

## **Impact of Education on Female Labour Force Participation in Pakistan: Empirical Evidence from Primary Data Analysis**

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### **Abstract**

*Education plays a pivotal role in human capital formation. Labor has core position in production. The targets of growth and development are attained through educated labor force. The main purpose of the study is to explore the impact of education on female labour force participation. Data is collected through field survey about various educational levels, closed relative educational status and other education related variables. District Bahawalpure is selected as study area, the under-developed district of the Punjab. The sample consists on One hundred and Sixty four Females. The analysis is made at two stage levels. First, we have presented the preliminary analysis of data. Secondary, an econometric analysis is made by using Logistic Regression model. The results of the preliminary analysis have indicated that there is positive trend between education and Female Labour Force participation. The coefficients of all the levels of education except basic education up to middle level are significant in the Logit Regression equation. The role of parents' education turns out to be insignificant while the spouse educational status has positive and significant impact on female labour force participation. Thus study concludes that educated female is successful in attaining employment, raising output and growth.*

**Keywords:** Parents' Education; Female Education; Spouse Education; Female Labour Force Participation; Logit model; Pakistan

### **I. Introduction**

Many social scientists have long been favored the issue of labour market separation by gender wise, that is, the inclination of males and females in the employment to be distributed differently across occupation<sup>1</sup>. In many developing

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<sup>1</sup> Duncan and Duncan (1955), the seminal article on (residential) segregation. See the special issues of the journal of Econometrics, 1994, 6(1) and Demography 1998, 35(4), for recent contributions to gender segregation.

economies, the researchers have brought out gender gap in employment, education and health because these are major indicators of the human capital. Moreover, education is considered as an asset. Once, it has not been achieved, can be sold. Theoretically, it is proved that education is an investment in human capital. It also increases human skills, capability and competencies. There are deluging differences in gender education in many developing economies. In addition, there are great differences in employment opportunities and incomes by gender in most developing countries (World Bank, 2001).

There are many studies in the literature regarding gender differences in education that influence women. Female education plays a vital role in raising the welfare and well-being of societies and families. This issue becomes more important due to number of reasons. First, the educational attainment of females raises the productivity of women through labour market participation. Secondly, the women's education level raises education profile of children and in result a good generation is prepared. Education provides basic skill to empower the females and also enhances women's status in the society. In Pakistan, the level of schooling is still very low for females albeit there has remained positive trend in previous years. The male's literacy rate is not also very high, but as compared to females, their position is better. The present study explores how different level of education, presence of closed relative's education, Family set up, presence of assets, location affect female labour force participation in Pakistan.

The main objective of this paper is to examine the impact of different level of education on female labour force participation. The paper is arranged as follows; the section two presents the review of literature. Data and methodological issues are discussed in the section 3. Section 4 provides the discussion of results. Finally, concluding remarks and policy implications are offered in the section 5.

## **II. Literature Review**

T.W. Schultz and Gray Becker have conducted many studies in the United States with reference to secondary school and college graduates. According to Becker (1964), theory of human capital considers participation in education as an investment in human capital due to the expected return in later in life. Therefore, it can be said that more productive, more skilled and people equipped with better knowledge will be available in the society as the amount of educational attainment rises. Therefore, social factors like fertility, mortality, and children education, distribution of income and life expectancy at birth are strongly influenced by the level of education.

Schultz (1961) has indicated that even the lower level of returns to education is almost equal to the higher return to non-human capital. The author has based his results on Herman P. Miller's lifetime income estimates. The study has explored almost 11 percent return from both high school and college education. He has considered all types of expenditures on education i.e. Private and Public expenditures and also opportunity cost of attending school as the investment costs and non is considered as consumption expenditure. The study has concluded that 36 to 70 percent of the unexplained increase in the labour income is interpreted by the returns to the extra education of the laborers in the U.S.A between 1929 and 1956.

Barro (2000) has made an effort to determine the effect of physical capital stock and human capital stock on the growth rates. He has used a sample of 98 countries for the

years 1965 to 1995. The study concludes that growth rates are inversely influenced by the physical stock of capital while human capital has a positive impact on economic growth rate.

Gemmell (1996) has emphasized the issues of using enrollment rates and has developed alternative measures of human capital, using education attainment at the primary level, secondary level and tertiary level. The results of the study are based on the samples of OECD countries. The evidence has indicated that there is positive correlation between the investment in OECD countries and the secondary level education in the labour force.

Tansel A (2002) has examined the various aspects of women work participation in Turkey by using time series analysis. He has interpreted the estimates of the factors determining female labour market participation rates across the 67 provinces for the years 1980, 1985 and 1990. The present study is based on the U-Shaped hypothesis of female labour force participation. He has attempted to explain the interdependency between female labour force participation and the level of economic development. The study has concluded that female labour force participation is positively and significantly affected by female level of education and economic growth rate. Various studies also concluded that education has strong positive relation with women empowerment in Pakistan and primary schooling for girls and enrolment rates are found to reduce gender inequality in education (Sathar and Lolyd, 1994; Sathar and Kazi, 2000; Rafiq, 19996; Chaudhry, 2007; Chaudhry and Rehman, 2009).

Khan and Irfan (1985) have calculated the private rates of return on education considering various levels of education such as primary, secondary and high. The results have indicated that the calculated rates of return vary directly with the level of education. The similar study has been made by Shabbir (1991) by examining the effects of diploma in the rates of return to education in Pakistan. He has found that there exists substantial and significant impact at four certification level such as matriculation, FA/F.Sc, graduation and Masters.

Nasir and Nazli (2000) have constructed a human capital model for Pakistan. This model is based on Mincerian equation. They have explored the returns to education at various levels of education i.e. Basic, Middle, FA/F.Sc, graduation and Professionals. They have indicated that an additional year of education raises about 7 percent returns for wage earners. They have found that there is positive relation between higher education and higher earnings.

Hill and King ((1995) has studied the effect of gender differences on education in an empirical growth context. The study has related the levels of Gross Domestic Product to gender gap in education. They have concluded that a low female-male ration is linked with a lesser level of GDP Per Capita.

The International labour force office (2000) has indicated that the key indicators of the labour market are higher education. They have stressed that education and training are considered the basic need of the economy. The labour market entry and education are closely linked.

Shah Rummana (2007) has traced out the impact of higher education on women's earnings. Data is collected about the education level, experience and monthly salary of the female teachers working in the public sector educational institutions. Mincerian based model is estimated by using ordinary least square method. The study concludes that with every rise in educational level, there is an increase of monthly income of the females.

### III. Sources of Data and Methodological Issues

#### *Statement of the Hypothesis*

After discussing the review of some important studies, it is hypothesized that various levels of education (i.e. up to middle level, Matric, intermediate, graduation and masters, M.Phil, Ph.D and Professionals) are positively related to female work participation. In addition, we have used closed relative education (Educated Father, Mother and Spouse) as proxy variables to trace out their effect on female labour force participation in economic activities. Further, the study has included some additional variables relating to like marital status, presence of assets, location family set up and family size to affect the FLFP.

The detail list of these variables is given in the table.

**Table 1 List of Selected Variables**

Variables	Description of the Variables		
<b>Dependent Variables</b>			
FLFP	Female Labour Force Participation	Force	=1 of female worker participate in economic activities =0 Otherwise
<b>Explanatory Variables</b>			
AGECY	Age in completed year		
EDUCI	Education up to middle level		1= if the worker level of education is up to middle 0= Otherwise
EDUCII	Matric level of education		1= if the worker education level is Matric =0 Otherwise
EDUCIII	Intermediate level of education		1= if the worker education level is Intermediate 0= otherwise
EDUCIV	Graduation level of education		1= if the worker level of education is BA/B.Sc, B.Com, B.Tech 0= Otherwise
EDUCV	Masters, M.Phil, Ph.D & Professionals		1= if the worker level of education is MA/M.Sc, M.Phil, Ph.D and Professionals 0= otherwise
EDUCM	Educated Mother		1= if the worker mother is educated 0= otherwise
EDUCF	Educated Father		1= if the worker's father is educated 0= otherwise
EDUCS	Educated Spouse		1= if the worker's Spouse is educated 0= otherwise
MARTS	Marital Status		1= if the worker is married 0= otherwise
PHAST	Presence of Assets		1= if the worker has assets in any form 0= otherwise
FAMUP	Family Set up		1= if the worker belongs to joint family 0= otherwise
LOCTN	Location/ Residence	Region of	1= if the worker is living in the urban area 0= otherwise
HSIZE	Household Size		Total number of the family members

**Sources of the data**

To observe the effect of education on female labour force participation especially under-developed district of Punjab like Bahawalpure has been selected for analysis. The study is based on the primary source of data. Data has been collected through stratified random sampling and simple random sampling techniques. One hundred and sixty four females aged 15-64 years are interviewed for this analysis. Samples are drawn both from urban and rural areas according to the population distribution. District Bahawalpure comprises on five Tehsil (Namely Bahawalpure, Yezman, Ahmad Pure East, Khairpur Tamiwali and Hasilpure). Two Tehsils (Bahawalpure and Yezman) are selected randomly for analysis.

**Logit Regression Model**

In this study, we have used binary Logit econometric model for examining the impact of education on female labour force participation in terms of binary characteristics.

The generalized form of our equation can be written as

$$L = \ln\left(\frac{P_i}{1 - P_i}\right) = \alpha + \beta_i X_i + \mu_i$$

Where

L= Dependent binary variable (1= if female worker participates in economic activities and 0 otherwise)

$\alpha$  = Intercept Term

$\beta_i$  = Coefficient of explanatory variables.

$\mu_i$  = Stochastic error term.

In case of binary logit regression model, the slope or marginal effects are calculated as

$$\frac{\partial L}{\partial X_i} = P_i \left(1 - P_i\right) \beta_i$$

**IV. Results and Discussion**

**a. Preliminary Data analysis**

Before interpreting the empirical results of the study, a preliminary analysis of the data is presented.

**Female Labour Force Participation and Education**

Now, we present the relationship between education and female labour force participation. According to the theory, education directly influences the labour force participation. We explore the link between the various education levels and labour force participation from the data, given in the table 2.

**Table 2: Distribution of respondents by education**

Education level	Participants	Non Participants	Total
EDUCI Up to Middle	27 (24.55) [61.36]	17 (31.48) [38.64]	44 (26.83) [100]
EDUCII Matric	24 (21.82) [63.16]	14 (25.93) [38.84]	38 (23.17) [100]
EDUCIII Intermediate	19 (17.27) [63.33]	11 (20.37) [36.67]	30 (18.29) [100]
EDUCIV BA/B.Sc or B.Com	18 (16.36) [69.23]	08 (14.81) [30.77]	26 (15.85) [100]
EDUCV MA / M.Sc / M.Phil / P.hD and Professionals	22 (20.0) [84.61]	04 (7.41) [15.39]	26 (15.85) [100]
<b>Total</b>	110 (100) [67.67]	54 (100) [32.93]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals

The distribution of participating and non participating females by their education level is reported in the table 2. This analysis indicates that the female labour force participation and education levels are positively correlated. As the level of education increases and females attain higher education, their participation in the labour market increase. The females whose education level is intermediate 63.33% females are more likely to participate in the labour market (84.61%) female in the labour market are highly educated.

#### ***Father's education and female labour force participation***

Supply of labour is also influenced by the education level of father. It is expected that the workers whose fathers are educated, they are more likely to participate in the labour market. The following table portrays the relationship between the female labour force participation and educated fathers.

**Table 3: Distribution of Respondents by Father's Education**

Father's Education	Participants	Non participants	Total
Educated father	71 (64.55) [70.3]	30 (55.56) [29.70]	101 (61.59) [100]
Un educated father	39 (35.45) [61.9]	24 (44.44) [38.1]	63 (38.41) [100]
<b>Total</b>	110 (100) [67.07]	54 (100) [32.93]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals

The table 3 gives a picture of distribution of participating and non participating females by the presence of educated father. Data shows that educational status of father is positively related to the females’ participation in the labour market. Almost 70.30% females are participating in the labour force whose parents are educated while uneducated father’s daughters are less likely to participate in the labour market and their participation rate is about 61.9%.

***Mother’s Education and female labour force participation***

Presence of mother’s education is another factor which positively influences female labour force participation in economic activities. The table 4 traces out relationship between female labour force participation and presence of mother’s education.

**Table 4: Distribution of respondents and mother’s Education**

Mother’s Education	Participants	Non participants	Total
Education mother	59 (53.64) [84.29]	11 (20.370) [15.71]	70 (42.68) [100]
Un educated mother	51 (46.36) [54.26]	43 (79.63) [45.75]	94 (57.32) [100]
<b>Total</b>	110 (100) [67.07]	54 (100) [32.93]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals

The table 4 shows the distribution of respondents by the presence of mother’s education. Data shows that educated mother’s daughters’ participation rate (84.29%) is greater than those females whose mothers are uneducated which is 54.26%. The study concludes that educated mothers and female labour force participation are directly related. Generally most of the educated mothers are already working outside home activities because they want to contribute the family budget. This thing motivates the females to participate in the labour market.

***Spouse education and female labour force participation***

Female labour force participation decision is affected by spouse education. Spouse’s education can effect both the women labour force participation and her time allocation in either market or non-market activities. It is expected that the females are more likely to participate in the labour market whose husbands are educated.

**Table 5: Distribution of respondents by spouse's Education**

Spouse Education	Participants	Non-participants	Total
Educated spouse	65 (59.09) [69.15]	29 (53.70) [30.58]	94 (57.32) [100]
Un-educated spouse	45 (40.91) [64.29]	25 (46.30) [35.71]	70 (42.68) [100]
<b>Total</b>	110 (100) [67.07]	54 (100) [32.09]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals

Table 5 reveals that labour force participation females of educated husbands is greater than those of uneducated husbands. That is labour force participation is 69.15% for the wives of educated husbands and it decrease to 64.29 % for those of uneducated husbands. The results show that there is positive correlation between husband's education and labour force participation. Educated husband's wives are more likely to participate in the labour market and there is low labour market participation rate of uneducated husband's wives.

#### ***Female labour force participation by region of residence***

We explain the relationship between female labour force participation and location or region of residence. It is expected that female labour force participation is sizeable in both rural and urban areas. The following table explains the interdependence between FLFP and area of residence or location.

**Table 6: Distribution of Respondents by region of residence**

Region of residence	Participants	Non-participants	Total
Rural	72 (65.45) [67.92]	34 (62.96) [32.08]	106 (64.63) [100]
Urban	38 (34.55) [65.52]	20 (37.04) [34.48]	58 (35.37) [100]
<b>Total</b>	110 (100) [67.07]	54 (100) [32.93]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals.

The distribution of participating and non participating women according to the area of residence is analyzed in table 6. In rural areas 67.92% female are participating in the labour market while 65.52% participating females belong to urban areas. Data shows that rural participation rate among female is up to some extent greater than urban participation rate. The agriculture sector shows rising level of female labour force



participation and targeting of labour intensive live stock and dairy sector provided to be an employment strategy for employment in rural areas.

### ***Labour Force Participation and Family Setup***

Family setup is another important factor which affects female labour force participation. The correlation between FLFP and family setup is given in the following table

**Table 7: Distribution of Respondents by family setup**

Family setup	Participants	Non-Participants	Total
Joint family	73 (66.36) [73.74]	26 (48.15) [26.26]	99 (60.37) [100]
Nuclear family	37 (33.64) [56.92]	28 (51.85) [40.08]	65 (39.63) [100]
<b>Total</b>	110 (100) [67.07]	54 (100) [32.93]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals

In the table 7, distribution of participating and non participating females by family set-up is presented. Data given in the table indicates that female labour force participation is in high joint families. It means that joint family system has positive impact on female labour force participation. Among the joint families about 73.74% females are participating in the labour market while 26.26% of them do not participate. On the other hand about 56.92% females in the nuclear family are working, while 40.08% females are not participating in the labour market. The analysis of family set up indicates that the females are less likely to participate in the labour market that belongs to nuclear family setup. The reason may be that they are involved in home based activities instead working outside the home. The females of joint families are more likely participate in the labour market because their home based activities such as child caring, cooking, washing etc are shared by the other female family members.

### ***The labour force participation and marital status***

Female Supply of labour is highly influenced by the marital status. The relationship between female labour force participation and marital status is presented in the following table.

**Table 8: The distribution of respondents by marital status**

Marital status	Participants	Non-Participants	Total
Married	87 (79.09) [68.50]	40 (74.07) [31.50]	127 (77.44) [100]
Un-married	23 (20.91) [62.16]	14 (25.93) [37.84]	37 (22.56) [100]
<b>Total</b>	110 (100) [67.07]	54 (100) [32.93]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals

The table 8 specifies the respondent's distribution according to marital status of participating and non-participating females. The study shows that female labour force participation is high among married women. Therefore married women have positive effect on female labour force participation. 68.50% married women are participating in the labour market while un-married women's participation rate is 62.16%. Married women are more likely to participate in the labour market in developing countries like Pakistan because of mass-poverty, low household's income and high inflation. Females' share the financial burden of the family by working as a casual worker, involve in teaching activities, by doing embroidery and stitching cloths. In rural areas, females work on farms in joint family system

#### ***Household size and female labour force participation***

Among other important factors affecting female labour force participation decision, household size is important one. Size of household can affect both, the women labour force participation decision and her time allocation in either market or non-market productions. The following table depicts relationship between labour force participation and household size.

**Table 9: Distribution of respondents by household size**

Size of household	Participation	Non-participation	Total
1-4	10 (9.09) [35.71]	18 (33.33) [64.29]	28 (17.07) [100]
5-8	58 (52.73) [69.88]	25 (46.30) [30.12]	83 (50.61) [100]
9-12	37 (33.64) [78.72]	10 (18.52) [21.28]	47 (28.66) [100]
13-16	05 (4.55) [83.33]	01 (1.85) [16.67]	06 (3.66) [100]
<b>Total</b>	110 (100) [67.07]	54 (100) [32.93]	164 (100) [100]

Source: - Field Survey by the author.

Note: Values in round brackets are percentages from column totals, while the values in square brackets are percentages from row totals

We have specified the distribution of respondents according to the household size of participating and non-participating females. The household size has positive effect on female labour force participation. The female participation rate in labour market is 35.71% whose family size ranges from one to four (1-4) persons. As the family size increases, the females are more likely to participate in productive activities. The females whose size of family consists upon 13 to 16 people, their participation is about 83.33%. When the household size increases, the female labour force participation increases just to

share the family burden and provide financial help to head of household for meeting the basic necessities of family.

#### b. Estimates of the Binomial Logit Model

We estimate a Logit model on a set of independent variables considering the females labour force participation in economic activities. Table 10 provides three sets of number i.e. the estimated parameters, their asymptotic Z-statistic and marginal effects or probability derivatives. The probability derivative shows the change in the probability because of one unit change in a given explanatory variable keeping all other variables as fixed at their mean.

The results of the study show that the age of the females affects females' work participation in the economic activities positively. Education plays a pivotal role in deciding females' participation in economic activities. Educational qualification raises the job opportunities of the entire individual and for females also. It is generally observed, the females' participation in economic activities increases as the level of education increases. The similar trend has been seen in the present study considering the relationship between the different levels of education and females' work participation. Education level up to middle (EDUCI) influences the female labour force participation inversely, however, the coefficient of EDUCI is statistically insignificant. Except the basic education up to middle level, the coefficients of all others levels of education are positively influencing the women's decision regarding labour force participation. The females are 24.63 percent more likely to participate in the labour market at the completion of secondary or Matric level of education (EDUCII). The coefficient of EDUCIII is positive and statistically significant. The probability of female participation rises by 39.57 percentage points due to an increase of one unit in the intermediate level of education. On the completion of graduation level of education, the probability of women's work participation increases by 45.26 percent points as compared with women having non-formal education. Supporting to the previous results, the highly educated females are more likely to enter in the labour market by about 75 percentage points. Not only the education is positively related with education but have significant impact on participation. The similar results are found by Naqvi and Shahnaz (2002).

**Table 10: Binomial Logit Estimates of Female Labour force Participation (15-64 year)**

Variable	Coefficient	Z-statistic	Marginal Effects
Constant	-0.0747	-0.0398	-
AGECY	0.0229	1.056	0.0051
EDUCI	-0.9529	1.423	0.211
EDUCII	1.1139***	1.707	0.2463
EDUCIII	1.7898**	1.984	0.3957
EDUCIV	2.047*	2.284	0.4526
EDUCV	3.3879***	1.6872	0.7491
EDUCM	0.1329	0.2379	0.0294
EDUCF	0.2398	0.4889	0.053
EDUCS	1.2987**	1.972	0.2871
MARTS	0.6275	0.6553	0.1387
PHAST	-3.694*	-5.091	-0.8167
FAMUP	0.7905	1.3026	0.1748
LOCTN	0.6744***	1.653	0.1491
H SIZE	0.2540*	2.335	0.0562

Sample Size (N) = 164	McFadden R <sup>2</sup> = 0.384
Log Likelihood = -64.00363	
LR Statistic (14 df) = 79.83297	Prob (LR Stat) = 0.00000

\* Significant at 1%, \*\* Significant at 5%, \*\*\* Significant at 10%

Non-Formal education is considered as base outcome

The parents' education status is another factor which influences the female labour force participation. The educated mother's have positive and insignificant impact on females' participation in economic activities. The females are more likely to participate in economic activities by 5.3 percentage points whose fathers are educated but the coefficient of educated father is also statistically insignificant. The reason may be that the study incorporates all levels of education as core variables separately to determine the females' labour market participation. That is why the parents' educational status becomes unimportant for females regarding labour force participation decision. Our results are supported by Hafeez and Ahmad's study (2002). The coefficient of educated husband (EDUCS) turns out to be positive and highly significant at 5 percent level of significance. The probability of work participation rises by 28.71 percentage points.

The marital status of the females is another important variable which influences the females' participation in economic activities. The result of marital status (MARTS) shows that the probability of female labour force participation rises by 13.87 percentage points due to an addition of one married female. Presence of household assets (PHAST) in the form of financial assets (bank accounts, saving certificate, bonds, share) and physical assets (land holdings, livestock, shops, machinery, equipments, rented homes etc) has negative effect on labour force participation. The evidence indicates that the women are less likely to participate in economic activities by 81.67 percentage points. The coefficient of PHAST is not only negative but has significant impact on the female labour force participation.

It has been concluded that females residing in joint family system are more likely to participate in the labour force by 17.48 percentage points. However, the result of the coefficient FAMUP is statistically insignificant. Supporting the last results, the probability of work participation rises by 5.6 percentage points due to an increase of one unit in the household size. The reason may be that the financial pressure rises as the size of family increases. Therefore, females participate in economic activities just to share the family financial burden. The region of residence or location has a positive and significant impact on female participation in economic activities. Females are more likely to participate in the labour market by about 15 percentage points because of an addition of one female in urban area.

## **V. Conclusion and Suggestions**

The study concludes that all the education levels except basic level of education up to middle level have a positive and significant impact on the female labour force participation. Females are more likely to participate in economic and business activities as the level of education increases. It is suggested that more education facilities should be provided generally in Pakistan and particularly in the study area. Especially, technical, vocational and job oriented education should be provided to the females. The impact of educated father and mother are on the female labour force participation is positive and insignificant. It means that when the children grow up, they are independent in decision

making. The evidence indicates that education empowers the females. However, an important conclusion drawn in this study is that educated spouses (husbands) have positive and significant effect on wives' employment. So it is suggested that growth targets can be achieved through educating both males and females.

## References

- Becker, G. (1964). Evaluating the impacts of human capital stocks and accumulation on economic growth: some new evidence. *Oxford Bulletin of Economics and Statistics*, 58(1), 9-28.
- Becker, Gary S. (1962). Investment in Human Capital: a Theoretical Analysis. *Journal of Political Economy*, 70, Supplement.
- Borro, Robert J. (2000). Inequality and Growth in a Panel of Countries. *Journal of Economic Growth* 5, 5-32.
- Chaudhry, I.S. (2007). Impact of Gender Inequality in Education on Economic Growth: Empirical Evidence from Pakistan. *The Pakistan Horizon*, 60 (4), 81-92
- Chaudhry, I.S. and Rehman, Saeed Ur (2009). The Impact of Gender Inequality in Education on Rural Poverty in Pakistan: An Empirical Analysis. *European Journal of Economics, Finance and Administrative Sciences*, 15, 174-188.
- Gemmel, N. (1996). Evaluating the impacts of human capital stocks and accumulation on economic growth: Some new evidence. *Oxford Bulletin of Economics and Statistics*, 58(1), 9-28.
- Hafeez, A., and Eatzaz Ahmed (2002). Factors determining the labour force Participation decision of Education Married Women in Pakistan. *Sustainable Development Policy Institute*. (Working Paper Series No. 174.).
- International Labour Organization (2000). Sectoral activities programme: Education [Online]. Available URL:
- Khan S. R. and M. Irfan (1985). Rate of return to education and determinants of earnings in Pakistan. *The Pakistan Development Review*, 34(3, 4).
- King, E. and A. Hill (1995). Women Education in Developing Countries. Baltimore: Johns Hopkins Press.
- Naqvi Zareen F. and Lubna Shahnaz (2002). How do women decide to work in Pakistan?. *The Pakistan Development Review*, 41(4), 495-513.
- Nasir, Z. M. and Hina Nazli (2000). Education and Earnings in Pakistan. *Pakistan institute of Development Economics, Islamabad*, (Research Report No 177).

- Rafiq, M. (1996). On Analyzing Educational Waste in the Punjab Schools. *The Pakistan Development Review*, 35 (4).
- Sathar, Z.A and Cynthia B.L. (1994). Who gets Primary Schooling in Pakistan: Inequalities among and Within Families? *The Pakistan Development Review*, 33(2), 103-134.
- Sathar, Z.A. and Kazi, S. (2000). Women's Autonomy in the Context of Rural Pakistan. *The Pakistan Development Review*, 39 (2), 89-110.
- Schultz, Theodore W. (1960). Capital formation by Education. *Journal of Political Economy*, 68(6), 571-83.
- Schultz, Theodore W. (1961). Investment in Human Capital. *The American Economic Review*, (1). L1,.
- Schultz, Theodore W. (1975). The value of the ability to deal with Disequilibria. *Journal of Economic Literature*, (8).
- Shah Rummana (2007). Impact of Higher Education on Earnings of women in the public sector educational institutions in Pakistan. *International Business and Economic Research Journal*, 6(11), 117-124.
- Tansel, A. (2002). Economic Development and Female Labor Force Participation in Turkey: Time Series Evidence and Cross Province Estimates. *ERC Working Papers in Economics 01/05*.
- World Bank (1975). Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education, Second Edition, New York. *National Bureau of Economic Research*.