OLS) to estimate the role of prestige (SES) on the educational attainment of children. Since our dependent variable is continuous.

$E_i = \beta_0 + \beta_1 pres + \beta_2 hhsize + \beta_3 dewelling + \beta_4 system + \beta_5 internet + \beta_6 gadgets + \epsilon$…… (1)

E_i = The educational attainment of individual i.
Prestige= the prestige of parents which is an index
Household size= the number of individuals in the household
Household characteristics= is the composition of the house if it is made of cement and steel
System= the availability of sewerage system
No internet facility= if the household has not any availability of internet
Modern Gadgets= if the individual has availability of laptop, desktop, tablet etc.
$\in$ = is the error term
We have estimated equation 1 by using the ordinary least square method. We used the OLS method first to see the nationwide pattern and then we did the same for males and females separately. To eliminate the effect of the region we have studied the behavior region-wise as well. We have employed only those individuals who are above the age of 22 because the minimum required time to complete a university education is 23 years. To see the behavior over the years we have studied the effects of prestige on educational attainment we have studied dividing into cohorts.

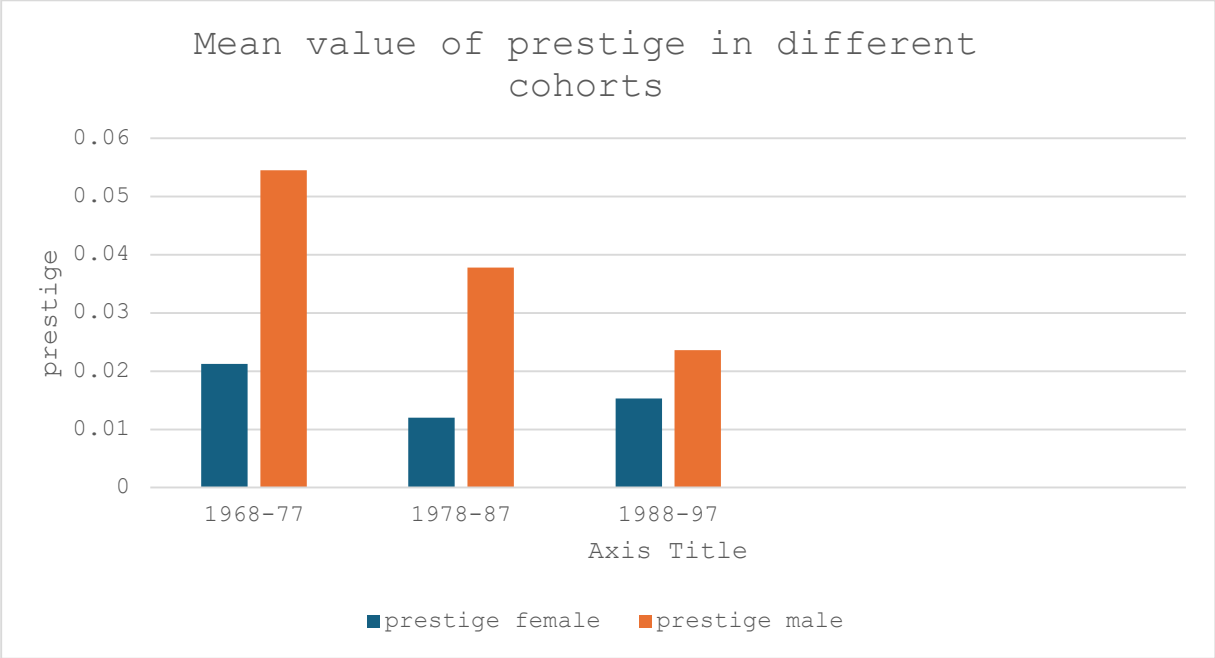
Empirical analysis

In this study, we have explore the relationship between educational attainment and the prestige of parents and technology. The other controlled variables are household size and dwelling type. We take the role of the sewerage system as a control variable, and we have an interaction term between not having access to the internet and having access to modern gadgets. Our results show that prestige is positively affecting educational attainment in almost all cases. We analyzed urban and rural, male, and female, etc. But the main finding was that prestige and technology always have positive and significant effects on the education of children. The graph given below depicts the mean value of prestige of parents in different time cohorts. We have divided the data into three cohorts. The first cohort is from 1968-77, 2nd cohort is from 1978-87 and 3rd cohort is from 1988-98.



From the graph, we can see that in the first cohort which is representing the time from 1968-77 in Pakistan the mean value of prestige is highest which means they were having money and were

educated their children had more chances to get more years of education. Similarly, from 1978-87, the mean value of prestige of parents has decreased. There can be many reasons for this like the disintegration of country into two sovereign countries and the privatization by Zulfiqar Ali Bhutto. Similarly, we can see from the above histogram that the value of prestige of parents has a decreasing trend after every successive time cohort. The decrease of prestige in the 3rd cohort is because of the political uncertainty during that period.
We have also seen the trend between males and females. Given below graph depicts that.



We can see that over time the mean value of prestige of male and female has decreased. From 1968-77 the mean value of prestige for both males and females has decreased. For both male and females in Pakistan the average value of prestige has decreased in successive cohorts. A plethora of reasons can be given to explain this trend, like after the fall of Dhaka the economic situation of the country got worsen. Similarly, the political unwise decisions like nationalization which created many inefficiencies and consequently the income and living standard decreased. Similarly, the political situation during that time was also not stable and there was chaos.

Results and discussion

The main results of our study are mentioned below, and we have studied the role of the prestige of parents and technology on educational attainment at different levels. In below given table, we have presented the results depicting nationwide behavior.

Table 4.1: Impact of Prestige and Technology on Education Nationwide.

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.25	.047	5.37	0.0	.159	.342	***
Household size	-.053	.006	-9.35	0.0	-.064	-.042	***
Roof materials	.679	.013	51.16	0.0	.653	.705	***
Sewerage system	.529	.013	39.82	0.0	.503	.555	***
No internet facility	-1.467	.013	111.3	0.0	-1.493	-1.441	***

Modern gadgets	4.916	.019	259.14	0.0	4.879	4.953	***
Interaction term	1.632	.045	36.50	0.0	1.544	1.719	***
Constant	9.625	.071	136.3	0.0	9.487	9.763	***

Mean dependent var	9.579	SD dependent var	3.667
R-squared	0.404	Number of obs	237498
F-test	23000.832	Prob > F	0.000
Akaike crit. (AIC)	1168301.561	Bayesian crit. (BIC)	1168384.584

*** p<.01, ** p<.05, * p<.

We can see from the above table 1.1 the results. The role of prestige is prominent. As we can see from the table that prestige has a positive and significant effect on educational attainment. We are living at a time of changing technology and to have a decent living we all must be familiar with modern technology like computers, tablets, laptops, and other modern gadgets. And exposure to the internet is considered very important for students to explore more avenues and to get excess knowledge (Raja & Nagasubramani, 2018). We have used the variable "no internet access" to capture the role of the internet on educational attainment. It is evident from the table that if a household does not have access to an internet connection educational attainment decreases by 1.5 years. Similarly, access to modern gadgets helps individuals to get more education. The results of the above table show that having access to modern gadgets like laptops, tablets, and desktop helps individuals to get more years of education, as we can see from the above table having modern gadgets increases educational attainment by 4.9 more years of schooling. To see the interaction between access to no internet and having modern gadgets we used interaction terms and the results were interesting. We can see that if a household has access to modern gadgets like laptops and if this household has no internet connection the results still show a positive association. This means having modern gadgets are more important, the coefficient of the interaction term is 1.632. These results are representing all the districts of Pakistan including the rural and urban populations. Similarly, having a large household size is negatively affecting the educational attainment of children keeping the prestige and technology constant having a large household decreases educational attainment. In addition, having a strong house made of steel and cement enhances educational attainment, we can see from the table having a roof made up of steel and cement increases educational attainment. As it is evident that the health of an individual is important for him to get more years of education. Because cognitive abilities are directly related to health, therefore it can be argued that to have good health an individual must have a proper system of sanitation. Because having a good system of sanitation saves an individual from many diseases. We can see from the above-mentioned table that having proper sanitation helps individuals to get more years of education. To see if the region has any effect on educational attainment, we have studied the behavior separately for rural and urban areas in the table 4.2

Table 4.2 Impact of Prestige and Technology on Educational Attainment in Rural Areas

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.457	.06	7.68	0.0	.34	.574	***
Household size	-.028	.007	-4.09	0.0	-.041	-.015	***
Roof materials	.675	.018	37.32	0.0	.639	.71	***
Sewerage	.345	.026	13.41	0.0	.295	.396	***

system							
No internet	-1.287	.018	-71.45	0.0	-1.323	-1.252	***
Modern gadgets	5.253	.032	166.62	0.0	5.192	5.315	***
Interaction term	1.681	.064	26.26	0.0	1.556	1.807	***
Constant	9.072	.085	106.5	0.0	8.905	9.239	***

Mean dependent var	8.846	SD dependent var	3.527
R-squared	0.340	Number of obs	127693
F-test	9413.545	Prob > F	0.000
Akaike crit. (AIC)	631153.758	Bayesian crit. (BIC)	631231.817

*** p<.01, ** p<.05, * p<.1

We can see from table 1.2 that the role of the prestige of parents in rural areas is the more dominant factor in deciding the level of education of children. The result is highly significant, and we can argue based on our results that in rural areas parents having higher prestige will give more education to their children. Similarly, if a rural household does not have access to the internet educational attainment would decrease by 1.28 years. In addition, access to modern gadgets has a positive and significant effect on educational attainment. A household having a laptop, tablet or desktop will help the children to have 5.25 more years of schooling. The interaction between having no internet and having modern gadgets is still positive which means having modern gadgets is enough even in absence of an internet connection. The coefficient of the interaction term is 1.68, which shows that modern gadgets have more impact than having an internet connection. If a rural household does not have access to the internet the educational attainment would decrease by 1.28 years of schooling. From the results, we can say that the role of modern technology is very crucial for the educational attainment of children.

Keeping the prestige of parents and technology constant while having a strong house is also positively associated with higher educational attainment. Although having a bigger household size negatively affects educational attainment, the magnitude is small compared to overall results. Similarly, having proper sanitation and sewerage system affects educational attainment positively. When the behavior was checked for urban settings interestingly, the prestige of parents did not explain the educational attainment of children, but technology plays a positive and significant effect. The results are shown below in table 4.3

Table 4.3: Impact of Prestige and Technology on Education in Urban Areas

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.077	.075	1.03	.304	-.07	.225	
Household size	-.106	.01	-10.20	0.0	-.126	-.086	***
Roof materials	.516	.02	25.50	0.0	.477	.556	***
Sewerage system	.322	.019	17.35	0.0	.285	.358	***
No internet facility	-1.623	.019	-83.90	0.0	-1.661	-1.585	***
Modern gadgets	4.675	.024	198.33	0.0	4.629	4.721	***
Interaction	1.384	.063	21.89	0.0	1.26	1.508	***
Constant	10.774	.128	84.31	0.0	10.524	11.025	***

Mean dependent var	10.431	SD dependent var	3.643
R-squared	0.420	Number of obs	109805
F-test	11352.654	Prob > F	0.000
Akaike crit. (AIC)	535742.106	Bayesian crit. (BIC)	535818.958

*** p<.01, ** p<.05, * p<.1

In urban areas due to the availability of facilities like schools, colleges, and universities, everyone, regardless of socioeconomic status gets an education. In addition to this, in urban areas, there is the availability of modern technology, which helps individuals to get more education. Unlike rural areas, where socioeconomic status plays a crucial role in educational attainment. To further elaborate on the relationship between educational attainment and prestige of parents and technology we have studied it by dividing the sample into females and males in rural and urban settings. We have seen the relationship for males in an urban setting in the given table 2.1. Show the role of prestige and technology in educational attainment in urban for male sample

Table 4.4 Impact of Prestige and Technology on Male Education in Urban Areas

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.401	.124	3.23	.001	.157	.644	***
Household size	-.119	.013	-9.08	0.0	-.145	-.093	***
Roof materials	.346	.028	12.19	0.0	.291	.402	***
Sewerage system	.163	.026	6.16	0.0	.111	.215	***
No internet facility	-1.578	.028	-56.11	0.0	-1.634	-1.523	***
Modern gadgets	4.522	.033	137.64	0.0	4.458	4.587	***
Interaction	1.143	.084	13.57	0.0	.978	1.308	***
Constant	11.066	.163	68.09	0.0	10.748	11.385	***

Mean dependent var	10.418	SD dependent var	3.654
R-squared	0.418	Number of obs	53895
F-test	5532.521	Prob > F	0.000
Akaike crit. (AIC)	263453.335	Bayesian crit. (BIC)	263524.493

*** p<.01, ** p<.05, * p<.1

In urban areas, the role of the prestige of parents on the educational attainment of male children is also positive and significant. Similarly, technology also plays a positive and significant role. Having more household members is negatively affecting educational attainment. All other variables like a house made of cement and steel help in a positive direction. Modern gadgets are also playing a positive and significant role in urban areas. We did not find any difference between the overall pattern and pattern in urban areas for males, only the magnitude is a bit different. We now see the role of the prestige of parents and technology in rural areas for male children

Table 4.5 Impact of Prestige and Technology on Male in Rural Areas

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.347	.067	5.17	0.0	.216	.479	***

Household size	-.027	.008	-3.35	.001	-.042	-.011	***
Roof materials	.593	.024	24.43	0.0	.546	.641	***
Sewerage system	.252	.035	7.21	0.0	.184	.321	***
No internet facility	-1.363	.024	-57.31	0.0	-1.409	-1.316	***
Modern gadgets	4.801	.041	116.79	0.0	4.72	4.881	***
Interaction term	1.533	.085	18.12	0.0	1.367	1.699	***
Constant	9.304	.1	92.95	0.0	9.108	9.501	***

Mean dependent var	8.881	SD dependent var	3.409
R-squared	0.318	Number of obs	73834
F-test	4914.436	Prob > F	0.000
Akaike crit. (AIC)	362402.095	Bayesian crit. (BIC)	362475.772

*** p<.01, ** p<.05, * p<.1

The role of parental prestige is still prevalent for male children in rural areas, but the value is smaller than that in urban areas. The reason for this discrepancy can be attributed to the lack of class difference among the people of rural areas. Similarly, not having internet access is also negatively affecting the educational attainment of males in rural areas. All other variables like having access to modern gadgets, having a strong house, and having a proper system for sewerage are positively affecting educational attainment and the role of household size has a negative impact, but the value is much smaller as compared to the urban population. In rural areas, people usually live in joint families, and all contribute to the income, therefore the role of big household size has not a big role. Do people treat females differently in rural and urban areas we have studied it separately, in the given table we have explored that fact.

Table 4.6: Impact of Prestige and Technology on Females in Rural Areas

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.278	.126	2.20	.028	.031	.525	**
Household size	-.04	.013	-3.08	.002	-.066	-.015	***
Roof materials	.825	.027	30.38	0.0	.772	.879	***
Sewerage system	.456	.038	12.02	0.0	.382	.53	***
No internet	-1.267	.028	-45.87	0.0	-1.321	-1.212	***
Modern gadgets	5.811	.049	118.79	0.0	5.715	5.907	***
Interaction term	1.889	.098	19.37	0.0	1.698	2.081	***
Constant	8.918	.16	55.68	0.0	8.604	9.232	***

Mean dependent var	8.798	SD dependent var	3.682
R-squared	0.376	Number of obs	53859
F-test	4630.123	Prob > F	0.000
Akaike crit. (AIC)	267893.939	Bayesian crit. (BIC)	267965.092

*** p<.01, ** p<.05, * p<.1

The result from the above table shows that there is a difference between educational attainment between girls and boys. Although the prestige of parents and technology play a positive and significant role in both cases, the magnitude is more for boys in rural areas. Is there any difference between educational attainments in rural and urban areas for girls we found these results for girls in urban areas, Table 2.4 depicts this fact.

Table 4.7: Impact of Prestige and Technology on females Education in Urban Areas

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	-.196	.094	-2.08	.038	-.38	-.011	**
Household size	-.076	.017	-4.47	0.0	-.109	-.043	***
Roof materials	.685	.029	23.73	0.0	.628	.741	***
Sewerage system	.483	.026	18.65	0.0	.433	.534	***
No internet facility	-1.663	.027	-62.68	0.0	-1.715	-1.611	***
Modern gadgets	4.919	.034	144.49	0.0	4.852	4.986	***
Interaction term	1.71	.096	17.84	0.0	1.522	1.898	***
Constant	10.252	.208	49.40	0.0	9.845	10.659	***

Mean dependent var	10.443	SD dependent var	3.632
R-squared	0.428	Number of obs	55910
F-test	5967.276	Prob > F	0.000
Akaike crit. (AIC)	271705.849	Bayesian crit. (BIC)	271777.301

*** p<.01, ** p<.05, * p<.1

The results show an interestingly negative relationship between parental prestige and educational attainment in urban areas for females. Although this result does not follow the pattern, a reason can be stated to define this is that parents mostly in urban areas give education for a better future for their children, so those parents who are already well off and have resources do not prefer their females to do a job. Therefore, those parents who have resources and they do not want to send their female children to a job generally do not allow females to get more years of education. All other variables play the same role as mentioned above but varying magnitude. To further understand this behavior, whether this prevailed all the time or it has different values at different times we studied the role of the prestige of parents on the educational attainment of the urban female sample we have divided the data into three cohorts. The time of each cohort is of ten years, starting from 1968 to 1998. The first cohort is from 1968-1977. Similarly, the second cohort is from 1978-1988 and the third cohort is from 1989- 1998. Given below tables show the role of prestige in the educational attainment of urban females.

Table 4.8a: Cohort-Wise Results of Urban Female Sample
Cohort 1

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig

Prestige	-.414	.167	-2.48	.013	-.742	-.086	**
Household size	.002	.067	0.04	.972	-.128	.133	
Roof materials	.98	.074	13.17	0.0	.834	1.126	***
Sewerage system	.883	.065	13.53	0.0	.755	1.011	***
No internet facility	-1.452	.065	-22.51	0.0	-1.579	-1.326	***
Modern gadgets	5.542	.09	61.30	0.0	5.365	5.719	***
Interaction term	.722	.306	2.36	.018	.122	1.323	**
Constant	8.051	.805	10.00	0.0	6.472	9.629	***

Mean dependent var	9.726	SD dependent var	3.600
R-squared	0.411	Number of obs	9542
F-test	952.163	Prob > F	0.000
Akaike crit. (AIC)	46482.588	Bayesian crit. (BIC)	46539.896

*** p<.01, ** p<.05, * p<.1

The results of the first cohort are shown in the table given above, the role of prestige is negative in the first cohort for urban females, and similarly, the household size is showing no significant relationship. Roof materials, access to modern gadgets, and having a proper sewerage system are all these variables that have a positive significant relationship. But interestingly the relationship of parental prestige with educational attainment is positive in the second and third cohorts for the same sample of urban females. Table 3.2 shows the results of the second cohort.

Table 4.8b: 2nd cohort

Education	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.679	.235	2.89	.004	.219	1.138	***
Household size	-.051	.029	-1.77	.076	-.108	.005	*
Roof materials	.707	.053	13.33	0.0	.603	.812	***
Sewerage system	.459	.048	9.49	0.0	.365	.554	***
No internet facility	-1.806	.048	-38.01	0.0	-1.899	-1.713	***
Modern gadgets	4.734	.069	68.80	0.0	4.599	4.869	***
Interaction term	2.132	.179	11.92	0.0	1.782	2.482	***
Constant	9.956	.354	28.11	0.0	9.262	10.651	***

Mean dependent var	10.150	SD dependent var	3.504
R-squared	0.406	Number of obs	15905
F-test	1554.379	Prob > F	0.000
Akaike crit. (AIC)	76748.609	Bayesian crit. (BIC)	76810.004

*** p<.01, ** p<.05, * p<.1

Table 4.8c: 3rd cohort

Education	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.398	.149	2.66	.008	.105	.69	***
Household size	-.132	.022	-6.10	0.0	-.174	-.09	***
Roof materials	.722	.039	18.53	0.0	.646	.799	***
Sewerage system	.442	.035	12.59	0.0	.373	.511	***
No internet facility	-1.738	.037	-46.41	0.0	-1.811	-1.664	***
Modern gadgets	4.622	.044	104.45	0.0	4.535	4.709	***
Interaction term	1.759	.122	14.44	0.0	1.52	1.998	***
Constant	11.307	.265	42.69	0.0	10.788	11.827	***

Mean dependent var	10.919	SD dependent var	3.651
R-squared	0.454	Number of obs	28279
F-test	3355.357	Prob > F	0.000
Akaike crit. (AIC)	136411.650	Bayesian crit. (BIC)	136477.649

*** p<.01, ** p<.05, * p<.1

Results of the 2nd and 3rd cohorts show the same pattern. The role of parental prestige on the educational attainment of urban female in the 2nd and 3rd cohort are positive and significant. In the case of the second cohort parental prestige increases educational attainment by 0.57 more years whereas the role of prestige in the 3rd cohort is still positive but the magnitude is less than that of the 2nd cohort. In the 3rd cohort, the role of parental prestige on educational attainment is 0.383 more years of education. Likewise, the role of household size in the 2nd cohort does not show any significant relationship, but in the 3rd cohort, it has a negative and significant impact with a coefficient equal to -0.13. Similarly, the variable roof material has a significant and positive association with educational attainment with values of 0.66 the in 2nd and 0.74 in the 3rd cohort respectively. Other variables like sewerage system, no availability of the internet, and access to modern gadgets play a positive and significant role in both cohorts but the magnitude of change is different in both cohorts. In the second cohort, the sewerage system helps 0.457 years of educational attainment. Whereas the 3rd cohort sewerage system has 0.44 more educational attainment. The non-availability of internet access has a negative effect on educational attainment in both cohorts with almost the same magnitude. Similarly, having access to modern gadgets has a positive and significant effect in both cohorts with a coefficient equal to 4.16. The interaction term between internet facility and access to modern gadgets like laptops and tablets has a positive result, which means having access to modern gadgets even in absence of the internet play a positive and significant role in the educational attainment of children.

We now want to see the overall results cohort-wise if this phenomenon is new or if it has been there. The tables given below show the country-wise study of the role of parental prestige and technology on educational attainment. This sample includes males and females representing all over the country including rural and urban settings.

Table 4.9a Impact of Prestige and Technology on Males and Females' Education Nationwide in Different Cohorts

1st cohort

Education	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.534	.087	6.14	0.0	.363	.704	***
Household size	.004	.017	0.21	.837	-.03	.037	
Roof materials	.595	.033	18.27	0.0	.531	.659	***
Sewerage system	.644	.032	20.03	0.0	.581	.707	***
No internet facility	-1.176	.032	-37.00	0.0	-1.238	-1.113	***
Modern gadgets	5.235	.051	102.53	0.0	5.135	5.335	***
Interaction term	1.454	.119	12.24	0.0	1.221	1.687	***
Constant	8.436	.211	39.93	0.0	8.022	8.85	***

Mean dependent var	9.124	SD dependent var	3.578
R-squared	0.361	Number of obs	40645
F-test	3279.671	Prob > F	0.000
Akaike crit. (AIC)	200777.799	Bayesian crit. (BIC)	200846.700

*** p<.01, ** p<.05, * p<.1

Table 4.9b: 2nd cohort

Education	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.369	.088	4.19	0.0	.197	.542	***
Household size	-.046	.009	-4.88	0.0	-.064	-.027	***
Roof materials	.62	.024	25.87	0.0	.573	.667	***
Sewerage system	.552	.024	22.86	0.0	.504	.599	***
No internet connection	-1.548	.024	-65.15	0.0	-1.594	-1.501	***
Modern gadgets	4.926	.037	133.99	0.0	4.854	4.998	***
Interaction term	1.796	.084	21.44	0.0	1.632	1.961	***
Constant	9.518	.117	81.35	0.0	9.289	9.748	***

Mean dependent var	9.322	SD dependent var	3.590
R-squared	0.397	Number of obs	70838
F-test	6664.209	Prob > F	0.000
Akaike crit. (AIC)	346268.201	Bayesian crit. (BIC)	346341.546

*** p<.01, ** p<.05, * p<.1

Table 4.9c: 3rd cohort

Education	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Prestige	.445	.08	5.59	0.0	.289	.601	***
Household size	-.08	.008	-10.15	0.0	-.096	-.065	***
Roof materials	.79	.019	42.19	0.0	.753	.826	***
Sewerage system	.509	.019	27.09	0.0	.473	.546	***
No internet facility	-1.513	.019	-80.23	0.0	-1.55	-1.476	***
Modern gadgets	4.707	.025	186.88	0.0	4.658	4.757	***
Interaction term	1.652	.06	27.54	0.0	1.534	1.769	***
Constant	10.14	.098	103.61	0.0	9.948	10.332	***

Mean dependent var	9.922	SD dependent var	3.712
R-squared	0.422	Number of obs	118267
F-test	12310.321	Prob > F	0.000
Akaike crit. (AIC)	581164.824	Bayesian crit. (BIC)	581242.270

*** p<.01, ** p<.05, * p<.1

When we compare the value of prestige in all the cohorts, we see that there is a positive association between prestige and educational attainment. In the first cohort, the value of prestige is 0.532, which means that the prestige of parents helps individuals to have 0.532 more years of education. In the second cohort, the increase in educational attainment due to the prestige of parents is 0.362 more years of education. Similarly in the third cohort, the increase in educational attainment is 0.44 more years of education. Although the value of prestige does not follow any increasing or decreasing trend, rather the value is greatest for the first cohort, it then decreases in the second cohort, and in the third cohort, and it again increases. So, from the cohort-wise analysis, we can say that regardless of time parental prestige is considered an important determinant factor in the educational attainment of children in the case of Pakistan. We can see that in Pakistan access to modern gadgets helps much in educational attainment as we can see from the table above modern technology helps individuals to have almost 5 more years of education.

Diagnostic Test:

We have applied these two important tests to check our results and reliability. Variance Inflation Factor: to check if there is any problem with multicollinearity, we applied VIF and found that the values of all our variables fall between 1 and 2, which means our values are less than 10 so, we can say that there is no multicollinearity. Similarly, to remove the chances of heteroscedasticity we applied robust error terms so that there remains no issue of heteroscedasticity

Conclusion

There is a lot of economic literature about the determinant of educational attainment in Pakistan taking a single factor like the education of the mother or total wealth (Suleman et al., 2012). In this study, we have studied the role of parental prestige and technology on educational attainment. Prestige is an index consisting of three main components like income of the father, the wealth of the household, and the education of the mother and we have studied what would be the combined

effect of all the variables. Our contribution to the literature is the construction of the prestige variable through an index and exploring whether the prestige of parents and technology define the level of education. We also analyzed using cohorts and we have studied whether prestige plays the same role in rural-urban settings and for male and female children. We have used PSLM 2019-20 data for our analysis.

We observed that prestige has a positive and significant effect on years of schooling for overall data including rural and urban settings. Similarly, technology also plays an important role, access to modern technology increases educational attainment of 4.9 years of schooling. When we observed male children, prestige plays more role than females in years of schooling. We can say that increasing the prestige of parents and access to technology help male children more by having more years of schooling than female children. This can be explained in terms of the patriarchy of the society where male kids have advantages over females.

Similarly, when we split our sample into rural and urban settings, we found that in urban areas prestigious parents would give more education to their children. In urban areas, prestige is considered more important than in rural areas. So, we can say that prestige is considered more important in cities than in rural areas. The reason is that in urban areas people who have more prestige consider giving more years of education a very safe investment therefore, it is contributing more.

This study also incorporates the role of household size, dwelling type, proper sanitation. So, it can be argued that prestige along with modern technology and all the above-mentioned factors are important for an individual to get more years of education in Pakistan.

Policy recommendations

After analyzing the PSLM 2019-20 we have reached an interesting conclusion that the prestige of parents and modern technology are important determinants of educational attainment in Pakistan. The prestige of parents consists of the education of the mother, the income of the father, and the wealth of the household. So, to improve the level of education the government must help people to achieve these things. To begin with, the government must give the incentive to build their own houses because the house is the main component of wealth. Programs like Naya Pakistan Housing Society must be encouraged further. Another pertinent point is that government must subsidize female education and give more incentives to people to send their females to get more education. The reason is that the education of mothers is important for future generations to get more years of education. Other important factors which affect education are the availability of the internet and modern gadgets like laptops, desktops, and tablets. To encourage people to get more years of education the government must give internet access to every student and programs like the prime minister's laptop scheme must be expanded to more people. Based on our research the abovementioned measures must be taken by the government so that the level of education increases and consequently our country gets the benefits.

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