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MICROECONOMETRIC ANALYSIS OF PRIVATE RETURNS TO EDUCATION AND DETERMINANTS OF EARNINGS

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Abstract. This paper attempts to identify the key determinants of earnings of the employees in institutions of general education in Lahore District (Pakistan). A sample of 3358 teaching and non-teaching employees of institutions (universities, colleges, schools) has been gathered in 2009 through a questionnaire technique. The main objective of this research work was to explore the major factors that affect individual's earnings and to estimate the private financial returns to education by different levels of education. The factors that positively and significantly contributed to earnings of all, university, college and school respondents were respondent's education, age, experience, occupation, gender, working hours, spouse education, family background and family status. The results of this study reveal that private financial returns to education vary with the level of education. The private financial returns to education for college level respondents have been found to be the highest (9.1%) among all levels of education. The positive contribution of computer literacy in case of University respondents has been found to be highest (15.3%) among all. The occupation (teaching vs non-teaching) earning differentials were found to be highest at University level of education. Teaching staff (irrespective of gender) has been found earning more than non-teaching staff at all levels of education. The gender earning differential gap found to be highest at school level. Those university respondents, who have passed matriculation examination (SSC) from private educational institutes, earn 8.7% more than those who have qualified SSC from government educational institutes. On the basis of findings of this study, it is recommended that such rational development programs and policies should be initiated that minimizes the staff earnings differentials that arise due to occupation (teaching vs non-teaching) and gender (male vs female) basis.

I. INTRODUCTION

Education, being the starting point of each and every human activity, is considered to be key factor in the development of human capital. It raises not

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only labour productivity and efficiency of workforce but also produces a highly skilled manpower that leads the economy towards sustainable economic growth and hence economic development. Education, training and skills are the main levers for acquiring human capital. Education ensures the acquisition of knowledge and skills which enable the individuals to increase productivity. This increase in productivity guarantees new sources of earnings resulting enhancement in economic growth (Saxton, 2000).

Endogenous growth theories (*e.g.* Lucas, 1988) and augmented Solow growth theories (*e.g.* Mankiw, Romer and Weil, 1992) have stressed the importance of education in determining sustainable economic growth. Some nations have more income and wealth than other's nation. Education proved itself to be the main source of this across nation variation in income and wealth. The role of education and hence human capital in determining individual earnings and economic growth is widely accepted but how much economic growth can be raised by expanding only education has not yet been settled. Psacharopoulos (1994) noted that the relative significance of human capital (acquired knowledge and skill) was higher in developing countries relative to developed countries. The rates of return to education for developing countries are higher than those for advanced countries (Psacharopoulos, 1994, 1989, 1981).

Returns to education are the reward of investing in education. This reward can be in the form of earnings and other social returns like honor, status, accommodating attitude, etc. Blundell, Dearden, Goodman and Reed (2000) have classified returns to investments in higher education into three main categories:

- Private financial returns to education — acquiring education improves the earnings and/or employment prospects of individuals.
- Private non-financial returns to education — it includes improvements in individual's welfare that are not a part of measured earnings (*e.g.*, easy access to highly paid jobs, better working environment and so on).
- Social returns to education — acquiring education may have a benefit to other individuals of the society. It is over and above private returns to education. It would occur in the form of positive externalities of the education.

Variation in wages, salaries and earnings and other facilities among people is still a complex and controversial subject. Education level and its standard are the main causes of this variation. Global transfer of technology

is another cause of over the time changing returns to education. Education is one of the most powerful instruments of reducing poverty, inequality, unemployment and other social evils and thus lays foundation for sustainable economic growth and development.

Returns to education generally vary with kind and/or level of education. Empirical analysis of returns to education has shown mixed results. Psacharopoulos (1994) summarized the patterns of rates of return to education prevailing throughout the world as:

- The rate of returns to education diminishes with the levels of education, *i.e.* primary schooling has more returns than those of secondary schooling and the secondary education gives more returns than even higher education.
- The returns to education are higher in the private sector than that of public sector. The difference is the outcome of the productivity enhancement role of education in the private sector and fixed and rigid pay structure in the public sector.
- The pattern of returns to education remains almost stable as far the developed countries are considered.
- Female's private returns to education are higher than their male counterparts.
- The rates of return to education in developing countries are higher than those in developed countries.

The relationship between education and earnings has always been very strong. Education supports significantly differential role in one's earnings. Studies on education and earnings in several countries support a positive relationship between the two. The positive and significant impact of education on earnings is considered to encourage the younger to continue their studies beyond the compulsory level of education. More educated workers get, on average, more returns than their less educated counterparts because they can perform a wider range of tasks and they can easily be trained in new skills. Educated workers get higher wages, more respect and dignity, stable and sustained employment and higher horizontal and vertical mobility. So education — a measure of human capital accumulation — plays an important role in one's wages and earnings differentials. Gindling (1991), Terrell (1993), and Kruger and Summers (1988) have rigorously analyzed the wage differentials between private and public sectors in the industrial world and found dispersion in wages across the industries and sectors substantial.

Besides education, there are many other factors such as age, experience, occupation, gender, working hours, respondent's sector of matriculation examination (SSC) institution, computer knowledge, and other family and household characteristics that determine individual's earnings. Age may be a variable for determining the individual's earnings. Usually wage increases with the increase in age, but in some cases this may reverse. Gender is also another determinant of earnings. Males have advantage over females in job market in developing countries. Women are paid less than men (Siphambe, 2000). Hussain and Awan (2007) quantified return to education in Pakistan and found that male earned more than their female counterparts. Marital status also affects the rate of returns. Married individuals tend to earn more than the unmarried fellows (Green, 2003). Khan and Irfan (1985) found a significant and positive relationship between the individual's family background and his earnings in case of Pakistan.

Pakistan being a developing country needs rapid expansion in its educational facilities to boost economic growth to be at par with the prosperous nations of the world. This responsibility lies on the shoulders of educationists, economists, and other decision makers of the nation. Though Pakistan's education sector has rapidly expanded and upgraded in the last two decades yet research conducted in education sector of Pakistan has not been utilized policy formulation. Major proportions of educational institutions have been running and administrating at various levels of Government of Pakistan since 1973. Private, semi public and autonomous institutions still do not constitute a big portion of education sector. In public sector, minimum academic requirements for the post of various cadres are fixed and pay scales are rigid. At the end of every year, annual increments in the form of an increase in salary are automatically given without any improvement in qualifications and productivities (Chisti, Hasan and Rasheed, 1998).

The slow and steady growth of knowledge of each kind and level has always been a severe restraint to economic progress and prosperity of Pakistan. In spite of a considerable rise in educational institutions and enrollment in the decades of 1980s and 1990s, Pakistan's labour market is still deficient in educated and skilled manpower. This may be the result of mismatch between education attained and demand suitability for the graduates in the job market. It leads to many social and economic problems including unemployment and low earning profiles both at micro and macro levels. In the light of above scenario, it is high time that the role of education and other determinants of earnings for the economic benefits of individuals and society be analyzed and explored.

The connection between teaching and non-teaching staff's earnings and their education has been an important subject for educationists, economists, and other policy researchers. There are a variety of factors including traditional and non-traditional and educational and non-educational that play a decisive role in determining the earnings of both male and female employees of educational institutions of Pakistan. The present study investigates the role of different major factors such as education, experience, age, gender, and other relevant variables like family background, family status, computer literacy, etc. in determining individuals' earning profiles and then estimated private financial returns to education in the teaching and non-teaching labour market of district Lahore, Punjab Pakistan. The main purpose of this study is to empirically examine whether it is academic qualifications (education) or some other factors like age, experience, occupation, gender, working hours, respondent's sector of SSC institution, spouse education, family status, family background, computer skills are also crucial in determining the private financial returns to education or earnings of employees of educational institutions in Lahore District.

OBJECTIVES OF THE STUDY

The objectives of this study are:

- To examine the major determinants of earnings of the employees in institutions of general education of Lahore District, Punjab Pakistan.
- To assess the variation in earnings with level of education of the employees in institutions of general education in Lahore.
- To explore private financial returns to education at different level of education.
- To compare the relationship between education and earnings for teaching and non-teaching, and male and female workforce of institutions of general education in Lahore.
- To suggest some policy options.

ORGANIZATION OF THE STUDY

The review of previous studies has been presented in section II of the paper. Section III explains sources and nature of data, tool for data collection and methodology. Empirical results and their analyses are presented in section IV. Final section consists of conclusions and recommendations of the study.

II. REVIEW OF LITERATURE

Some studies have been conducted on private returns to education and the determinants of earnings at national and international levels. However, there is hardly any study based on primary data collected by researcher himself in Pakistan. The review of studies undertaken by now is presented below:

Education has a direct effect on life time earnings of individuals. It enhances the accumulation of human capital. There is a positive association between earnings and education levels of individuals. Low level of education of workforce is the cause of dominance of the unskilled and poorly educated persons in the labour market. Literacy moves the workforce towards higher wages in the job market. In Pakistan, the low salaries are offered to the teachers as compared to other market-oriented professions (Nasir and Nazli, 2000).

The pattern of rate of returns to education varies with the level of education in different countries of the world. Academic qualification seems to be attracting more substantial benefit in the labour market (Sianesi, 2003). Returns to primary education are more than that of secondary education and it is more than the returns to higher education (Psacharopoulos, 1994)). Siphambe (2000), while analyzing the returns to education in Botswana, tested the empirical robustness of Mincerian earnings functions and found it quite robust. The other major results of his study are: returns rises by level of education, education does not prove itself to be income equalizing, and females are paid less than males although they seems to be more educated. Primary, secondary and tertiary levels of education also have positive effect on earnings and minimize the chances of a family to be poor (Kurosaki and Khan, 2006; Okojie, 2002). Differences in earnings are affected by time worked (Chiswick and Mincer, 1972; Carnoy, 1996). The relationship between education and earnings in market economies is well known. Human capital theory has provided the basis for the examining of effect of education on earnings since the late 1950s. Human capital theory elucidates that a large increase in earnings by different level of education reveals enhanced returns to individual's investment in education (Wu and Xie, 2003). Cook (2004) concluded his study that the average experience was significantly associated with growth in productivity.

Altonji and Dunn (1995) utilized individual-level data and estimated the effect of parental education and school quality on returns to education. They find mix support regarding the effect of parental education, but in most of the specifications, including their preferred specification, they found that

individuals having a more educated parent were associated with a higher rate of return.

Psacharopoulos and Patrinos (2002) reviewed international research on returns to investment in education and concludes, "Overall, the average rate of return to another year of schooling is 10 percent. The highest returns are recorded for low and middle-income countries." They also found that an increase in supply of education, keeping other factors constant, had led to a minor decrease in the returns to education. Their review also pointed out that the private returns to higher education were increasing. Ashenfelter, Harmon, and Oosterbeek (1998) reviewed 97 different studies on returns to schooling and found 6 to 9 percent, on average, rate of return to one additional year of schooling. Psacharopoulos and Patrinos (2004) note the tendency for returns to education to be higher for women than for men in developing countries which reflects the female's lower base level of education as compared to males.

Like many other countries, public sector workers in Pakistan tend to have higher average pay and educational levels as compared to their private sector counterparts (Hyder, 2007). Mincer (1974), Griliches (1977), Psacharopoulos and Layard (1979), Psacharopoulos (1985), Mace (1992), Griffin and Edwards (1993), Griffin and Ganderton (1996), Carnoy (1997), Cooper and Cohn (1997), Preston (1997), Cohn and Addison (1998), Light (1998) and Ashenfelter, Harmon and Oosterbeck (1990) used earnings functions to establish a relationship between earnings and education and evaluated the rates of returns to education. The outcomes of all these studies supported the positive association between education and earnings. Naderi and Mace (2003) used multi level analysis for manufacturing sector in Iran and found that the amount of education and experience was significantly and systematically associated with employee's earnings.

Nasir and Nazli (2000) studied the effect of level of education on earnings and found that high level of education was associated with higher earnings in Pakistan. More educated workers attain highest earnings with less experience (Mincer, 1974). Higher levels of education lead to higher earnings as the employment experience lengthens (Kirby and Riley, 2004). It was also established that a worker with a certain level of education may be more productive in one particular occupation than the other and would thus receive higher wages (Knight, 1979). Human capital variables and the level of skills of an individual are positively correlated with earnings (Knight and Sabot, 1990).

Socio-economic status of family has negative effect on the woman participation in labour force in Pakistan (Shah, 1986). Patrinos (1995) concluded that the relationship between family status and family background do not have conclusive results in developed and developing countries like UK, USA, France, Kenya, Tanzania, Brazil and Israel. This relationship is negative in UK, positive in France, whereas no linear relationship was witnessed in USA. A positive relationship between father's family status and son's returns to schooling was also observed in Kenya, Brazil, Tanzania and Israel. Family background measured by father's education and returns to school was found to be positively related in Greece. Another study conducted by Zuluaga (2007) found that poor persons get benefited more from the educational attainment. Asadulah (2006) is of the view that females enjoy more private returns than the males in workforce in the labour market. Aakvik *et al*. (2005) examined the effect family background such as family income and parental education on the education attainment for Norway. The individual and household characteristics are clearly very important characteristics of school enrollment, particularly for girls. A child's probability of enrollments is increasing in parental education, where mother's education being relatively important in encouraging girls' enrollment. The estimates also confirm the importance of some village background effects on individual's education. Heyneman (1979) has found that socioeconomic status was not as important for Uganda students as it was for US students.

Khan and Irfan (1985) estimated earning function and computed private rate of returns to different levels of education for Pakistan. They found that returns rate varied positively with the level of education. The private rates of return for all level of education found to be lower in Pakistan than in the other developing countries. They also found a positive and significant relationship between individual's family background and his earnings.

In Pakistan, the female participation in labour force is very low as compared to other South Asian countries like Bangladesh, Nepal, India, Bhutan and Sri Lanka (World Bank, 2002). Their participation is influenced by their educational level, marital status, age, children of age 0-5, and financial status of the head of household and family size (Naqvi and Shahnaz, 2002).

Presence of more male members in a family decreases the probability of women participation in the labour force (Rashed, Lodhi and Chisti, 1989). The rate of private returns to education differs on the basis of gender and level of education. Males and higher educated personnel usually get higher

rates of returns than females and less educated individuals (Chalaminong and Amornthum, 2001).

Like other developing countries, the performance of Pakistan's education sector and system is not very encouraging. The low level of public and private investment, poor physical infrastructure, lack of trained teachers, rigid pay scale system, deficiency of proper teaching aids, disparities between regions and gender have been the major causes of poor performance of education sector of Pakistan. Skewness of funds towards one level of education has remained another cause.

A few attempts by Hamdani (1977), Haque (1977), Guisinger *et al.* (1984), Khan and Irfan (1985), Shabbir (1991; 1994) Ashraf and Ashraf (1993*a*; 1993*b*), Nasir (1998), Siddiqui and Siddiqui (1998) and Nasir and Nazli (2000) have been made to investigate earning differentials by using secondary source data such as Pakistan Social and Living Standards Measurement Survey (PLSM), Labour Force Survey and Pakistan Integrated Household Survey (PIHS) in Pakistan labour market. However, there is hardly any study based on primary data collected by the researcher that investigates the private returns to education, traditional and non-traditional determinants of earnings of the educational institutions' employees of Pakistan economy.

This study has its significance in various aspects. The results of this study can easily be generalized for provincial and national levels as the data for the study was collected at random sample basis. The findings of this study are useful as a guideline to economic planners in relating to the efficient allocation of scarce resources among different levels of education. The primary users of this study are economic planners and policy makers in education sector. This study provides guidelines for designing/formulating future earnings/wage policies at provincial and national levels. The students in general can also benefit from the results of this study for future career planning and further studies.

This paper is based on the following hypotheses: (*a*) Is there any relationship between individual's earnings and its major determinants like respondents education, age, experience, occupation, gender, working hours, respondent's sector of SSC institution, family status, family background, computer skills and spouse education etc. for the employees of educational institutions? (*b*) Do female employees of institutions of general education earn more than their male counterparts? (*c*) Does the rate of returns to education rise with the rise in education level of employees of educational institution?

III. METHOD AND PROCEDURE

This study is of quantitative nature as it employs econometric methods to measure the private financial returns to education and determinants of earnings. A survey method was used for collection of data for both teaching and non-teaching workforce of educational institutions of Lahore District. A questionnaire (*see* Appendix I) was used for data collection to conduct this preliminary survey. The private returns in terms of difference in monthly earnings associated with difference in education, experience, age, gender, family background, family status, and others was measured by adopting human capital approach.

TOOL FOR DATA COLLECTION

Data was collected from the sample of teaching and non-teaching staff of educational institutions by using questionnaire method (*see* questionnaire in Appendix I). A sample of 3358 [[University respondents = 1239{teaching staff = 407 (male = 163, female = 244)} and {non-teaching staff = 832 (male = 763, female = 69)}], [College respondents = 656 {teaching staff = 577 (male = 255, female = 322)} and {non-teaching staff = 79 (male = 56, female = 23)}] and [School respondents = 1463 {teaching staff = 1305 (male = 276, female = 1029)} and {non-teaching staff = 158 (male = 103, female = 55)}]] teaching and non-teaching staff was selected. On the basis of review of literature and objectives of the study, a questionnaire was constructed consisting of the items related to earnings, education, demographic information and other socio-economic determinants to justify other earnings function considering objective-oriented indicators.

METHODOLOGY

The measurement and analysis of the private financial returns to education (*i.e.* individual wages/earnings obtained from investing in education) and determinants of earnings has always been the subject of theoretical and empirical research both at national and international level. To estimate major determinants of earnings and private returns to education, economists often make use of earnings function approach which is very popular in labour economics and is attributed to the work of Mincer (1974). This approach is based on some assumptions leading to advantage of simplicity. The earnings function approach in calculating private returns to education is more appropriate for different levels of education where tuition is paid by government or any other funding agency (Hyclak, Johnes and Thorton, 2005) as is the case in Pakistan. Public sector education is highly subsidized and funded by government in Pakistan. Education at primary and secondary

levels has always been totally free and subsidized in Pakistan since her independence. Tuition fee at Universities of Pakistan has also been highly subsidized. So the appropriate standard approach to analyze

(*a*) earning differentials, and

(*b*) the relationship between earnings and its major determinants involve the fitting of the Mincerian style microeconometric model.

The specification of the regression models for the variable earnings is as fallow:

$$\ln Y = \alpha_0 + \sum_{i=1}^{k} \alpha_i X_i + \varepsilon_i \qquad \text{(Model 1)}$$

Where

ln = Natural logarithm

Y = Earnings of respondents

X_i = A set of k traditional and non-traditional determinants of earnings. X_i includes variables like education, work experience, and different control variables. The estimated parameter attached to education variable measures the private returns to education.

ε = Random error term

The specific form of the above model is as under.

$$\begin{aligned}\ln \text{Earn} = {} & \beta_0 + \beta_2 \text{ Edu} + \beta_3 \text{ Age} + \beta_4 \text{ Exper} + \beta_5 \text{ Occup} \\ & + \beta_6 \text{ G} + \beta_7 \text{ WH} + \beta_8 \text{ SSCs} + \beta_9 \text{ Fback} \\ & + \beta_{10} \text{ Compu} + \beta_{11} \text{ EduS} + \beta_{12} \text{ FStatus} + \varepsilon \end{aligned} \qquad \text{(Model 2)}$$

Where

Earn = Earnings (in Rs.) of teaching and non-teaching staff of general education. Salary and income from other sources of staff has been added to get earning.

Edu = Respondent's schooling education (in years) — a measure of the quantity of human capital.

Age = Respondent's age (in years)

Exper = Respondent's experience (in months)

Occup = Respondent's occupation category (1 for teaching staff and 0 for non-teaching staff)

G = Respondent's gender (1 for male staff and 0 for female)

WH = Respondent's working hours

SSCs = Respondent's sector of SSC institution (0 for government institution and 1 for private institution)

FBack = Family background which is measured by father's education (in years of schooling). In Pakistan, an individual is known by his/her father's name, education, profession and income etc.

Compu = Computer literacy which is measured by use of computer and internet (1 for using computer and internet and 0 for not using computer and internet at work place)

EduS = Spouse education (in years of schooling)

FStatus = Family status which is measured by family's ownership of car/cars (1 for having car ownership and 0 for not having car ownership). Owning at least one car is considered as one of the most important indicators of family status in many developing countries especially in Pakistan. Having car/cars along with having house ownership is considered as a family status in Pakistan.

ε = Error term

The data obtained through survey was analyzed by using econometric techniques. SPSS 19.0 was used for estimating of models and making other comparisons.

IV. EMPIRICAL RESULTS AND THEIR ANALYSIS

This section deals with the analysis of empirical results along with their interpretation by using multiple linear regression approach. The summary statistics of different factors that affect teaching and non-teaching earnings are presented in Table 1. SD and CV, in Table 1, stands for standard deviation and coefficient of variation respectively.

The results in Table 1 reveal that the earnings, years of schooling, age, experience, family background, family status and spouse years of schoolings, on average, are found to be highest at college level respondents.

TABLE 1

Descriptive Summary Measures

	Model 2.1 All respondents				Model 2.2 University respondents				Model 2.3 College respondents				Model 2.4 School respondents			
	Obs.	Mean	SD	CV	Obs.	Mean	SD	CV	Obs.	Mean	SD	CV	Obs.	Mean	SD	CV
Earn	3358	16861	2.26	0.01	1238	17603	2.21	0.01	656	***23263***	2.06	0.01	1463	14069	2.28	**0.02**
ln Earn	3358	9.73	0.82		1238	9.78	0.79		656	10.06	0.72		1463	9.55	0.83	
Edu	3358	14.59	3.014	20.7	1238	14.02	3.541	**25.3**	656	***15.94***	2.15	13.5	1463	14.46	2.66	18.4
Age	3358	35.59	10.95	30.8	1238	34.25	10.23	29.9	656	***39.97***	10.79	27.0	1463	34.75	11.13	32.0
Exper	3358	140.21	111.97	79.9	1238	131.51	112.43	**85.5**	656	***173.41***	115.70	66.7	1463	132.72	107.14	80.7
Occup	3358	0.68	0.47	69.6	1238	0.33	0.47	**142.4**	656	0.88	0.33	37.5	1463	***0.89***	0.31	34.8
G	3358	0.48	0.50	104.2	1238	***0.75***	0.44	58.7	656	0.47	0.50	106.4	1463	0.26	0.44	**169.2**
WH	3358	7.04	1.38	19.6	1238	***7.83***	1.27	16.2	656	6.51	1.40	21.5	1463	6.61	1.14	17.2
SSCs	3358	0.23	0.42	182.6	1238	***0.24***	0.43	149.2	656	0.17	0.37	**217.6**	1463	***0.24***	0.43	179.2
FBack	3358	12.21	2.82	18.7	1238	12.14	2.93	**24.1**	656	***12.81***	2.78	21.7	1463	11.99	2.70	22.5
Compu	3358	0.32	0.47	146.9	1238	***0.55***	0.50	90.9	656	0.23	0.42	0.02	1463	0.16	0.37	**231.2**
EduS	3358	11.92	2.44	20.5	1238	11.67	2.54	**21.8**	656	***12.80***	2.70	21.1	1463	11.73	2.11	18.0
FStatus	3358	0.25	0.43	172.2	1238	0.26	0.44	169.2	656	***0.42***	0.50	119.0	1463	0.17	0.38	**223.5**

The mean working hours, the average computer uses, the more male respondents and the more respondents that have completed their matriculation from private sector are found to be highest at university level respondent.

The mean earnings of college respondents is found to be highest (Rs. 23,263) while the university and the school respondents earnings is found to be (Rs. 17,603) and (Rs. 14,069). The variations in earning which is measured by coefficient of variation are found to be highest at school level respondents.

Table 1 also reveals that the average years of schooling of college respondents seen to be highest while the variation in years of schooling is found to be highest at university level respondents. The average working hours of university respondents, college respondents and school respondents are observed 7.8 hours, 6.5 hours and 6.61 hours respectively. This reveals that college respondents earn more by spend less hours than the university and school respondents. The more earnings and less working hour relationship at college level respondents need to be explored further.

The average family status is found to be highest at college level respondents, while the variation in the family status of school level respondents is found to be highest among all levels of education. The school level respondents are found to have lowest family status. On the basis of above finding, this study also recommends that the govt. should take some solid steps to enhance the earnings and provide transportation facility to school respondents, so that their educational productivity can increase.

The university respondents are found to be more computer literate (0.55) than college (0.23) and school respondents (0.16). The computer literacy which is considered part and parcel of individual's as well as institutional productivity must be increased at all level of respondents especially at school level respondents.

To estimate private financial returns to education and identify the determinants of earnings, an econometric model was estimated by using Ordinary Least Squares Principle (OLS) for four data sets: (*i*) All respondents (full sample), (*ii*) University respondents, (*iii*) College respondents, and (*iv*) School respondents.

The empirical results of these models are presented in Table 2.

TABLE 2

Regression Results
Dependent Variable: ln Earn

	Model 2.1 All respondents	Model 2.2 University respondents	Model 2.3 College respondents	Model 2.4 School respondents
Constant	6.635 (0.000)	7.246 (0.000)	6. 594 (0.000)	6.809 (0.000)
Edu	0.051 (0.000)	0.042 (0.000)	0.107 (0.000)	0.038 (0.000)
Age	0.014 (0.000)	0.009 (0.003)	0.019 (0.000)	0.011 (0.000)
Exper	0.001 (0.000)	0.001 (0.000)	0.001 (0.087)	0.001 (0.000)
Occup	0.345 (0.000)	0.563 (0.000)	0.247 (0.008)	0.247 (0.001)
G	0.354 (0.000)	0.187 (0.000)	0.098 (0.073)	0.436 (0.000)
WH	0.044 (0.000)	0.059 (0.000)	–0.002 (0.909)	0.038 (0.039)
SSCs	0.065 (0.023)	0.087 (0.041)	0.006 (0.923)	0.055 (0.243)
FBack	0.030 (0.000)	0.012 (0.098)	0.006 (0.529)	0.036 (0.000)
Compu	0.196 (0.000)	0.153 (0.000)	0.053 (0.352)	0.150 (0.006)
EduS	0.043 (0.000)	0.030 (0.000)	0.039 (0.000)	0.047 (0.000)
FStatus	0.282 (0.000)	0.315 (0.000)	0.110 (0.030)	0.230 (0.000)
N	3358	1238	602	1463
Adj. R^2	0.35	0.43	0.42	0.23
F Statistic	162.50 (0.000)	85.08 (0.000)	40.44 (0.000)	40.55 (0.000)
D-Watson	1.75	1.82	1.727	1.69

Figures in parentheses are P-values.

The results given in Table 2 reveal that the factors that positively and significantly contributed to earnings of all respondents, university respondents, college respondents and school respondents were respondent's education, age, experience, occupation category, gender, hours worked, spouse education, respondent's sector of SSC institution, computer literacy and family background and status. Respondent's sector of SSC institute contributed positively and significantly only to university respondent. This implies that SSC completed from private educational institute matters only to university respondents. Those university employees, who have passed SSC from a private institute, earn 8.7% more than those who have passed SSC from a government educational institute. Such type of respondents may have good communication and presentation skills. Family background contributed positively and significantly to earnings of all respondents (Model 2.1), University respondents (Model 2.2) and school respondents (Model 2.4) as was in Khan and Irfan (1985). Computer literacy is found to be contributing directly in level of education. Its contribution in case of University respondents has been found to be highest (15.3%) among all. An increase in the number of hours worked proved to be significant for all categories of respondents except college respondents. Teaching staff (irrespective of gender) has been found to earn more than non-teaching staff at all levels of education. This earnings differential emerged highest (even more than double) at university level (56.3% at university level and 24.7% at college and school levels each). This could be the result of dominating role of teaching staff in financial decision making and implementation. Male teaching and non-teaching staff earned more than their counter parts at all levels of education. This earning gap found to be highest at school level. Male respondents are found to earn 43.6%, 9.8% and 18.7% at school, college and university level respectively. Females are paid less than males, although they seem to be more educated (consistent with Hussain and Awan, 2007). It could be the outcome of male gender biased society or better working environment for males. The contribution of family status measured by number of cars a family possesses has been found highest at university level.

The private financial returns to education at university, college and school teaching and non-teaching staff were found 4.2%, 10.7% and 3.8% respectively. It means that the respondents having college level of education have the highest returns to education, while returns to education for the respondents having university and school level of education stood at 2nd and 3rd respectively. It is also found from the result given in Table 2 that individual's earnings in educational institutions increases by 5.1% for a one

year increase in their average years of schooling. These estimates are low compared with world average of 10.1 per cent and the Asian average of 9.6 percent (Psacharopoulos, 1994). The highest (even more than double) private returns to education for college teaching and non-teaching staff among other levels of education could be the result of doing extra work as private tutors for additional income as well as performing double duties for extra payment.

The proportion of variation in the dependent variable (ln Earn) for each category has been well explained. The regression models for each category qualify the overall goodness of fit criterion as the F-value was found highly significant for each case.

DELIMITATIONS OF THE STUDY

This study is geographically limited to only Lahore District because both the education level and labour market of any other district of Punjab Province is not as much developed as of Lahore District. Furthermore, individuals from all over the Pakistan, especially from all districts of Punjab, come to Lahore to get education and join labour market. It is also delimited to the private financial returns to education rather than private non-financial and social returns to education as examining private non-financial and social returns to investments in education deserves another independent study.

V. CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The principle objectives of this study were to explore the major determinants of earnings of the employees in institutions of general education of Lahore District and to estimate private financial returns to education by different levels of education. It has been found that the college respondents earn more even they spend fewer hours than the university and school respondents. The highest variation in earnings of the school level respondents is seen. The university respondents are found to be more computer literate (0.55) than college (0.23) and school respondents (0.16).

The factors that positively and significantly contributed to earnings of all respondents, university respondents, college respondents and school respondents were respondent's education, age, experience, occupation category, gender, hours worked, respondent's sector of SSC institution, computer literacy, spouse education, family background and family status. Those university employees, who have passed SSC from a private institute, earn 8.7% more than those who have passed SSC from a government educational institute. This finding has important implications in assessing the

effectiveness of private and public schools in Pakistan. Family background contributed positively and significantly to earnings of all respondents, University respondents and school respondents. Computer literacy contribution to university respondents has been found to be highest (15.3%) among all. Teaching staff (irrespective of gender) has been found to earn more than non-teaching staff at all levels of education. This earnings differential emerged highest even double at university level (56.3% at university level and 24.7% at college and school levels each). Female respondents are found to earn less than their counterparts at all levels of education. This gender earning differential gap found to be highest at school level. The contribution of family status has been found highest at university level. The private financial returns to education for university, college and school teaching and non-teaching staff were found 4.2%, 9.1% and 3.8% respectively. It is also found that individual's earnings in educational institutes' increases by 5.1% for a one year increase in their average years of schooling. These estimates are low compared with world average of 10.1 per cent and the Asian average of 9.6 per cent (Psacharopoulos, 1994). This reveals that the private returns for all level of education in Pakistan remains low as compared to other developing countries. This result is consistent with the results of Khan and Irfan (1985).

RECOMMENDATIONS

On the basis of above findings, this study recommends:

- The more earnings and less working hour relationship at college level respondents need to be explored further in another independent study.
- The computer literacy which is considered part and parcel of individual's as well as institutional productivity must be increased at all level of respondents especially at school level respondents. The highest variation in the earning of school level respondents must be addressed.
- Government and Heads of educational institutions should initiate programs to uplift the earning status of their workforce especially non-teaching staff so that they may further positively contribute for the betterment and smooth running of the institutes especially at university level institutes.
- Some solid step may be taken to increase the female's earnings.

- Non-teaching staff should involve in decision making so that they may express their financial and non-financial concerns. Financial incentives should be initiated especially for female non-teaching and teaching staff so that the earnings differentials may be reduced and smooth running of the institution may be improved.
- Development programmes should be rationalized to minimize the differentials between teaching vs non-teaching and male vs female staff earnings.
- Private education taken at matriculation level matters only to university respondents may be further explored in another independent study.
- An independent study is recommended to sort out the causes of low return to education in Pakistan as compared to world, Asia and other developing countries.

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APPENDIX I

Please encircle the relevant code e.g. 1, 2, 3, 4, 5 etc throughout the Questionnaire.
The information given by you will always remain confidential and will only be used for research purposes.

SECTION - I PERSONAL INFORMATION			
P1	Date of interview (*dd/mm/yyyy*): _ _ /_ _ /2011-12		
P2	Full name (***optional***)	Mr. / Ms. / Mrs. / Dr.	
P3	Name of Institution/Organization where employed		
P4	Town/Location in which Institution/Organization falls	01. Lahore Cantt 02. Aziz Bhatti Town 03. Data Ganj Bukhsh Town 04. Allama Iqbal Town 05. Nishtar Town	06. Ravi Town 07. Shalimar Town 08. Wahga Town 09. Samanabad Town 10. Gulberg Town 11. **Other** (*please specify*) _____
P5	Domicile (*Name of the District*)		
P6	*(For **University/College** respondents only)* Your current designation and position?	**Designation** 01. Professor 02. Associate Professor 03. Assistant Professor 04. Lecturer 05. Other (*please specify*) _____	**Position** 01. Dean 02. Principal 03. Director 04. Chairman/ Head 05. Other (*please specify*) _____
P7	*(For **School** respondents only)* Your current designation and position?	**Designation** 1. PST/PTC/ESE 2. SESE/EST 3. SSE(SST) 4. SS 5. SSS 6. Other (*please specify*) _____	**Position** 01.Headmaster/ Headmistress 02. Deputy Headmaster/ Headmistress 03. Principal 05. Other (*please specify*) _____
P7.1	***(For respondents other than educational Institutions)*** Your current designation and position?	**Designation** _____	**Position** _____
P8	Nature of job	01. Permanent 02. Temporary 03. Part Time 04. Full Time	05. Contract 06. Daily wages 07. Other (*please specify*) _____
P9	**Per month income**	**Net Salary in Rs**: _____ **Income from other sources in Rs (if any)**: _____ **Please specify other sources**: 1. _____ 2. _____ 3. _____	
P10	Date of birth (*mm/yyyy*)	Month: _____ ; Year: _____	

SECTION - II
QUALIFICATION, EXPERIENCE, COMPUTER SKILLS AND TRAININ GS ACQUIRED

Q1	Your Educational Qualification	**Total number of years of education acquired**: ……..	
		Last/Terminal Degree/Certificate Obtained	Degree/Certificate: …… *Subject:* …….. *Institution:* …….. *Country*: …… Last Degree/Certificate **percentage**/grade: …… You qualified **Last Degree/Certificate** Examination under: 01. Annual system 02. Semester system
Q2	What is your category in the Institution/Organization?	01. Teaching staff 02. Non-teaching 03. Other _____	
Q3	Type of Institution/Organization	01. Federal government 02. Provincial government 03. Semi-government/Autonomous body 04. Private 05. Other (*please specify*) _____	
Q4	What are the main reasons to work in this Institution/Organization?		
Q5	Daily working hours?	Official hours 01. Less than 6 hrs 02. 06-08 hrs 03. 08-10 hrs 04. 10-12 hrs 05. More than 12 hrs	Extra hours 01. Less than 6 hrs 02. 06-08 hrs 03. 08-10 hrs 04. 10-12 hrs 05. More than 12 hrs
Q6	Total working experience **(from first job to the present one)**	Years: _____ Months: _____	
Q7	Total working experience in educational Institution/Organization	Years: _____ Months: _____	
Q8	Tenure **(Years spent with the same/current institute/organization)**	Years: _____ Months: _____	
Research Work(if any)			***(If not then skip to Q9.6)***
Q9	No. of published **articles**	**National Journals:** HEC recognized: _____ HEC not recognized: _____ **International Journals:** HEC recognized: _____ HEC not recognized: _____	
Q9.1	No. of **papers** presented at	01. International Conferences/Seminars: …….. 02. National Conferences/Seminars: ……	
Q9.2	No. of **books** published as	01. Single author: …… 02. Co-author: …… 03. Editor: ……..	
Q9.3	No. of **book chapters** published as	01. Single author: …… 02. Co-author: …… 03. Editor: ……	

Q9.4	No. of **theses** supervised at	Graduation level	Master level	M.Phil level	Ph.D level	Total

Q9.5	No. of **keynote speeches** presented at	01. International Conferences/Seminars: …….. 02. National Conferences/Seminars: ……
Q9.6	How much **research income** have you received?	01. As a **single** grantee: …….. 02. As a **joint** grantee: ……
Q10	Do you use ***computer*** at ***home***?	Yes ……1 No ……2 **If Yes**, since how long have you been using ***computer*** at home? __ __ (years)
Q11	Do you use ***internet*** at ***home***?	Yes ……1 No ……2 **If Yes**, since how long have you been using ***internet*** at home? __ __ (years)
Q12	Do you use ***computer*** at ***work?***	Yes ……1 No ……2 **If Yes**, since how long have you been using ***computer*** at work? __ __ (years)
Q13	Do you use ***internet*** at ***work?***	Yes ……1 No ……2 **If Yes**, since how long have you been using ***internet*** at work? __ __ (years)
Q14	Have your earnings increased by using computer/internet?	Yes…… 1 No ……2 **If Yes**, then how much your income (per month) has increased by using computer/ internet? 01. 1%-20% 02. 21%- 40% 03. 41%- 60% 04. 61%- 80% 05. 81%- 100%
Q15	Did you receive any **local/foreign training** which is helpful for this job?	Yes ……1 No ……2 ***(If answer is 'No' then skip to Q17.1)***
Q16	No. of Pre-service trainings	No. of local trainings: _____Duration: _____(days) No. of foreign trainings: _____Duration: _____(days)
Q17	No. of In-service trainings	No. of local trainings: _____Duration: _____(days) No. of foreign trainings: _____Duration: _____(days)
Q17.1	Do trainings help **you** in raising your earnings?	Yes ……1 No ……2 **If Yes**, then how much your income (per month) is increased by getting trainings? 01. 1%-20% 02. 21%- 40% 03. 41%- 60% 04. 61%- 80% 05. 81%- 100%
Q18	Does foreign language proficiency help **you** in raising your earnings?	Yes ……1 No ……2 **If Yes**, then how much your income (per month) is increased by foreign language proficiency? 01. 1%-20% 02. 21%- 40% 03. 41%- 60% 04. 61%- 80% 05. 81%- 100%
Q19	In which foreign language you are **most** proficient?	01. English 02. Arabic 03. French 04. German 05. Other (*please specify*):_____

SECTION - III
RESPONDENT'S HOUSEHOLD INFORMATION
(***Household*** *means a family or families sharing the same kitchen*)

HH1	**Gender** of head of household	Male ……1 Female ……2
HH2	**Income** of head of household	Rs./month: ……..
HH3	**Your** gender	Male ……1 Female ……2

HH4	**Your** mother tongue	01. Urdu 02. Punjabi 03. English 04. Pashtu 05. Suraiki 06. Balochi 07. Sindi 08. Other_____	
HH5	Do **you** belong to?	Urban area 1	Rural area 2
HH6	Your **Mother, Father** Education	**Mother** 01. Not literate 02. Under Matric (Primary/Middle) 03. Under Graduate (Matric/Intermediate) 04. Graduate 05. Masters 06. M. Phil/Ph. D 07. Professional Degree *(Doctor/Engineer/Architect /CA/Lawyer/Others)* 08. If other, *please mention*: _____	**Father** 01. Not literate 02. Under Matric (Primary / Middle) 03. Under Graduate (Matric/Intermediate) 04. Graduate 05. Masters 06. M. Phil/Ph. D 07. Professional Degree *(Doctor/Engineer/Architect /CA/Lawyer/Others)* 08. If other, *please mention*: _____
HH7	Your **Mother, Father** Occupation	Mother: ……..	
HH8		Father: ……	
HH9	Your marital status	01. Unmarried 02. Married 03. Widowed 04. Divorced	***(If answer is 'unmarried' then skip to HH19)***
HH10	Please mention number of children if you are married	Male children: _____ Female children: _____ None: ***(If answer is 'None' then skip to HH12)***	
HH11	Please mention number of children in each age group	01. Under 5 ( ) 02. 05 – 09 ( ) 03. 10 – 12 ( ) 04. 13 – 14 ( ) 05. 15 – 19 ( ) 06. 20+ ( )	

HH12 — **If any child of you is *Earning Hand*, then please mention the profile of those children.**

Sr. #	Age	Years of Education	Occupation	Sector*	Income (Rs/month)

*Sector Codes: 1 = Public, 2 = Private, 3 = Semi- Govt., 4 = Others (*identify*) ----------

HH13	If married , please specify **spouse** educational qualification (Husband's **spouse** is his wife and wife's spouse is her husband)	**Total number of years of education received**: ……..	
		Spouse Last /Terminal Degree/Certificate Obtained	Degree/Certificate: …… *Subject:* …… *Institution:* …… *Country*: …….. Last Degree/Certificate **percentage**/grade: …… Your **spouse** passed **Last Degree/Certificate** Examination under: 01. Annual system 02. Semester system
HH14	Is **spouse** employed?	Yes 1	No 2
HH15	Employment sector of **spouse**	01. Federal Govt. 02. Provincial Govt. 03. Semi-Govt./Autonomous 04. Private 05. Other (*please specify*)_____	

HH16	Per month income of **spouse**	**Spouse Net Salary in Rs**: _____ **Spouse income from other sources in Rs (if any)**: _____ **Please specify other sources of Spouse income**: 1. _____ 2. _____ 3. _____	
HH17	Your Mother in-Law, Father in-Law **Education**	**Mother in Law** 01. Not literate 02. Under Matric(Primary / Middle) 03. Under Graduate (Matric/Intermediate) 04. Graduate 05. Masters 06. M.Phil/Ph.D 07. Professional Degree *(Doctor/Engineer/Architect /CA/Lawyer/Others)* 08. If other, *please specify*: _____	**Father in Law** 01. Not literate 02. Under Matric(Primary/ Middle) 03. Under Graduate (Matric/Intermediate) 04. Graduate 05. Masters 06. M.Phil/Ph.D 07. Professional Degree *(Doctor/Engineer/Architect /CA/Lawyer/Others)* 08. If other, *please specify*: _____
HH18	Your Mother in-Law, Father in-Law **Occupation**	**Mother in Law:**	
HH19		**Father in Law:**	
HH20	Your residence	01. Owned 02. Rented 03. Govt. accommodation 04. Other (*please specify*):_____	
HH21	What is the area of house you live in?	If **Urban,** *please specify* 01. 1-5 Marla 02. 6 – 10 Marla 03. 11 – 15 Marla 04. 16 – 20 Marla 05. Above 20 Marla	If **Rural,** *please specify* 01. 1-5 Marla 02. 6 – 10 Marla 03. 11 – 15 Marla 04. 16 – 20 Marla 05. Above 20 Marla
HH21.1	Do you own **agriculture land**?	Yes .....1 No .....2 If yes, then specify **agricultural income** (per annum) in **Rs**:	
HH22	Do you have your **own car**?	Yes .....1 No 2	
HH23	Do other members of your family have cars?	Yes .....1 No 2	
HH24	(If yes, then please mention)	01. 1 Car 02. 2 Cars 03. 3 Cars 04. 3+	
HH25	How many **landline** and **mobile** phones are in your **household**	Total No. of landline(like PTCL) phones: _ _ Total No. of mobile phones: _ _	
HH26	**Performance Based Incentives (PBI)** are helpful to boost your earnings	01. Strongly agree 02. Agree 03. Neutral 04. Disagree 05. Strongly disagree	
HH27	Have you currently received Performance Based Incentives **(PBI)**	01. Financial 02. Non-Financial 03. Both 04. None ***(If answer is 'None' then skip to HH29)***	

HH28	Financial **PBI** currently received	01. Performance award/ incentive award 02. Accelerated promotion 03. Special prize 04. Sponsored travel 05. Sponsored training & education 06. Sponsored recreation/ entertainment 07. Others (*please specify*):_____
HH29	Non-Financial **PBI** currently received	01. Assignment of additional charge/ authority 02. Issuance of certificate of merit/ honor/ appreciation 03. Best teacher award 04. Acknowledgement of performance in official news letter/publications 05. Ceremony arranged in recognition of performance 06. Best research paper award 07. Other (*please specify*):_____
HH30	Your salary is increased on what basis?	01. Experience 02. Performance 03. Both (Experience and performance) 04. Annual increment 05. Other (*please specify*):_____
HH31	Are you satisfied with your ***job***?	01. To great extent 02. To some extent 03. Not at all
HH32	Are you satisfied with your ***salary***?	01. To great extent 02. To some extent 03. Not at all
HH33	During your **school days,** how much difficult was for you to reach at school?	01. To great extent 02. To some extent 03. Not at all
HH34	During your **college days,** how much difficult was for you to reach at college?	01. To great extent 02. To some extent 03. Not at all
HH35	During your **university days,** how much difficult was for you to reach at university?	01. To great extent 02. To some extent 03. Not at all
HH36	You did Matric(SSC)/O level from	01. Govt. school 02. Private school 03. Others (*please specify*)
HH37	When did you qualify/pass **Matric (SSC)/O level Examination**.	Year: ……. **Percentage**/Grade: ……
HH38	Your high school/O level section was located in	Rural area ……1 Urban area ……2
HH39	Do you think that **a person's personality (***personality in the form of physical appearance, looks etc***)** affects his/her earnings?	Yes ……1 No ……2
HH40	Do you observe any role of **your personality** in raising your earnings?	Yes ……1 No ……2 **If Yes,** then how much your earnings (per month) are being increased? 01. 1%-20% 02. 21%- 40% 03. 41%- 60% 04. 61%- 80% 05. 81%- 100%
HH41	Please provide your contact information if you wish to know the findings of this study (***optional***)	E-mail: ……. Phone: …… Cell: …….

THANKS FOR YOUR KIND CO-OPERATION