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## **Gender Disparity in Economic Returns to Higher Education: Evidence from Private Formal Sector of Bahawalpur (Pakistan)**

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**Abstract:** The focus of the study is to investigate the gender disparity in returns to higher education in formal sector of Bahawalpur Division (Pakistan). A sample of 430 individuals is interviewed using a well structured interview schedule by convenient sampling. We divided it into 215 males and 215 females and apply a decomposition analysis proposed by Blinder (1973) and Oaxaca (1973). Ordinary least square method is applied to examine the gender disparity in wage returns to higher education. Findings reveal that at higher levels of education (i.e. post graduate) in private sector male's labor market returns are higher than female labour market returns. But at graduation level female's earning are higher than males. Number of dependents and marital status both have negatively affected the earning of females as compared to males. Females living in rural areas have been found to be more disadvantaged in terms of earnings as compared to males. On the bases of the results we concluded that there exists a gender disparity in wage returns to education in Bahawalpur Division.

**Keywords:** Private institutions, Household economics, Decomposition analysis, Wages, Formal sector.

### **1. Introduction**

Large and continual gender gaps in education are well-documented in Pakistan, explaining their existence and determination has proven more difficult. In Pakistan problems in labor issues have continually become serious, because of the economy's disability to absorb labor force which has been growing significantly every year (i.e. labor surplus economy). In 2010-11 total labour force of Pakistan was 57.3 million, among them 53.9 million were employed and 3.4 million were unemployed. There was 6 percent unemployment rate (FBS 2011).

The labour issue has a number of dimensions together with earnings inequalities. Where earnings inequality dimension itself can be seen in various ways, i.e. earnings inequality by socio-economic, demographic and regional characteristics, etc. The demographic characteristic includes gender disparities in earnings. In Pakistan, there exists gender disparity in education. This disparity exists at provincial as well as at sub-regional level and also at different levels of education. In Punjab province literacy rate of male is 68.7% and literacy rate of female is 49.5%. Gender disparity in education also exists in Bahawalpur division, 50.8% males and 30.6% females are literate in Bahawalpur division (MICS 2007-2008). These results show that there exist disparity in education between males and females.

We are interested to see gender differences in returns to education. By returns we mean economic returns or wages/salaries of males and females (extrinsic returns) not intrinsic returns. An extrinsic return means any return or any reward in terms of monetary units or in result of any external action.

In our study we take evidence from formal sector. The formal sector of economy includes reported income taxes, payroll items, employee taxes and any other representative economic factors. The formal sector is an ever more complex system of economics that traditionally grew out of the informal sector.

The main objectives of this study are:

- To estimates the disparity in returns to higher education between male and female in Bahawalpur Division.
- To find out the overall impact of education on returns for highly educated individuals.

## **2. Review of Literature**

The estimation of gender disparity in wage returns to education has received less attention in the literature, because in developed countries gender differences are almost non-existent. Evidence from developing countries is mixed where different estimates of returns to education by gender are available. Some studies found that returns to schooling by gender do not differ significantly (Schultz 1993; Behrman and Wolfe 1984). Other estimates have shown lower returns to women's schooling (Kingdon 1998; Chevalier 2007) and higher returns to women's schooling (Doughtery 1980; Behrman and Deolalikar 1995; Aslam 2002; Asadullah 2005). Nasir (2002) justified that the lower female labour market returns explain lower female schooling in Pakistan, but Riboud, et. al. (2006) found higher returns to women's education. A puzzle is generated in the literature because of these contradictory findings.

Gender wage discrimination exists in developed and less developed countries but at different level. Livanos and Nunez (2010) found that wages for females, both for graduates and non- graduates were lower in Greece and United Kingdom. Similar evidences are existed for United Kingdom (Harkness 1996; Bell and Ritchie 1998; Wright and Ermisch 1991; Makepeace et al. 2004), and for Greece (Patrinos and Lambropoulos 1993; Psacharopoulos 1983; Kanellopoulos and Mavromaras 2002; Karamessini and Ioakimoglou 2007).

Livanos, et. al. (2010) investigated the effect of a higher academic degree on gender wage gap in the United Kingdom and Greece. Micro-data from Labor Force Survey for second quarter of 2004 was used. The sample of the survey was 30,000 individuals. They used Mincerian equation for estimation and also used Oaxaca-Blinder decomposition technique. For the monthly wage the explanatory variables were the socio-demographic (such as age and marital status), employment conditions (such as public contract and temporary), and human capital variables (such as tenure, the squared tenure and the numbers of total hours worked). The study compared the returns to higher education for males and females; then they decompose the gender wage gap between individuals and graduates with secondary education. The technique used was an extension of the Oaxaca-Blinder decomposition technique. They concluded that impact of higher education on wages was much stronger in the UK and moderate in Greece.

Asadullah, Niaz(2005) analyzed total labor market returns to education in Bangladesh. The study estimated labor market returns separately for rural and urban areas for females and males in private sector employees. National level household survey data was used for the analysis. The study used the standard Mincer-Beckerian human capital earnings function approach. After estimation of results extensive heterogeneity was observed in returns. Estimates were higher for urban than rural sample and also higher for female samples as compared to males.

Aslam (2002) estimated private returns to education separately for female and male wage earners in Pakistan. The study used a variety of methodologies i.e. Ordinary Least Squares, 2SLS and Household Fixed Effects, Heckman correction, in order to estimate economic returns to education. The study used Pakistan Integrated Household Survey (2002) data. Dependent variable was wage or salaried employment and independent variables were age, head of household, years of education, marital status, natural log of unearned income, etc. The study concluded that the total labor market returns were much higher for men while returns to education were higher for women. The study suggested that due to higher labor market returns parents have an investment motive in allocating more income to boys than to girls within households.

The discrimination theory argued that female wage returns may be negatively affected by some stereotypes such as caring nature, lesser need for income, physical weakness, low commitment, etc (Anker, 1997). Influenced by these stereotypes, employers could believe that female workers might prefer to commit to their families rather than to their professional career. Due to such circumstances, employers may prefer to reward and train their male generation, whose future revenues are seen more certain. Hence, the employment conditions of females, including salaries, could be negatively affected by prejudices on women's skills and preferences (Aigner and Cains (1977).

## **3. Data and Methodology**

### **3.1 Sampling and Survey**

The paper is based on primary data taken from Bahawalpur Division. The data has been collected to see how labour market returns of males and females are affected by education and other individual

and demographic characteristics. Random Sampling technique was adopted to have the sample, where each working individual in private sector is contacted and interviewed face to face. Our sample size consists upon 430 formal sector employees of schools, colleges, N.G.Os and banks etc. from tehsil Bahawalpur, Hasilpur, Chishtian, Fortabbas, Haroonabad and Minchinabad. The data was comprised of 215 male and 215 female employees. To estimate gender disparity in economic returns to education private sector is chosen because in public sector economic returns for males and females are almost equal at same designation/scale.

### 3.2 Model Specification

To analyse the sources of female-male earnings differentials, decomposition analysis presented by Blinder (1973) and Oaxaca (1973) has been applied. Therefore, the earnings of male and female employees may be written as in the form of a function:

$$y^L = a_0^L + \sum_{i=1}^n a_i^L X_i^L + \varepsilon^L$$

$$y^P = a_0^P + \sum_{i=1}^n a_i^P X_i^P + \varepsilon^P$$

where L is male and P is female.

$$y^L - y^P = \sum_{i=1}^n a_i^L (X_i^L - X_i^P) \dots (i)$$

where equation (i) represents the earning differentials of males and females.

In order to identify the factors which determine the gap in wage returns of males and females labour force, we have constructed our model as:

$$\text{Log WAGE} = \beta_0 + \beta_1 \text{GRAD} + \beta_2 \text{MAST} + \beta_3 \text{MSTATUS} + \beta_4 \text{HLOCALITY} + \beta_5 \text{SCHOOL} + \beta_6 \text{EXP} + \beta_7 \text{NDEPEND} + \varepsilon$$

We can summarize our above basic model as:

$$\ln Y = a_0 + \sum_{i=1}^n a_i X_i + \varepsilon$$

where  $\ln Y = \text{Log WAGE}$ ,  $a_0 = \text{constants}$ ,  $a_i = \text{coefficients}$ ,  $X_i = \text{explanatory variables}$  and  $\varepsilon = \text{Error term}$ . Private wage returns to education are estimated using this equation. In our model equation is in log linear form. We run log linear regression separately for males and females by using Ordinary Least Squares (OLS) method. To check the multicollinearity we use Tolerance and Variance Inflation Factor (VIF).

### 3.3 Operational Definitions of Variables

Dependent variable is log wage, and independent variables are graduation level of education, master levels of education and sporting variables of marital status, household locality, schooling, experience and number of dependents in the household. We have introduced dummies for different level of education (graduation and master), marital status and household locality. The definitions of dependent and explanatory variables are presented in Table 1.

Table-1: Definitions of Dependent and Independent Variables Used in the Model

Variables	Operational Definitions
Dependent Variable	
Log (WAGE)	Log of wages earned per month (salary in Rupees)
Independent Variables	
GRAD (Graduation level of education)	1 if individual has completed 14 years of education, 0 otherwise
MAST (Master level of education)	1 if individual has completed 16 years of education, 0 otherwise
MSTATUS (Marital status of respondent)	1 if married, 0 otherwise
HLOC (Household locality i.e. urban or rural)	1 if respondent is located in urban areas, 0 otherwise
SCHOOL (Schooling of respondent i.e. public or private sector)	1 if school education is from public sector, 0 otherwise

EXP (Experience of work)	Number of years of experience
NDEPEND (Number of dependents in the household)	Number of household/family members dependent upon respondent

#### 4. Results and Discussion

The OLS results are expressed in table- 2a and b separately for male and female respondents.

Table-2a: Results for Returns to Education for Males

Model	$\beta$	t	Sig.
(Constant)	8.864	13.317	.000
GRAD	.219	1.644	.102***
MAST	.668	6.954	.000*
MSTATUS	.223	2.163	.032**
HLOCALITY	.228	2.208	.028**
SCHOOL	.241	2.243	.026**
EXP	3.982	6.154	.000*
NDEPEND	5.154	.233	.816
Dependent Variable: Log WAGE			
$R^2 = .469$			

\* indicates 1 percent level of significance, \*\* indicates 5 percent level of significant and \*\*\* indicates at 10 percent level of significant.

Table-2b: Results for Returns to Education for Females

Model	$\beta$	t	Sig.
(Constant)	7.337	68.387	.000
GRAD	.389	4.168	.000*
MAST	.599	8.092	.000*
MSTATUS	.145	1.763	.079***
HLOCALITY	.307	3.824	.000*
SCHOOL	-2.591	-.003	.997
EXP	4.862	5.162	.000*
NDEPEND	-1.746	-.010	.992
Dependent Variable: Log WAGE			
$R^2 = .532$			

\* indicates 1 percent level of significance, \*\* indicates 5 percent level of significant and \*\*\* indicates at 10 percent level of significant.

Table-2a and 2-b show OLS results of female's and male's returns to education. We have categorised education into two groups: graduation level education and master level education. The coefficient of graduation is higher for females than for males, which shows that after controlling the effect of all the variables, there is probability of 38.9 percent increase in returns to female labour force at graduation level of education. Similar results have been shown by Asadullah (2005 for Bangladesh), Duraisamy (2002 for India), Aslam (2002 for Pakistan). While probability of higher wages having graduation level degree for males is 21.9 percent. It shows that there is probability of that males having graduation level of education earn lower wages than female having same level of education. This may be due to the fact that parents prefer higher education for males than females. Due to the fact females enter earlier in labour force than males and have probability of earning higher wages than males at graduate level. It means there exists 17 percent disparity between female and male earnings at graduate level of education. The coefficient of master level of education is lower in model for female employees than for male employees, which shows that after controlling the effect of all other variables, there is probability of 59.9 percent increase in returns of female labour force due to master level of degree. While probability of higher wages having masters level of degree for males is 66.8 percent. It shows that there is probability of higher wages for males having master level of education than females having same level of education. The results explained that there exists 7 percent disparity between males and females at same level of education i.e. masters level of education. These findings are consistent with Viktor (2006 for Indonesia), Ashraf and Ashraf (1993a, 1993b and 1996) and Nasir (1999 for Pakistan) while contradicted by Aslam (2002) which concluded that the total labour market returns are higher for males but returns to higher education are higher for females.

Conceptually marital status of the employees in formal sector affects the earnings. The male and female employees are differently affected by the marital status regarding their earnings. In the socio-cultural context the males have to earn more to support the family so possibility may be that it affects the earnings positively. On the other hand the married females largely spend their time for home-care activity. It may reduce the earnings of females after marriage. In our analysis we have included the marital status of the employee as explanatory variable to see its effect on the earnings of males and females separately. Our results have shown that being married has a significant positive influence on wages of male labour force, increasing the probability of higher wages by 22.3 percent than unmarried males, but significantly lower for female labour force. Coefficient of marital status for females shows that there is probability of earning 14.5 percent more wages than unmarried females. But there exists wage gap between married males and females. Married females earn higher wages by 14 percentage points while married males earn 22 percentage points. There is 8 percent points disparity in wages between married males and married females i.e. males earns more. These results are consistent with (Viktor 2006) and Aslam (2002). The reason may be that after marriage mostly females give priority to take care of their home and children.

In our models, the coefficient of household locality is higher for females while lower for males. Probability of higher wages is 30.7 percent higher for females who lived in urban areas than those who lived in rural areas. While probability of higher wages for males living in urban areas is 22.8 percent higher than those living in rural areas. Similar results are found by Asadullah (2005 for Bangladesh), Viktor (2006 for Indonesia) and Wodon (1999 for Bangladesh). It explained that households' locality has significantly high association with female wage returns than male. There is probability to earn 7.9 percent higher wages for females than males living in urban areas.

The private and public sector schooling of the respondents may affect their earnings. In our analysis coefficient of schooling measures either the respondent has got schooling from public or private sector. In the results coefficient of schooling is -2.591 and .241 for females and males respectively. Its means that females who got schooling from public sector schools earned wages 25.9 percent lower than those from private sector schools. The males who have taken schooling from public sector earned 24.1 percent higher wages than those who got schooling from private sector schools. The explanation may be that private schools focus more on cramming than public schools especially in the case of females. For the males there is probability to earn 26 percent higher wages when they are educated from public sector schools than females educated from public sector schools. The experience of the employees contributes to wage earnings. In our results, females earn 4.8 percent more wages on the bases of experience and males earn 4 percent more by experience. The coefficient of experience is significant for both models for males as well females. The results are supported by Aslam (2002) and Viktor (2006). Females earn higher wages than males (though less than 1 percent) by incremental addition of experiences.

In the household characteristics, the numbers of dependents is the households as a variable, generally seems to influence the earnings. The numbers of dependents push the working-age group individuals into labour market. Sometimes these individuals are forced to take lower wages and have to adopt the job with lesser earnings. The number of dependents may also affect the earning of males and females differently. We have included in our analysis the number of dependents in the household to see whether this variable effect the earnings of educated employees or not and whether the males and females are affected differently or not. Our results have shown that number of dependents in the household negatively influence the female earnings and positively influence the males earnings. The results have clear explanation in the context of social setup in the country. The females are generally responsible for domestic management of the household as well as caring for children and old age persons in the household. It makes the working house lesser resulting into lower earnings of the females. On the other hand the males are mainly responsible for financially support to the household. In the presence of dependents in the household, they have to work hard and more struggle for the higher earnings. So the number of dependents shows that it has negative impact on female earnings but positive impact on male earnings.

## **5. Conclusion**

The study was aimed to identify the gender disparity in returns to higher education in Bahawalpur Division. The analysis was a case study of private institutions of schools, colleges, banks and NGOs.

Our results revealed that there exists gender disparity in returns to higher education in formal sector private institution under study.

We conclude that females having graduation level of education earn higher wages than males while males earn higher wages than females having masters level of education. This shows that at higher level of education there exists disparity in wage returns between males and females. Our results show that marital status of males and females influence the returns to education divergently. Married females earn less than married males. After controlling other variables females earn higher than their male counterpart by the urban locality of household as compared to the rural locality. The males who are educated from public sector schools earn higher wages than females educated from same types of schools. Number of dependents negatively affects the wage earnings of females, which may be due to heavy work load at domestic level. The promotion of day care center facilities can increase the earnings of females. Experience positively influence the wage returns of males and females.

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