12th Annual Conference of the Economic Research Forum (ERF)
December 19, 2005

(Labor Research Theme)

Wage Inequality by Education and Gender in MENA: Contrasting the Egyptian and Moroccan Experiences in the 1990s

By

Fatma El-Hamidi
Department of Economics
University of Pittsburgh (USA)
fatma@pitt.edu

and

Mona Said
Department of Economics
SOAS, London University
ms101@soas.ac.uk

Wage Inequality by Education and Gender in MENA: Contrasting the Egyptian and Moroccan Experiences in the 1990s

Abstract

The 1990s has been a decade of considerable socioeconomic change in the MENA region characterized by adoption of economic liberalization policies and a declining role of the state as an employer in the labor market. This paper explores some of the equity implications of this transition by examining changes in the distribution of returns to education and gender wage premia in the Egypt and Morocco market using joint models of educational choice and wage determination. Selectivity corrected returns to different levels of education indicate that a reduction in the role of the public sector lead to lower returns in the private sector and falling returns over time. Only at the university level, are returns higher in the private sector in Egypt indicating that employers place relatively little value on basic and secondary education. In Morocco there is some evidence of higher returns in the private sector by the end of the 1990, which might be indicative of better matching of educational credentials and productivity differences. Oaxaca-Blinder wages-differentials decompositions of sector and gender wage gap for Egypt and Morocco indicate that the unexplained component in public wage premia and gender gaps have declined in Egypt, but substantially increased in Morocco over the 1990s. Overall, economic liberalization and public sector retrenchment which were much more comprehensive in Morocco appear to have had a more dislocating effect also on labor market wage outcomes. The paper ends with some policy implications and suggests future directions of research in the areas of educational and public sector reform and policies to improve access of women to the private sectors in MENA.

I. Introduction:

It is now fairly well-established that labor markets around the world tend to be structured along gender and level of educational attainment dimensions. In accordance, the last two decades or so has seen a proliferation of research on returns to education and gender-based discrimination in both developed and developing world contexts. Given the traditionally large role of the state as an employer throughout the MENA region, the gender-education nexus in wage setting has often been explored across the public-private divide for those countries.

There is some preliminary published evidence indicating that for a selected group of MENA countries (Egypt, Morocco, Jordan and Yemen) returns to education are generally higher in the public sector than in the private sector at nearly all education levels but the university level. This suggests that the private sector places less value on basic and secondary education (World Bank, 2004). There also appears to be a gender dimension to the distribution of returns to Education. For example, analysis of 1988 and 1998 Egyptian data has shown that over that decade, returns to education have been falling for nearly all educational levels, but the decline was most dramatic for females (Said, 2002). These results call attention for the need for further examination of gender differentials in returns to education in Egypt and else-where in the MENA region.

This paper examines changes in the distribution of returns to education and gender wage premia in the Egyptian and Moroccan labor market in the 1990s. This period have been one of considerable socioeconomic change in both countries, characterized by adoption of economic liberalization policies and a declining role of the state as an employer in the labor market. The choice to focus our research on a comparison between Egypt and Morocco in the 1990s, emanated from both empirical (availability of data) and theoretical grounds. Not only are there relatively rich data sets for those two countries, but also the comparison between them can be quite informative for conceptual reasons. Both countries had some form of guarantee of public sector employment for their graduates,[1] but stand at two extremes in terms of problems in their educational systems. Egypt is praised for now approaching universal primary school enrollment and closing the gender gap on that count, but criticized for over-investing in low quality secondary and tertiary education, whereas Morocco is seen to be one of only three countries in the region (the other two being Saudi Arabia and Yemen) where access to primary schools remains problematic; especially for girls (Van Eeghen, 2003; Megahid, 2004). It would be interesting to examine how these differing patterns impacted on gender wage differentials and labor market rewards to education.

For both countries, we formally test the hypothesis that a reduction in the role of the public sector led to falling returns to education over time and lower returns in the private sector compared to the public sector. This will be accomplished by estimating selectivity corrected returns to different levels of education, from which a crude estimate of the private rate of return is calculated. However, a reduction in educational premia does not necessarily mean that wage inequality is reduced. Wage inequality along other dimensions, such as gender, occupation and region, may in fact increase as public sector wage-setting rules become less salient (World Bank, 2004). Thus a second set of questions that will be examined in this paper relates to whether there has been a widening

[1] Although in Morocco the scheme was not as formalized and comprehensive as in Egypt, nor indeed did it have the same devastating impact on educational expansion and labor market outcomes.

in wage differentials, particularly along gender and sector lines since the early 1990s in both countries.

The rest of this paper will be organized as follows: Section II presents a brief review of recent research on returns to education and relates it to past results published for the MENA region. Section III then introduces the methodology of estimation used in this paper and Section IV presents the main results from applying these models to four round of household-level labor survey data for Egypt and Morocco in the 1990s. Section V decomposes gender-based wage inequality for the two countries to facilitate studying hypotheses on the incidence of gender discrimination, and Section VI concludes by drawing some policy implications and pointing to some future directions of research.

II. Approaches in Returns to Education Research: A Literature Review

There are several approaches in researching education and labor market outcomes. A number of studies use Mincer's human capital earnings function (HCEF). This model is also the most commonly employed method in labor economics. In the human capital model, an individual invests time and forgone earnings in order to obtain higher future benefits, the discounting method is then used to calculate individual (private) rate of return.[2] The methodology used in the human capital literature has been criticized for not taking into consideration other important factors such as family background that are not typically available in wage data.

A related model used to calculate educational attainment is the reduced–form estimation model. Studies implementing reduced-form models typically evaluate the influence of family and neighborhood characteristics on returns to education. Numerous studies find strong evidence that parental education has a significant effect on the child's returns to education (Haveman et al, 1991; Wilson, 2001).

The literature on the production function approach in researching education views various school characteristics, specifically teacher salaries, class size, student/teacher ratio, and expenditures per student, as inputs, and the educational attainments of individuals, specifically test scores, years of education, and graduation rates, as outputs. Such an approach concentrates on the educational process itself and the educational attainment of an individual, (Wilson, 2001; Hanushek 1986; Kremer 1995). The major difference between human capital model and production function approach is that the latter does not consider the individual as a decision maker choosing level of schooling. Instead, it evaluates different factors that affect the individual's educational attainment.

Many studies include family background into the models estimating returns to education. A number of research studies demonstrate that children who grow up in a low-income family typically have lower educational achievements and, subsequently, lower returns to education than children who grow up in a wealthy family (Haveman et al., 1991). They also find that the mother's education usually has a positive effect on educational returns of a child. Moreover, a vast research on returns to education suggests that additional years of schooling increase the return to education.[3]

[2] The HCEF is a simple regression model with a linear schooling term and a low-order polynomial in potential experience (Card, 1998).

[3] According to Altonji (1998), the wage level rises by 8 percent in response to each additional year of academic postsecondary education. In their study on estimating returns to education for a sample of twins, Ashenfelter and Krueger (1994) find each year of schooling increases wage rate by 12 –16 percent. Even

Cosca (2000) confirms the finding of many economists that, in general, employees with a bachelor's, master's, doctoral, or professional degree have higher average incomes and lower unemployment rates than do employees with less education. Jaeger and Page (1996) estimate the returns to schooling and the "sheepskin" effect. The sheepskin effect reflects the difference in earnings due to the possession of a degree. The reason is simply that a diploma serves as a signal of productivity in the labor market, thus increasing the individual's potential earnings. Jaeger and Page demonstrate strong evidence that diploma effects exist for all post-secondary degrees.[4]

Microeconometric studies on returns to education and gender wage differentials are few in MENA, due to the scarcity of data, and most highlighted differences between public and private sectors. The availability of rich datasets in the late 1990s facilitated some preliminary analyses for Turkey (see Tansel, 1994, 1999a and 1999b) and Egypt (see Assaad , 1997, Said 2002, 2003 and 2004 and El-Hamidi , 2004).

The World Bank Regional Report (2004) presents some recent estimates for returns to education in Egypt, Morocco, Jordan and Yemen which showed that returns to schooling are generally higher in the public sector than in the private sector at nearly all education levels, with the exception of university education.[5] Rates of return to schooling appear to be higher for women than for men in the private sector, which implies that the gender gap in wages declines with education. The results also indicate that rates of return to education in the private sector are fairly stable over time in Egypt but declined in Morocco, whereas in the public sector, rates of return appear to be declining in both Egypt and Morocco.

The estimates above however are hampered by the fact that the methodologies of estimation are not comparable across countries.[6] Self-selection bias is also not corrected for in calculating gender wage gaps. In this paper we conduct a more detailed study of educational choice and earning determination in Egypt and Morocco, based on the same estimation techniques that correct for selectivity bias, in order to arrive at strictly comparable estimates of returns to education, wage inequality and gender differentials for the two countries. The estimation model used is described in the following section.

III. Estimation Methodology:

Research on returns to education is based on the work by Mincer (1974). In the traditional specification, returns to education are estimated as follows:

$$\text{Ln}W = \beta 0 + \beta 1\text{EDU} + \beta 2\text{EXP} + \beta 3\text{EXP2} + u \qquad (1)$$

Where EDU is the number of years of schooling, EXP is experience in years, EXP^2 is experience squared, and u is a random disturbance term. The specification is shown

---

when they adjust for a measurement error, their estimates are not less than 9 percent per year of school completed (Ashenfelter and Krueger, 1994).

[4] An important test to this finding is to estimate the same model using years of schooling rather than educational dummies to find out if the labor market values degrees more than the equivalent years of schooling.

[5] Only in Yemen, a country with very low educational achievement and very low returns in general, are the returns comparable or slightly higher in the private sector.

[6] For example, regressions for Morocco do not correct for sample election bias, whereas for Egypt they do.

logarithmically in order for the regressors to be interpreted in terms of marginal effects. In this way index β is interpreted as the rate of returns to schooling. This function that has been introduced by Mincer (1974) is known as thehuman capital earnings function. It has been the basis of practically all research on returns to education.

Griliches (1977), however, pointed out that the coefficient estimates of the OLS estimation of the classical model could suffer from what is now known as 'self-selection bias'. When individual's family background and ability influence his/her educational attainment, the individual is said to be self-selected into that educational attainment. If educational attainment of an individual is partially determined by his/her abilities and family backgrounds, estimating the previous classical earnings function without taking into account the possibility that family background and ability might influence educational attainment, could give biased results.

One approach to reduce the bias is to include control variables that might capture part of the unobserved components in the error term. These controls should also enter in form of interaction terms with education to allow for heterogeneous slope coefficients. The higher the correlation between the added variables and the unobserved components, the lower endogeneity bias. Control variables such as family background characteristics: Father and mother level of education and father's occupation. An interaction term between education and family background can capture the effect of family background on returns to education.

These results, however, are still subject to another type of selection bias. Basically, the equation has been estimated from data on workers, resulting in a censored sample of the entire population. When estimating the wage equation, only those who reported wages at the time of the survey are entered into the analysis, while the ones who were not working did not report any wage. In order to solve the problem of sample selection bias, Heckman (1979) suggests estimating two equations. First the participation equation is estimated, consisting in estimating through a logit, for the purpose of this study, the probability of having worked at the time of the survey, and out of school (using the entire sample: workers and non-workers). From the logit results, a selection variable (the inverse Mills ratio term) is created. This estimate is used in the second step, as an additional regressor in the wage equation, yielding consistent estimates of the coefficients free of censoring bias.

A recent extension to this model is to capture the so-called "certification effect" or "sheep skin effect". The idea is an employer might value a worker with a certificate more than a worker without one. For this reason, and to allow for estimated rate of return to vary by level of schooling, dummies for levels of education are used instead of years of schooling.

The modified Mincerian earnings function is:

$$\mathrm{Ln}W = \beta_0 + \sum\beta_k \mathrm{E.Dum}_{ik} + \beta_2 \mathrm{EXP} + \beta_3 \mathrm{EXP}^2 + u \qquad (2)$$

Where E.Dum consists of dummies for levels of education. Years of experience are calculated by the following formula:

(age - year of survey): i.e. year at which individual entered the labor force.

In this specification, the private rate of return to the k^{th} level of education is estimated by the following formula:

$$r_k = (\beta_k - \beta_{k-1}) / \Delta n_k \quad (3)$$

where β_k is the coefficient of a specific level of education, β_{k-1} is the coefficient of the previous level of education, and Δn is the difference in years of schooling between K and K-1. (Psacharopoulos, *1981).*

This procedure involves three assumptions:

1. Direct costs are either minor, or are compensated by a student's part-time and/or summer earnings. This assumption is satisfied in the current analysis since education is either free or involves minimal fees.
2. The opportunity cost of foregone earnings is equal to the earnings of the next lower level predicted by the model.
3. The earnings profiles are isomorphic, that is, they are of the form $y_c f(x)$, where y_c are the initial earnings of the educational category in question and $f(x)$ is a multiplicative experience function common to all educational levels.'

It is expected to see the rate of returns to educational levels fall as the educational level gets higher, since the opportunity cost of education increases with educational level.

1- First Stage: Ordered Logit Model

In this study, we study educational choice using the ordered logit model where education variable is ordered from zero to five, where 0= illiterate; 1= read and write; 2= primary; 3= preparatory; and 4=secondary and 5= university and above. The model is:

$$y_i^* = x_i^{'}\beta + \varepsilon_i \quad (4)$$

Where y_i^* is a latent variable that is a function of a vector of explanatory variables.

The standard logistic distribution has a mean of 0 and its density function is:

$$F(\varepsilon_i) = \frac{1}{1+e^{-\varepsilon_i}} \quad (5)$$

The relation between the unobserved latent variable and the outcome can be expressed as:

$$\begin{aligned} y_i &= 0 \text{ if } y_i^* \le \mu_1, \\ &= 1 \text{ if } \mu_1 < y_i^* \le \mu_2, \\ &= 2 \text{ if } \mu_2 < y_i^* \le \mu_3, \\ &\ldots \\ &= 4 \text{ if } \mu_5 \le y_i^*. \end{aligned} \quad (6)$$

These μ must satisfy the rule: $\mu_0 < \mu_1 \ldots\ldots < \mu_5$. Since the disturbance terms are logistically distributed, we obtain the following probabilities:

$$
\begin{aligned}
\Pr(y_i = 0) &= \Pr(\mathrm{x}_i'\beta + \varepsilon_i \le \mu_0) = \frac{1}{1+\exp(\mathrm{x}_i'\beta - \mu_0)}, \\
\Pr(y_i = 1) &= \Pr(\mathrm{x}_i'\beta + \varepsilon_i \le \mu_1) - \Pr(\mathrm{x}_i'\beta + \varepsilon_i \le \mu_0) \\
&= \frac{1}{1+\exp(\mathrm{x}_i'\beta - \mu_1)} - \frac{1}{1+\exp(\mathrm{x}_i'\beta - \mu_0)}, \\
\Pr(y_i = 2) &= \Pr(\mathrm{x}_i'\beta + \varepsilon_i \le \mu 2) - \Pr(\mathrm{x}_i'\beta + \varepsilon_i \le \mu_1) \\
&= \frac{1}{1+\exp(\mathrm{x}_i'\beta - \mu_2)} - \frac{1}{1+\exp(\mathrm{x}_i'\beta - \mu_1)}, \\
&\ldots \\
\Pr(y_i = 4) &= \Pr(\mu 3 \le \mathrm{x}_i'\beta + \varepsilon_i) \\
&= 1 - \frac{1}{1+\exp(\mathrm{x}_i'\beta - \mu_3)}.
\end{aligned}
\tag{7}
$$

The estimation of the unknown coefficients β and thresholds μ can be estimated using maximum likelihood method, where the above probabilities are the elements of the likelihood function.

Explanatory variables that enter into the ordered logit model include: educational dummies for the father and the mother as proxies for household socioeconomic status. It is assumed that higher parental educational attainment to imply higher socioeconomic status. Since the mother is often the provider of the learning environment for her children, mother's education (rather than father's) might have more significant impact on the individual's education decision, as discussed in Behrman and Wolfe (1984), Chiswick (1986) and Heckman and Hotz (1986). Regional differences in choosing a certain level of education is captured by regional dummy. Other explanatory variables include number of siblings in the household. It is expected to find lower educated parents, and the presence of young siblings in the household to be associated with choosing a lower level of education, since the graduate assumes an employment right after getting the certificate.

2- Second Stage: Earnings Function

Estimating the parameters in the first stage allows calculating the selection term, to correct for selectivity bias, which is then entered linearly into the wage equation. The dependent variable in the wage equation is the log hourly earnings. Log hourly earnings is used (instead of hourly earning) because it reduces the effects of earnings outliers. The model therefore is:

$$\mathrm{Ln}W = \beta_0 + \sum\beta_k \mathrm{E.Dum}_{ik} + \beta_2 \mathrm{EXP} + \beta_3 \mathrm{EXP}^2 + \sum\beta_j \mathrm{Reg.\ Dum}_{ij} + \beta_4 \lambda + u \quad (8)$$

Where E.Dum are dummies for levels of education, experience, experience squared, regional dummy and the selection term.

Experience variables are included in the model since workers with more years of job experience are likely to earn more. (Higher experience is often associated with higher skills and higher productivity.) A firm is likely to use higher wages to induce experienced workers to stay on in their jobs, as the cost of training new workers could be very expensive. The experience squared variable is included to capture the possibility of a non-linear relationship between experience and earnings. We expect a positive sign of the experience variable for the reason that working experience is likely to contribute to enhancement of individual's human capital, and negative coefficient of experience square as marginal returns from experience tend to decline over the lifetime.

Interaction of the effects of schooling and experience on earnings should not be neglected. A common reason is the fact that the first few years in the labor market are time for experimenting and frequent job change. As a consequence, earnings of many individuals rise in their first years in the labor force, then level off and increases by a decreasing rate. Another rationale is that the life-time patterns of low level of education and highly educated workers' earnings differ by nature: for example, the marginal effects of experience on education for a worker with a lower level of education are likely to increase during the first years of work and diminish afterwards. A university educated worker, on the contrary, faces increasing marginal returns to experience. Omission of the interaction variable, therefore, leads to the omitted variable bias in the coefficients estimates.

The coefficients of educational variables are expected to be positive, and their magnitudes increase through post general school levels as follows (in ascending order): read and write, primary, preparatory, secondary, and university and above. That is we assume private earnings increase the higher the level of education.

IV Data and Empirical Results

The empirical analysis is based on the 1988 and 1998 Egypt Labor Force Sample Surveys (LFSS), which are both nationally representative household surveys covering 10,000 households in1988 and 5000 households in 1998; as well as The Morocco Living Standard Measurement Studies (MLSMS) of 1990/1991 and 1998/1999, covering 3349 households in 1990/91, and 5129 households in 1998/1999. Both surveys include extensive data on employment characteristics such as status, economic activity, duration of unemployment, occupation …etc.

Variables used in this study include: employment status, level of education (illiterate, read and write, primary, preparatory, secondary and university and above), age, experience, experience squared, regional dummies (rural vs. urban), parental education[7], hourly wages (in logs), and number of children in the household (one dummy for those less than 6 years of age; and a dummy for those greater than six years of age).

The analysis is restricted to non-agriculture workers,[8] who are sons or daughters of the household heads between the ages of 15 and 64, and not currently enrolled in school. Table (A-1) in the appendix displays means and standard deviations for variables.

[7] There were cases with few observations on Mother's level of education, therefore, and for the purpose of this comparative study, we opted to use one dummy that takes the value zero for illiterate mothers and 1 for literate mothers.

[8] High rates of seasonal employment within the agriculture sector are justification for excluding them from the analysis.

IV.1. Ordered Logit Estimates:

Tables 1 through 16 show the marginal effects of the explanatory variables on the probability of choosing certain levels of education derived from an ordered logit model, for men and women, 1988 and 1998 for Egypt, and 1991 and 1991 for Morocco. Since all explanatory variables are dummies, the marginal effects show the effect of a discrete change from zero to one. The reference individual lives in a rural region, with illiterate parents, and no siblings.

The results for Egyptian males and females, 1988-1998 are shown in Tables 1 through 8. They reveal that region has little impact on choice of level of education for males and females. Only for private sector males (and public sector males only in 1998), do we find significant coefficients indicating positive signals towards pursuing education over residing in rural areas. Similarly, the presence of siblings less than six years of age had no effect except for a negative impact on private sector males in 1988 and 1998, beyond primary education. It is the parent's education variables that appear to have the expected strong effect. Having a literate mother does increase the probability of a public sector worker to have had university education. Fathers level of education is also significant in both years and for both sectors. The higher the father's education the higher the chances the individual chooses university level of education in both sectors. For private sector females, having a father with secondary education seems to have the highest effect on his daughter to have a university education. However, the magnitude of the effect of parent's level of education on their sons/daughters education has decreased between 1988 and 1998, for public sector men and women and for private sector women.

Results for Moroccan males and females, 1991-1999, are shown in Tables 9 -16.[9] Similar to Egypt, residing in urban regions had significant effects only in 1999, which was stronger in the public sector for both sexes. This is indicative that education is significantly more accessible, encouraged and nurtured in urban areas, and responds to public sector demands, as opposed to rural areas. Also the presence of siblings in the household has no effect on women's schooling decision and a significant but small negative effect on men's decisions. Compared to Egypt however, the impact of parents'education, especially father's, appears to be much more muted. Mother's education affects private sector (but not public sector) education for both men and women. Fathers education does not affect the decision for schooling except for public sector workers, in 1991, when fathers have a secondary education, it positively increases the chances of the son seeking an education, whereas a father with a primary certificate reduces the chances for his daughter to pursue education beyond intermediate levels. In 1999, father's education effect seems sparse and weak, although significant.

IV.2. Earnings Function Estimates:

Tables 17-20 display selectivity corrected estimates of the returns equation, with interaction terms, for Egyptian men and women. The selection term is significant in both years for Egyptian males, suggesting that unobservable heterogeneity is playing a significant factor in the determination of wages. Selection term is, however insignificant

[9] For comparison purposes, we opted to use the same variables in both surveys; however, some of the variables in one survey were not available in the other. This problem appeared explicitly in Morocco data, 1991 were we had small number of observations in some cases.

for women, indicating that sample selection is not a problem. Public sector wage workers in urban regions earn substantially higher wages than public sector workers in rural areas. Region of residence did not have any effect on private sector workers. Experience has the expected profile and **t**he coefficients of education dummies all have the expected positive sign, and the majority are significantly different from zero at the 1 percent level or more. These results may suggest that employers are affected by credentialism in their wage-setting. The education coefficients in this case, may be regarded as evidence of credentialism, or screening for ability. The table shows the higher the level of education, the higher the wages of public sector male workers, though their real wages dropped in 1998. Private sector male workers earned less than public workers especially at the secondary level and beyond. The same pattern of rising wages with higher levels of education is also noticed for private sector workers. Women in public sector appear to have gained in real terms than men. The higher the level of education, the higher their real wages, signifying education does pay off for women. An important finding is that women seem to have greater variations in their real wages according to their level of education, as compared to men. For example, women with a secondary education in 1998 earned a little over twice of what an illiterate woman would earn, as compared with a difference of 80% for men.

Tables 21-24 report the selectivity corrected wage equation estimates for Morocco. Self- selection bias does not appear to be an issue for female wage equations or 1991 male equations, as indicated by insignificant selection terms. For Moroccan private sector males, residing in an urban area increases their wages in both years. The effect is also significant but only in 1999 for public sector male and private sector female workers. Wages increased by increasing the level of education and, for certain categories of workers, there is evidence of some wage compression as indicated by a decline in returns to education between 1991 and 1999. In particular, primary educated male workers used to earn over 80% higher wages than illiterates in 1991, whereas in 1999 they earned only and extra, and secondary educated women workers in the public sector earned triple that of illiterate women in 1991, whereas in 1999 they only earned double that level.

IV.3. Private Rates of Return to Education:

The private rates of return to education from the above wage equation estimates are calculated and listed in Tables 25 and 26 for Egypt and Morocco respectively. These calculations assume that the illiterate have zero years of education, those who can read and write have 3 years of education, primary education encompasses 6 years of education, preparatory education achieves 9 years of education, secondary certificates requires 12 years of education, and university education graduate achieves 16 years of education.

Table (25) shows that in Egypt, 1988-1998 was indeed a decade of wage compression.[10] With the exception of private sector females (whose coefficients were insignificant any way), almost all private rates of returns to education for males working in either the public or private sectors have dropped between 1988 and 1998. Thus, a public sector male with a university degree earned 7% more than a public sector worker with a secondary certificate in 1988, but only 5.5% more in 1998 (a difference of 1.5%).

[10] This finding are consistent with the main conclusion reported in previous research (Said, 1992) using the same data , but not correcting for self-selection bias.

Private sector workers with comparable degrees noticed a drop of 4% in their earnings. Females were not in a better position either. Again, returns to university education compared to secondary certificates dropped for public sector females by 1.4 percentage points.

Table 26 also shows that a similar trend has been taking place in Morocco in the 1990s. For Moroccan males with university education (vs. secondary) in public sector, private returns dropped sharply in 10 years, from 26% to less than 5% in 1999. Private sector males also witnessed a drop in their returns at all levels of education between 1991 and 1999. Although we notice the same result for females, their coefficients were insignificant from the start. Females in public sector with university degrees had a drop in their returns by only 1 percentage point. But overall, females in the public sector did fare better in 1999.

V. Decomposing Gender and Public-Private Wage Inequality:

Besides estimating such "sheep skin effects" using both Moroccan and Egyptian data, we formally study various hypotheses relating to the incidence of gender pay discrimination, We further decompose the gender gap into components attributable to pure pay discrimination within sectors as opposed to differences in characteristics.

In order to ascertain whether changes in returns to education translated into altering overall wage inequality in the Egyptian and Moroccan labor markets, we study wage differentials along two lines: public-private, and male- female.

The overall sample selection adjusted wage differential between public and private (or males and females) workers can be decomposed into different components: (1) a portion due to differences in average characteristics, such as experience, region and education. (2) a portion due to differences in the parameters of the wage function, caused by labor market discrimination and other omitted factors, and (3) a portion due to differences in selectivity bias.

Adopting the methodology, which was first utilized by Oaxaca (1973) and Blinder (1973), the differences in the logarithmic wages between public and private, or male and female wages is written as:

$$\Delta \ln W = \ln \overline{W}_m - \ln \overline{W}_f \qquad (9)$$

where the operator Δ represents the mean difference between male and female wages. First, separate wage equations are estimated for male and female workers. The estimated wage equations are then used to decompose the observed wage differential between male and female workers into components due to personal characteristics, to parameters and to sample selectivity bias.

If the average observed log wage for type *j* worker is $\ln \overline{W}_{ij} = \sum_i \ln W_{ij}/n_j$. The average observed characteristics, $\overline{X} = \sum_i X_{ij}/n_j$ and the average sample selectivity bias term, $\bar{\lambda} = \sum_i X_{ij}/n_j$ where n_j is the number of individuals in a *j* group. In this case, *j*=male (*m*), female (*f*). Suppose that $\hat{\beta}_m$ is the competitive wage and that females are compensated at the same wage as male workers. Then, the predicted mean wage for females using competitive wages is given by $\hat{\beta}_m X_f$. In other terms, the previous equation can be written, including the selection term, as:

$$\ln\bar{W}_m - \ln\bar{W}_f = \sum\hat{\beta}_m\bar{X}_m - \sum\hat{\beta}_m\bar{X}_f + \sum\hat{\beta}_m\bar{X}_f + \sum\hat{\beta}_f\bar{X}_f + \sum(\hat{\delta}_m\bar{\lambda}_m - \hat{\delta}_f\bar{\lambda}_f)$$

$$= \sum\hat{\beta}_m(\bar{X}_m - \bar{X}_f) + \sum(\hat{\beta}_m - \hat{\beta}_f)\bar{X}_f + \sum(\hat{\delta}_m\bar{\lambda}_m - \hat{\delta}_f\bar{\lambda}_f) \quad (10)$$

The first term on the right-hand side of equation () is the differences in the endowments of wage-determining characteristics (*X's*) between the male and female workers, evaluated according to the male pay structure ($\hat{\beta}_m$). This portion can also be interpreted as the wage gain females would experience if they had the same characteristics on the average as males. The second term on the right-hand side is the portion due to differences in pay structure (coefficients, $\hat{\beta}'s$) between males and females. It is the wage gain females would experience, given their mean characteristics, if they were compensated as males. The last term represents the wage differential attributed to sample selection bias. Accordingly, we run into an index number problem (Oaxaca, 1973; Jones, 1983). The problem arises when heterogeneous group of characteristics (X variables) are summed with two sets of wages (males and females). Following the approach employed by Reimers (1983), which uses an unweighted average of each type of worker's coefficients, the wage differential can be decomposed as:

$$\ln\bar{W}_m - \ln\bar{W}_f = 0.5(\bar{X}_m - \bar{X}_f)(\hat{\beta}_m + \hat{\beta}_f)\bar{X}_f + 0.5(\bar{X}_m + \bar{X}_f)(\hat{\beta}_m - \hat{\beta}_f) + (\hat{\beta}_m\bar{\lambda}_m - \hat{\delta}_f\bar{\lambda}_f) \quad (11)$$

In this section, we look at the effect of macro policies on wage inequality. We follow the literature by applying Oaxaca-Blinder wages differentials model and using the same methodology to sort out the differences in wages between public and private (and male-female) sectors that are due to endowments and those that are due to discrimination, i.e. the explained from the unexplained. We grouped differences due to discrimination and differences due to selection bias in one "unexplained" factor.

Table (27) presents decompositions for gender and sector wage gaps for Egypt and Morocco which separate the justifiable or fair (i.e. explained) and unjustifiable or unfair (i.e. unexplained or discrimination) components. For Egypt, the male public sector wage premium declined from 7% in 1991 to 3% 1998; whereas the female one remind almost the same at 16-17 %. In other words, by the end of the decade under study, the public sector remained just as attractive for females, but lost a bit of its attraction, at least in terms of wage premiums for men. In term of the adjusted gender wage gaps, they appear to have declined in both the public sector (from 8 to 3%) and private sector (from 40% to 12%). Overall, wage inequality by education and gender appears to have declined substantially in Egypt during that decade of pursuing economic liberalization policies.[11]

By contrast, all changes in public sector premiums and unexplained wage gaps in Morocco appear to be in the opposite direction. Male premiums in the public sector

[11] When comparing the gender gap along public and private lines, we reached a different picture than the previous research (World Bank, 2004). That is, the adjusted private sector gender wage differences have also dropped in 1998. One immediate explanation, would be correcting for selectivity which was not preformed in the previous research. Other interpretations/ securitization are in process.

increased from 33% in 1991 to 58% and so did female premiums, which dramatically jumped from 14% in 1991 to 81% in 1999. The first explanation that comes to mind for the latter result is that the private sector in Morocco became much more discriminating in wage payments to women. This suspicion is confirmed by the results on gender wage differentials, also presented in the same table that show that the unexplained component attributable to gender-based discrimination has doubled between 1991 and 1999, reaching a still modest 6 % in the public sector and 42% in the private sector – which is high by international standards. Overall, and in contrast to what happened in Egypt, the nineties appears to be a decade of increasing wage inequality by gender and education in Morocco.

VI. Concluding remarks and future Directions of Research

Since the early 1990s, most countries in the MENA region, and with differing degrees, started embarking on a new development model that aspires to rely mostly on an ever expanding, export-oriented, and private sector–driven economy to achieve higher rates of growth. Accordingly, the following period has been one of considerable socioeconomic change in the region characterized by adoption of economic liberalization policies and a declining role of the state as an employer in the labor market.

This paper explores some of the equity implications of this transition by examining changes in the distribution of returns to education and gender wage premia in the Egyptian and Moroccan labor market in the 1990s. This is accomplished by estimating joint models of educational choice and wage determination for both countries yielding selectivity corrected returns to different levels of education, from which a crude estimate of the private rate of return is calculated. Thus compared to previous research, our results appropriately correct for educational-selection bias and are based on strictly comparable estimation models for both countries.

In line with theoretical expectation, as in MENA educational credentials do not reflect productivity differences, but are well rewarded in the public sector, a reduction in the role of the public sector lead to lower returns in the private sector and falling returns over time. Only at the university level, are returns higher in the private sector in Egypt indicating that employers place relatively little value on basic and secondary education. In Morocco there is some evidence of higher returns in the private sector by the end of the 1990, which might be indicative of better matching of educational credentials and productivity differences. These results, however, need to be interpreted with care, especially for females, due to insignificant estimates associated with small sample size. Overall, returns to education results indicate clear wage compression for all sectors in Egypt, and for some, but not all groups in Morocco.

However, as indicted in the introduction, a reduction in educational premia does not necessarily mean that wage inequality is reduced, as wage inequality along other dimensions, such as gender and sector might increase. Oaxaca-Blinder wages-differentials decompositions of sector and gender wage gap for Egypt and Morocco indicate the unexplained component in public wage premia and gender gaps have declined in Egypt, but substantially increased in Morocco over the 1990s. Overall, economic liberalization and public sector retrenchment which were much more comprehensive in Morocco appear to have had a more dislocating effect also on labor market wage outcomes.

The following are three possible areas of policy implications and future research emanating from the results in this paper.

VI. 1 Educational reform

On the whole, the evidence on rates of return suggests that, at least in terms of education, public sector wage setting practices leads to wage contraction over time in an effort to protect lower strata wage earners from inflation. Yet by rewarding educational credentials in public employment with higher wages, governments have encouraged investment in types of human capital that are not necessarily valued in the private sector. The problem is most acute in primary and secondary education, which has experienced significant expansion in the region to accommodate growing numbers of enrollees, often at the expense of quality (World Bank, 2004).

The most recent Arab Human Development Report (UNDP, 2003) has highlighted the deep seated institutional, political and economic problems faced by education in the region. One central theme in the report is that a very important reason for a slow/stagnating growth in the region is the insufficient nature of skill acquisition or the lack of "knowledge worker". This is closely linked to the issue of deteriorating quality of education at all levels -- a phenomenon that remains difficult to measure in MENA countries due to the lack of accurate and reliable data.

The recent decline in the number of school-age children in many countries of the region provides an excellent opportunity to re-focus efforts on quality improvements and greater responsiveness to the needs of the private sector (World Bank, 2004). The reform of vocational secondary and higher institute technical education systems in MENA is now quite high on the policy agenda. This is particularly the case for a country like Egypt, which more than any other Arab or even developing country has based its development aspirations, and invested substantial resources, in the cause of technical education.[12] Recent analysis shows that the pattern of growth of technical education had little to do with a rational planning exercise or even focused on how to provide young people with workplace relevant skills. Instead it was related to haphazard efforts to divert students aspiring for higher education. Today technical education graduates are the group of the population hit most by the inadequacies of the education system, as attested by their high unemployment rates (Antoninis, 2001).

The scarcity of studies evaluating the effectiveness of vocational and technical schools in MENA has been noted in recent surveys (see for e.g. Gill and Heyneman, 2000). Thus a first possible extension to the analysis in this paper is to introduce the distinction between different types of secondary education, in order to contribute to the debate on relative benefits of vocational versus general education and draw some concrete policy proposals for the reform of these systems.

[12] The expansion of an extensive system of technical schools and higher education was directly linked to the Nasserist experiment of industrialization in the 1960s, and the subsequent need to recruit engineers, technocrats and technicians in the expanding public sector. The state enacted a guarantee to hire all vocational secondary, technical higher institute and university graduates in the public sector, which over the years fuelled a rapid expansion in number of spirants for such degrees.

VI.2 Public sector retrenchment and civil service reform.

The notion that a large premium for public sector employees can persist suggests that markets are not performing appropriately. If markets were efficient, private sector workers would compete for higher-paying public jobs, which eventually would disappear. One possible explanation is that a large premium may indicate market failures in form of information deficiencies, skill mismatches and/or barriers to entry as well as the fact that wages in the public sector are politically determined. Another plausible explanation is that the public sector remains a model employer that does not discriminate against females, this is backed up by the results on discrimination reported above. Hence efforts to downsize and reform public sector pay systems should not necessarily take the private sector wage as the efficient benchmark. There is a need to conduct deeper inequality analysis and study in more detail the internal labor market within the public sector. At the very least, a differentiation between the government and state-owned enterprises should be introduced.

Another possible direction is to use quantile regression methods to test whether the distribution of public (versus private) wage and male (versus female) premiums differs across wage quantiles in each occupation within the public sector. The procedure throws light on the internal labor market in the public sector in terms of the distribution of wages and gender differentials for different quantiles. It also facilitates examining whether public sector wage premia (compared to the private sector) exist only for certain occupations at certain levels (for example, the lower wage echelons) rather than others.

VI. 3 Improving access of women to private sector jobs.

Finally, given the favorable treatment of women in the government compared to the private sector and the lower levels of discrimination there, it is likely that the burden of privatization and civil service downsizing may fall disproportionately on women and may negatively affect the already low participation rates, unless effort is made to reduce the extent of gender-based discrimination in the private sector. In that respect, public policy focus on education and training as keys to a more equitable access to opportunities and the benefits of development for women may be insufficient. Providing women with more education and training would not necessarily reduce earnings differentials between males and females in the private sector. Social policy prescriptions call for further investigation into the reasons why females are concentrated in subordinate labor groups and why they appear to be paid less for similar human capital endowments in some segments of the private sector.

In order to shed more lights on channels of discrimination, a possible extension of the analysis in this paper is to incorporate occupational attainment more formally in order to further decompose the gender gap into components attributable to pure pay discrimination within occupations as opposed to entry barriers or inter-occupational segregation.

In sum, future drafts of this paper will seek to introduce several useful distinctions such as between vocational and secondary education and public enterprise and government employment. They will also seek to conduct a deeper analysis of wage inequality decompositions, possibly by drawing on quantile regressions and/or occupational segregation analysis methodologies.

REFERENCES

Altonji, Joseph G. (1998). "Effects of Personal and School Characteristics on Estimates of the Return to Education," Economic Perspectives 22, pp.65-80.

Angrist, Joshua D. and Alan B. Krueger. 1991. "Does Compulsory School Attendance Affect Schooling and Earnings?" The Quarterly Journal of Economics 106, pp. 979-1014.

Antoninis, M. (2001). "The expansion of technical secondary education in Egypt and its effect on the labor market". Ph.D. Dissertation. St. Anthony's College.

Arabsheibani, Reza G. and Lamine Manfor. (2001). "Non-Linearities in Returns to Education in Libya," Education Economics 9, pp.139-144.

Arias, Omar; Kevin F. Hallock and Walter Sosa-Escudero. (2001). "Individual Heterogeneity in the Returns to Schooling: Instrumental Variables Quantile Regression Using Twins Data," Empirical Economics 26.

Arriagada, A.M., Ziderman, A., 1992. Vocational Secondary Schooling: Occupational Choice and Earnings in Brazil. The World Bank, Washington, DC.

Ashenfelter, Orley and Alan Krueger. (1994). " Estimates of the Economic Return to Schooling from a New Sample of Twins," American Economic Review 84, pp.1157-1174.

Assaad, Ragui. (1997). "The effects of public sector hiring and compensation policies on the Egyptian labor market." World Bank Economic Review 11, 1 (January).

Behrman, J. R., & Wolfe, B. L. (1984). The socioeconomic impact of schooling in a developing country. Review of Economics and Statistics, 66, 296–303.

Benhabib, J. and Spiegel, M.M. (1994). The role of human capital in economic development: evidence from aggregate cross-country data. Journal of Monetary Economics, 34, 143-173.

Bennell, P., (1996a). General versus vocational secondary education in developing countries: a review of the rates of return evidence. The Journal of Development Studies 33 (2), 230–247.

Bennell, P., (1996b.) Using and abusing rates of return: a critique of the World Bank's 1995 education sector review. International Journal of Educational Development 16 (3), 235–248.

Boissiere, M; J.B. Knight and R.H. Sabot. (1985). "Earnings, Schooling, and Cognitive Skills," The American Economic Review 75, pp.1016-1030.

Cantor, L. (1985) "Vocational Education and Training: The Japanese Approach", *Comparative Education*, Vol. 21, No. 1, 67-75, reprinted in: Björk, C. and Rohlen, T. (1998) "*Education and Training in Japan*", Vol. 3, London: Routledge Library of Modern Japan

Card, David and Alan B. Krueger. 1992. "Does School Quality Matter? Returns to Education andthe Characteristics of Public Schools in the United States." The Journal of Political Economy 100, pp.1-40

Card, David. 1998. "The Casual Effect of Education on Earnings," Center for Labor Economics working paper

Casse, Daniel and Bruno V. Manno. 1998. "The Cost and Price of College and the Value of Higher Education," Academic Questions 11, pp. 38-55.

Cosca, Theresa. 1998. "Earnings of College Graduates in 1996," Occupational Outlook Quarterly 42, pp. 20-29.

Chiswick, B. R. (1986). Comment on Hauser and Sewell. *Journal of Labor Economics, 4* (3 (Part 2)), S116–S120.

Deaton, A.(1997) *The Analysis of Household Surveys* (Maryland: The John Hopkins University Press).

Dibeh, G. (2000) *Earnings Inequality, unemployment and Poverty in MENA* Greenwood Press.

Dougherty, C., and E. Jimenez. 1991. "The Specification of Earnings Functions: Tests and Implications". Economics of Education Review, Vol. 10, No. 2.

El-Hamidi, F (2004) "General or Vocational? Evidence on School Choice Skin Effects from Egypt 1998" Paper submitted to the 11th Conference of the Economic Research Forum,16-18 December 2004, Beirut.

Gaston, N., & Sturm, R. (1991). Educational attainment and the returns to education for Australian youth: evidence of selfselection? Economic Analysis and Policy, 21 (1), 29–45.

Gill IS and SP Heyneman (2000) Arab Republic of Egypt, in : IS Gill, F Fluitman, and A Dar (eds.) Vocational education and training reform : matching skills to markets and budgets, A joint study of the World Bank and the International Labor Office, Oxford University

Griliches, Z. (1977). Estimating the returns to schooling: some econometric problems. Econometrica, 45, 1–22.

Handoussa, H. and Z. Tzannatos (2002) *Employment Creation and Social Protection in the Middle East and North Africa*., Cairo: AUC Press.

Hanushek, Eric A. 1995. "Interpreting Recent Research on Schooling in Developing Countries," The World Bank Research Observer 10, pp. 227.

Hargreaves E (1997) The diploma disease in Egypt : teaching and the monster of the secondary leaving certificate, Assessment in education : principles, policy and practice 4 (1), pp.161-176

Haveman, Robert; Barbara Wolfe and James Spaulding. 1991. "Childhood Events and Circumstances Influencing High School Completion," Demography 28, pp. 133-157.

Hay-Woo, J. (1991) "Education and Economic Growth in Taiwan: A Case of Successful Planning", World Development, 19:8, keyword: "country experience"

Hecker, Daniel E. 1992. "College Graduates: Do We Have Too Many or Too Few? College Earnings and Why They Vary," Occupational Outlook Quarterly 36, pp. 13.

Heckman, J. (1979) "Sample Selection as Specification Error" Econometrica 47:153-161.

Hollenbeck, K. (1993). Postsecondary education as triage: returns to academic and technical programs. Economics of Education Review, 213–232.

Jaeger, David A. and Marianne E. Page. 1996. "Degree Matter: New Evidence on Sheepskin Effects in the Returns to Education," The Review of Economics and Statistics 78, pp.733

Jones, F.L. (1983). On Decomposing the Wage Gap: A Critical Comment on Blinder's Method. *The Journal of Human Resources*, 28, 126-130.

Kane, Thomas J. and Cecilia Elena Rouse. 1995. "Labor-Market Returns to Two- and Four-Year College," American Economic Review 85, pp.600-615.

Kremer, Michael R. 1995. "Research on Schooling: What We Know and What We Don't – A Comment on Hanushek," The World Bank Research Observer 10, pp. 247.
Lassibille, Gerard and Lucia Navarro Gomez. 1998. "The Evolution of Returns to Education in Spain 1980-1991," Education Economics 6, pp. 3-10.
Megahed, N (2004) "Secondary Education Reforms in Egypt: Rectifying Inequality of Educational and Employment opportunities." Mimeo, Univeristy of Pittsburg.
Mincer, J. (1974). Schooling, experience and earnings. New York: National Bureau of Economic Research.
Nabli, M. (2002)" Higher Education in the Middle East and North Africa: Challenges and Opportunities for the 21st Century" paper submitted for conference of Institut de Monde Arabe.
Neuman S and A Ziderman (1999) Vocational education in Israel : wage effects of the VocEd-occupation match, Journal of Human Resources 34(2), pp.407-420
Neuman, S., Ziderman, A., 1991. Vocational schooling, occupational matching and labor market earnings in Israel. Journal of Human Resources 26 (2), 413–425.
Oaxaca, R. L., (1973), Male-Female Wage Differentials in Urban Labor Markets,
International Economic Review, Vol.14, pp. 693-709.
Psacharopoulos G and WA Loxley (1985) Diversified secondary education and development : evidence from Colombia and Tanzania, Johns Hopkins University Press
Psacharopoulos, G. 1984. "The Contribution of Education to Economic Growth: International Comparisons." In J. W. Kendrick, ed.,International Comparisons of Productivity and Causes of the Slowdown. Cambridge: American Enterprise Institute/Ballinger Publishing Company.
Psacharopoulos, G., 1986. Returns to education. The Journal of Human Resources 20 (4), 583–604.
Psacharopoulos, G., 1987. To vocationalize or not to vocationalize? that is the curriculum question. International Review of Education 33 (2), 187–211.
Psacharopoulos, G., 1994. Returns to investment in education: a global update. World Development 22 (9).
Psacharopoulos, George. 1995. "The Profitability of Investment in Education." Working Paper.
Reimers, C. W. (1983). Labor Market Discrimination Against Hispanic and Black Men. *The Review of Economics and Statistics*, 65 (4), 570-579.
Said, M (2002) " A Decade of Declining wage Inequality?"in Assaad, R. (ed.) (2002) *The Egyptian Labor Market in an Era of Reform.* (Cairo, NewYork: The American University in Cairo Press)?
Said, M (2003) "Occupational Segregation and the Distribution of Wage Premia in Egypt: Evidence from Quantile Regressions," Economics Department, SOAS, Working Paper no 132, 2003.
Said, M (2004) "Compensating Differentials and Non-Pecuniary Aspects of Public Sector Jobs: Evidence from Egyptian Household Survey Data" Economics Department, SOAS, Working Paper no 136, 2004
Schultz, P.T. (1988) "Education Investments and Returns", in: Chenery, H. and Srinivasan, T.N. "*Handbook of Development Economics*", Vol. I, North Holland: Amsterdam

Siphambe, H.K., 2000. Rates of return to education in Botswana. Economics of Education Review 19, 291–300.
Tansel, A. (1994) Wage-employment, Earnings and Returns to Schooling for Men and Women in Turkey. Economics of Education Review, 13:4, pp.305-320. 15
Tansel, A. (1999a) General vs. Vocational High Schools & Labor Market Outcomes in Turkey. Economic Research Forum Working Paper, No. 9905.
Tansel, A. (1999b) Public-Private employment choice, wage differentials and gender in Turkey. Economic Growth Center Discussion Paper No. 797, Yale University.
Tunali, I. 2003. "General vs. Vocational Secondary School Choice and Labor Market Outcomes in Turkey, 1988-98". Paper presented at the 10th annual ERF conference in Morocco, December, 2003.
Tzannatos Z and G Johnes (1997) Training and skill development in the East Asian Newly Industrialised Countries, Journal of Vocational Education and Training 49(3),
UNDP (2003) *Arab Human Development Report: Building a Knowledge Society.* New York: UNDP
Van Eeghen, W (1993) "Education and Economic Growth in Middle East and North Africa." Paper presented at the First Meeting of the Mediterranean Development Forum (MDF1).
World Bank (1995a) Priorities and Strategies for Education: A World Bank Sector Review. Education and Social Policy Department, World Bank, Washington, D.C.
World Bank (1995b) "*World Development Report 1995: Workers in an Integrating World*", Oxford University Press
World Bank (1996) Staff appraisal report ; The Arab Republic of Egypt ; Education Enhancement Program, Report 15750-EGT, Human Development Group, Middle East and North Africa Region
World Bank (2004), *Unlocking the Employment Potential in the Middle East and North Africa : Toward a New Social Contract* (Washington DC : World Bank).

Table (1): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Males** School of Choice, Egypt 1988

	Read&Write	Primary	Preparatory	Secondary	University
Region (Rural=Base)	**0.010**	**0.003**	**0.005**	**0.004**	**0.015**
	(0.011)	(0.004)	(0.006)	(0.004)	(0.015)
M.educ. (illit= Base)	**0.138*** **	**0.075*** **	**0.023**	**0.039*** **	**0.302*** **
	(0.012)	(0.009)	(0.013)	(0.005)	(0.033)
F.Educ. (Illit= Base)	**0.092*** **	**0.037*** **	**0.028*** **	**0.032*** **	**0.149*** **
F.Read& Write					
	(0.011)	(0.005)	(0.006)	(0.004)	(0.018)
F.Primary	**0.106*** **	**0.058*** **	**0.012**	**0.032*** **	**0.222*** **
	(0.014)	(0.011)	(0.014)	(0.004)	(0.042)
F.Secondary	**0.167*** **	**0.119*** **	**0.172** **	**0.005**	**0.569*** **
	(0.017)	(0.018)	(0.060)	(0.027)	(0.123)

F.Unive	**-**	**-**	**-**		
risity	**0.168*** **	**0.115*** **	**0.143*** **	**0.008**	**0.528*** **
	(0.012)	(0.012)	(0.032)	(0.012)	(0.064)
Sib<=6			**-**	**-**	**-**
	0.010*	**0.003***	**0.004***	**0.003***	**0.014***
	(0.004)	(0.001)	(0.002)	(0.001)	(0.006)
Sib>6			**-**	**-**	**-**
	0.009* **	**0.003*** **	**0.004*** **	**0.003*** **	**0.013*** **
	(0.002)	(0.001)	(0.001)	(0.001)	(0.003)

Table (2): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Males** School of Choice, Egypt 1988

	Read&Write	Primary	Preparatory	Secondary	University
Region	**-**				
(Rural=Base)	**0.004**	**0.068*** **	**0.066*** **	**0.007*** **	**0.015*** **
	(0.003)	(0.011)	(0.011)	(0.002)	(0.003)
M.educ.	**-**				
(illit=	**0.092*** **	**0.056*** **	**0.219*** **	**0.035*** **	**0.084*** **
Base)					
	(0.014)	(0.014)	(0.025)	(0.008)	(0.016)
F.Educ.	**-**				
(Illit=	**0.037*** **	**0.086*** **	**0.131*** **	**0.016*** **	**0.036*** **
Base)					
F.Read&					

Write					
	(0.007)	(0.009)	(0.015)	(0.003)	(0.006)
F.Primary	**-0.089*** **	**-0.046** **	**-0.202*** **	**-0.032*** **	**-0.077*** **
	(0.017)	(0.015)	(0.029)	(0.009)	(0.020)
F.Secondary	**-0.143*** **	**-0.040**	**-0.261*** **	**-0.061***	**-0.176**
	(0.036)	(0.074)	(0.024)	(0.027)	(0.103)
F.University	**-0.161*** **	**-0.077**	**-0.263*** **	**-0.074*** **	**-0.241** **
	(0.019)	(0.044)	(0.023)	(0.019)	(0.076)
Sib<=6	**-0.003***	**-0.024*** **	**-0.024*** **	**-0.003*** **	**-0.006*** **
	(0.001)	(0.004)	(0.004)	(0.001)	(0.001)
Sib>6	**-0.000**	**-0.004***	**-0.005***	**-0.000***	**-0.001***
	(0.000)	(0.002)	(0.002)	(0.000)	(0.000)

Table (3): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Females** School of Choice, Egypt 1988

	Read&Write	Primary	Preparatory	Secondary	University
Region				**-**	**-**
(Rural=Base)	**0.001**	**0.002**	**0.016**	**0.004**	**0.017**
	(0.002)	(0.006)	(0.040)	(0.010)	(0.044)
M.educ.	**-**	**-**	**-**		
(illit=	**0.010****	**0.028*****	**0.198*****	**0.040*****	**0.226*****
Base)					
	(0.004)	(0.007)	(0.033)	(0.009)	(0.037)
F.Educ.	**-**	**-**	**-**		
(Illit=	**0.002**	**0.005**	**0.034**	**0.009**	**0.038**
Base)					
F.Read&					
Write					
	(0.002)	(0.005)	(0.032)	(0.009)	(0.035)
F.Prima	**-**	**-**	**-**		
ry	**0.003**	**0.007**	**0.054**	**0.012**	**0.060**
	(0.002)	(0.007)	(0.056)	(0.010)	(0.063)
F.Secon	**-**	**-**	**-**		
dary	**0.008***	**0.023****	**0.244****	**0.000**	**0.298***
	(0.003)	(0.007)	(0.092)	(0.027)	(0.129)
F.Unive	**-**	**-**	**-**	**-**	

risity	**0.011****	**0.034*****	**0.401*****	**0.054**	**0.535*****
	(0.004)	(0.007)	(0.046)	(0.030)	(0.076)
Sib<=6				**-**	**-**
	0.001	**0.003**	**0.018**	**0.005**	**0.020**
	(0.001)	(0.002)	(0.014)	(0.004)	(0.015)
Sib>6				**-**	**-**
	0.001	**0.002**	**0.014***	**0.004**	**0.015***
	(0.000)	(0.001)	(0.007)	(0.002)	(0.007)

Table (4): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Females** School of Choice, Egypt 1988

	Read&Write	Primary	Preparatory	Secondary	University
Region (Rural=Base)	**0.004**	**0.086**	**0.295**	**0.027**	**0.061**
	(2922.545)	(5435.008)	(3682.102)	(1088.472)	(2800.997)
M.educ. (illit= Base)	**-0.044**	**-0.038**	**0.304**	**0.056**	**0.150**
	(1897.653)	(7194.981)	(6027.111)	(1457.749)	(6048.847)
F.Educ. (Illit= Base)	**-0.027**	**-0.001**	**0.239**	**0.032**	**0.076**
F.Read&					

Write					
	(1869.856)	(6122.751)	(1401.908)	(1081.793)	(3309.750)
F.Primary	**-0.042**	**-0.046**	**0.259**	**0.048**	**0.128**
	(1428.360)	(6422.907)	(5856.503)	(1302.476)	(5218.883)
F.Secondary	**-0.080****	**-0.181*****	**-0.211*****	**-0.012***	**0.975*****
	(0.025)	(0.034)	(0.035)	(0.005)	(0.008)
F.University	**-0.065**	**-0.122**	**0.194**	**0.085**	**0.332**
	(744.049)	(5249.330)	(14788.736)	(270.773)	(10137.066)
Sib<=6	**-0.000**	**0.000**	**0.001**	**0.000**	**0.000**
	(17.067)	(35.995)	(17.932)	(5.313)	(13.056)
Sib>6	**-0.000**	**0.001**	**0.005**	**0.000**	**0.001**
	(61.032)	(128.720)	(64.127)	(19.001)	(46.689)

Source: Authors' own calculations from1991 and 1999 MLSMS, Morocc

Table (5): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Males** School of Choice, Egypt 1998

	Read&Write	Primary	Prep.	Secondary	University+
Region	**-**	**-**			

(Rural=Base)	**0.048*** **	**0.058*** **	**0.006**	**0.029*** **	**0.113*** **
	(0.010)	(0.011)	(0.006)	(0.006)	(0.019)
M.educ.	**-**	**-**	**-**		
(illit=Base)	**0.056*** **	**0.087*** **	**0.050*** **	**0.030*** **	**0.206*** **
	(0.008)	(0.012)	(0.014)	(0.004)	(0.032)
F.Educ.	**-**	**-**	**-**		
(Illit=Base)	**0.036*** **	**0.051*** **	**0.012***	**0.022*** **	**0.107*** **
F.Read&Write					
	(0.007)	(0.010)	(0.005)	(0.005)	(0.021)
F.Primary	**-**	**-**	**-**		
	0.040* **	**0.065** **	**0.043**	**0.021*** **	**0.158***
	(0.012)	(0.022)	(0.027)	(0.004)	(0.064)
F.Secondary	**-**	**-**	**-**	**-**	
	0.076* **	**0.143*** **	**0.219*** **	**0.020**	**0.511*** **
	(0.009)	(0.017)	(0.051)	(0.025)	(0.098)
F.University	**-**	**-**	**-**		
	0.069* **	**0.124*** **	**0.150*** **	**0.009**	**0.383*** **
	(0.009)	(0.017)	(0.040)	(0.012)	(0.077)
Sib<=6				**-**	**-**

	0.002	**0.003**	**0.000**	**0.001**	**0.006**
	(0.004)	(0.005)	(0.001)	(0.002)	(0.010)
Sib>6				**-**	**-**
	0.016* **	**0.022*** **	**0.003**	**0.010*** **	**0.044*** **
	(0.002)	(0.003)	(0.002)	(0.002)	(0.005)

Table (6): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Males** School of Choice, Egypt 1998

	Read&Write	Primary	Preparatory	Secondary	University
Region (Rural=Base)	**-0.020*** **	**-0.064*** **	**-0.077*** **	**-0.017*** **	**-0.037*** **
	(0.006)	(0.015)	(0.015)	(0.005)	(0.008)
M.educ. (illit= Base)	**-0.089*** **	**-0.018**	**-0.148*** **	**-0.046*** **	**-0.123*** **
	(0.017)	(0.017)	(0.022)	(0.012)	(0.028)
F.Educ. (Rural= Base)	**-0.022***	**-0.031*** **	**-0.051** **	**-0.012***	**-0.028** **
F.Read& Write					
	(0.009)	(0.009)	(0.017)	(0.005)	(0.010)
F.Prima	**-**				

ry	**0.066***	**0.016**	**0.109****	**0.032**	**0.083**
	(0.032)	(0.021)	(0.039)	(0.017)	(0.048)
F.Secon	**-**	**-**			
dary	**0.169*****	**0.172**	**0.072**	**0.077****	**0.483**
	(0.032)	(0.091)	(0.126)	(0.027)	(0.288)
F.Unive	**-**	**-**			
risity	**0.171*****	**0.167****	**0.079**	**0.078*****	**0.484****
	(0.022)	(0.053)	(0.073)	(0.020)	(0.164)
Sib<=6	**-**				
	0.001	**0.002**	**0.002**	**0.001**	**0.001**
	(0.003)	(0.006)	(0.008)	(0.002)	(0.004)
Sib>6		**-**	**-**	**-**	**-**
	0.010***	**0.020*****	**0.027*****	**0.006*****	**0.014*****
	(0.002)	(0.004)	(0.004)	(0.001)	(0.002)

Table (7): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Females** School of Choice, Egypt 1998

	Read&Write	Primary	Preparatory	Secondary	University
Region	**-**	**-**	**-**		
(Rural=Base)	**0.001**	**0.003**	**0.030**	**0.004**	**0.032**
	(0.002)	(0.005)	(0.043)	(0.006)	(0.046)
M.educ.	**-**	**-**	**-**		
(illit=	**0.006***	**0.019*****	**0.190*****	**0.008**	**0.217*****

Base)					
	(0.003)	(0.005)	(0.033)	(0.007)	(0.038)
F.Educ.				**-**	**-**
(Illit=	**0.002**	**0.005**	**0.048**	**0.005**	**0.053**
Base)					
F.Read&					
Write					
	(0.001)	(0.004)	(0.034)	(0.004)	(0.037)
F.Prima				**-**	**-**
ry	**0.002**	**0.007**	**0.056**	**0.009**	**0.060**
	(0.003)	(0.009)	(0.065)	(0.014)	(0.068)
F.Secon	**-**	**-**	**-**	**-**	
dary	**0.006***	**0.019*****	**0.280*****	**0.065**	**0.380*****
	(0.003)	(0.005)	(0.066)	(0.042)	(0.111)
F.Unive	**-**	**-**	**-**	**-**	
risity	**0.006***	**0.019*****	**0.256*****	**0.038**	**0.329*****
	(0.003)	(0.005)	(0.049)	(0.023)	(0.075)
Sib<=6	**-**	**-**	**-**		
	0.000	**0.001**	**0.005**	**0.001**	**0.006**
	(0.001)	(0.002)	(0.019)	(0.002)	(0.020)
Sib>6				**-**	**-**
	0.001	**0.002**	**0.019**	**0.002**	**0.021**

	(0.000)	(0.001)	(0.010)	(0.001)	(0.011)

Table (8): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Females** School of Choice, Egypt 1998

	Read&Write	Primary	Preparatory	Secondary	University
Region (Rural=Base)	**-0.015**	**-0.044**	**-0.285**	**-0.070**	**-0.139**
	(5896.621)	(12090.425)	(2955.920)	(3551.523)	(10558.307)
M.educ. (illit= Base)	**-0.066**	**-0.110**	**-0.088**	**-0.096**	**-0.347**
	(873.743)	(7850.112)	(24781.849)	(1607.698)	(17551.279)
F.Educ. (Illit= Base)	**-0.048**	**-0.078**	**-0.100**	**-0.072**	**-0.200**
F.Read& Write					
	(574.312)	(6725.769)	(18278.714)	(545.550)	(12184.578)
F.Primary	**-0.044**	**-0.088**	**-0.030**	**-0.065**	**-0.217**
	(647.263)	(3179.349)	(19184.355)	(1080.518)	(11706.985)
F.Secondary	**-0.081***	**-0.186****	**-0.289*****	**-0.041**	**-0.931*****

	(0.040)	(0.061)	(0.073)	(0.023)	(0.029)
F.Unive	**-**	**-**	**-**		
risity	**0.063**	**0.137**	**0.060**	**0.075**	**0.437**
	(1369.	(2068.	(25335	(5502	(15761
	971)	925)	.850)	.349)	.184)
Sib<=6	**-**	**-**			
	0.008	**0.008**	**0.029**	**0.011**	**0.023**
		(1767.	(2111.		(1651.
	(344.419)	603)	372)	(426.355)	584)
Sib>6			**-**	**-**	**-**
	0.000	**0.000**	**0.001**	**0.000**	**0.001**
	(12.623)	(64.785)	(77.384)	(15.626)	(60.533)

Table (9): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Males** School of Choice, Morocco 1991

	Read&Write	Primary	Preparatory	Secondary	University
Region (Rural=Base)	**-0.013**	**-0.074**	**-0.108**	**-0.108**	**-0.099**
	(22995.500)	(23736.816)	(1350.829)	(12249.532)	(19588.823)
M.educ .	**-0.083**	**-0.090**	**-0.001**	**-0.107**	**-0.257**
(illit =Base)					
	(1395.802)	(17682.061)	(28135.646)	(17900.396)	(32133.325)
F.Educ .	**-0.028**	**-0.038**	**-0.080**	**-0.088**	**-0.084**
(Illit =Base)					
F.Read &Write					
	(16503.435)	(22321.318)	(4459.172)	(8598.024)	(16330.162)
F.Primary	**-0.042**	**-0.022**	**-0.032**	**-0.069**	**-0.092**
	(3679.816)	(16078.714)	(12699.071)	(201.893)	(15453.814)
F.Prep .	**-0.098**	**-0.116**	**-0.022**	**-0.105**	**-0.346**

	(3184.3	(16318.5	(31090.	(27021.	(36470.
	72)	61)	252)	968)	580)
F.Secondary	**-0.124*** **	**-0.207*** **	**-0.176*** **	**-0.147*** **	**-0.124*** **
	(0.018)	(0.022)	(0.020)	(0.018)	(0.017)
F. Univ.	**-0.082**	**-0.087**	**-0.003**	**-0.106**	**-0.249**
	(1186.7	(17804.7	(27717.	(16971.	(31580.
	24)	97)	647)	538)	497)

Table (10): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Males** School of Choice, Morocco 1991

	Read&Write	Primary	Preparatory	Secondary	University
F.Educ.	**-0.028**	**-0.033**	**-0.015**	**-0.018**	**-0.007**
(Illit=Base)					
F.Read&Write					
	(0.031)	(0.045)	(0.023)	(0.028)	(0.010)
F.Primary	**-0.074**	**-0.056**	**-0.023**	**-0.026**	**-0.009**
	(0.055)	(0.034)	(0.013)	(0.014)	(0.005)
F.Prep.	**-0.005**	**-0.004**	**-0.002**	**-0.002**	**-0.001**

	(0.055)	(0.051)	(0.022)	(0.026)	(0.009)
Sib<=6	**-**	**-**	**-**	**-**	**-**
	0.013*	**0.013***	**0.006***	**0.007***	**0.002**
	(0.006)	(0.006)	(0.003)	(0.003)	(0.001)
Sib>6	**-**	**-**	**-**	**-**	**-**
	0.008**	**0.008****	**0.004****	**0.004****	**0.002***
	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)

Source: Authors' own calculations from1991 and 1999 MLSMS, Morocco.

Table (11): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Females** School of Choice, Morocco 1991

	Read&Write	Primary	Prepa ratory	Secondary	University
F.Educ .	**-0.018**	**-0.027**	**0.008**	**-0.054**	**0.042**
(Illit =Base)					
F.Read &Write					
	(0.039)	(0.053)	(0.010)	(0.115)	(0.081)
F.Prim ary	**-0.005**	**-0.007**	**0.004**	**-0.014**	**0.012**
	(0.040)	(0.066)	(0.037)	(0.118)	(0.114)
F.Prep .	**0.027**	**0.036**	**0.003**	**-0.079**	**-0.054**
	(0.051)	(0.055)	(0.026)	(0.147)	(0.082)
Sib<=6	**-0.007**	**-0.010**	**0.005**	**-0.020**	**0.017**
	(0.010)	(0.016)	(0.008)	(0.029)	(0.025)
Sib>6	**0.005**	**0.008**	**0.004**	**-0.015**	**-0.013**
	(0.005)	(0.007)	(0.004)	(0.014)	(0.012)

Table (12): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Females** School of Choice, Morocco 1991

	Read&Write	Primary	Preparatory	Secondary	University
F.Educ	**-**	**-**	**-**		
.	**0.018**	**0.027**	**0.008**	**0.054**	**0.042**
(Illit					
=Base)					
F.Read					
&Write					
	(0.039)	(0.053)	(0.010)	(0.115)	(0.081)
F.Prim	**-**	**-**	**-**		
ary	**0.005**	**0.007**	**0.004**	**0.014**	**0.012**
	(0.040)	(0.066)	(0.037)	(0.118)	(0.114)
F.Prep				**-**	**-**
.	**0.027**	**0.036**	**0.003**	**0.079**	**0.054**
	(0.051)	(0.055)	(0.026)	(0.147)	(0.082)
Sib<=6	**-**	**-**	**-**		
	0.007	**0.010**	**0.005**	**0.020**	**0.017**
	(0.010)	(0.016)	(0.008)	(0.029)	(0.025)
Sib>6				**-**	**-**
	0.005	**0.008**	**0.004**	**0.015**	**0.013**
	(0.005)	(0.007)	(0.004)	(0.014)	(0.012)

Source: Authors' own calculations from1991 and 1999 MLSMS, Morocco.

Table (13): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Males** School of Choice, Morocco 1999

	Read&Write	Primary	Preparatory	Secondary	University
Region (Rural=Base)	**0.044*** -	**0.011** -	**0.061***	**0.081***	**0.069***
	(0.013)	(0.009)	(0.027)	(0.025)	(0.019)
M.educ .	**0.034** -	**0.032** -	**0.008**	**0.056**	**0.072**
(illit =Base)					
	(0.030)	(0.035)	(0.011)	(0.048)	(0.080)
F.Educ .	**0.102** -	**0.096** -	**0.003** -	**0.157**** -	**0.269** -
(Illit =Base)					
F.Read &Write					
	(0.054)	(0.058)	(0.047)	(0.054)	(0.235)
F.Prim ary	**0.064*** -	**0.012** -	**0.097** -	**0.128** -	**0.113** -
	(0.028)	(0.034)	(0.102)	(0.100)	(0.083)
F.Prep .	**0.049**** -	**0.002** -	**0.092** -	**0.104** -	**0.083** -

	(0.016)	(0.061)	(0.126)	(0.093)	(0.062)
F.Secondary	**-0.041**	**-0.006**	**-0.063**	**-0.078**	**-0.064**
	(0.043)	(0.044)	(0.145)	(0.119)	(0.081)
F. Univ.	**-0.001**	**-0.001**	**-0.001**	**-0.002**	**-0.002**
	(0.100)	(0.070)	(0.069)	(0.168)	(0.173)
Sib<=6	**0.008**	**0.006**	**-0.006**	**-0.013**	**-0.014**
	(0.006)	(0.004)	(0.004)	(0.010)	(0.010)
Sib>6	**0.015*****	**0.011*****	**0.011****	**0.026*****	**0.026*****
	(0.004)	(0.003)	(0.003)	(0.005)	(0.005)

Table (14): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Males** School of Choice, Morocco 1999

	Read&Write	Primary	Preparatory	Secondary	University
Region (Rural=Base)	**0.115*****	**0.095*****	**0.038*****	**0.019*****	**0.010*****
	(0.016)	(0.012)	(0.006)	(0.004)	(0.003)
M.educ. (illit	**0.045****	**0.117****	**0.063**	**0.035**	**0.019**

=Base)					
	(0.017)	(0.042)	(0.033)	(0.020)	(0.012)
F.Educ	**-**	**-**	**-**	**-**	**-**
.	**0.070*** **	**0.130***	**0.066**	**0.036**	**0.019**
(Illit					
=Base)					
F.Read					
&Write					
	(0.011)	(0.063)	(0.044)	(0.027)	(0.015)
F.Prim	**-**	**-**	**-**	**-**	**-**
ary	**0.060**	**0.045**	**0.017**	**0.008**	**0.004**
	(0.075)	(0.047)	(0.017)	(0.008)	(0.004)
F.Prep					
.	**0.044**	**0.060**	**0.027**	**0.014**	**0.007**
	(0.030)	(0.074)	(0.038)	(0.020)	(0.011)
F.Seco					
ndary	**0.044**	**0.115**	**0.063**	**0.035**	**0.019**
	(0.030)	(0.082)	(0.065)	(0.040)	(0.024)
F.					
Univ.	**0.048*** **	**0.099**	**0.051**	**0.027**	**0.015**
	(0.014)	(0.087)	(0.059)	(0.035)	(0.020)
Sib<=6	**-**	**-**	**-**	**-**	**-**

	0.011	**0.010**	**0.004**	**0.002**	**0.001**
	(0.006)	(0.006)	(0.002)	(0.001)	(0.001)
Sib>6	-	-	-	-	-
	0.004	0.004	0.002	0.001	0.000
	(0.003)	(0.002)	(0.001)	(0.000)	(0.000)

Table (15): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Public Sector Females** School of Choice, Morocco 1999

	Read&Write	Primary	Preparatory	Secondary	University
Region	-	-			
(Rural=Base)	**0.043**	**0.011**	**0.212**	**0.181*** **	**0.177*** **
	(0.049)	(0.060)	(0.163)	(0.054)	(0.040)
M.educ	-	-	-		
.	**0.021**	**0.026**	**0.057**	**0.044**	**0.113**
(illit					
=Base)					
	(0.018)	(0.024)	(0.070)	(0.031)	(0.122)
F.Educ				-	-
.	**0.067**	**0.075**	**0.105**	**0.135***	**0.326**
(Illit					
=Base)					
F.Read					
&Write					
	(0.041)	(0.039)	(0.059)	(0.054)	(0.218)

F.Primary	**0.067***	**0.045**	**0.123**	**-0.199****	**-0.250****
	(0.029)	(0.034)	(0.120)	(0.069)	(0.085)
F.Prep.	**0.020**	**0.022**	**0.017**	**-0.049**	**-0.074**
	(0.052)	(0.053)	(0.015)	(0.123)	(0.162)
F.Secondary	**0.020**	**0.022**	**0.013**	**-0.048**	**-0.069**
	(0.054)	(0.053)	(0.019)	(0.128)	(0.154)
F.Univ.	**0.032**	**0.032**	**0.002**	**-0.077**	**-0.098**
	(0.063)	(0.049)	(0.104)	(0.148)	(0.142)
Sib<=6	**-0.004**	**-0.005**	**-0.007**	**0.010**	**0.019**
	(0.006)	(0.007)	(0.010)	(0.014)	(0.024)
Sib>6	**-0.003**	**-0.003**	**-0.004**	**0.006**	**0.011**
	(0.003)	(0.003)	(0.005)	(0.007)	(0.012)

Table (16): Marginal Effects of Maximum Likelihood Ordered Logit Estimation of **Private Sector Females** School of Choice, Morocco 1999

	Read&Write	Primary	Preparatory	Secondary	University

Region					
(Rural=Base)	**0.132*** **	**0.084*** **	**0.049*** **	**0.017** **	**0.010***
	(0.032)	(0.019)	(0.012)	(0.006)	(0.004)
M.educ	**-**				
.	**0.023**	**0.123** **	**0.210** **	**0.125**	**0.096**
(illit					
=Base)					
	(0.075)	(0.044)	(0.069)	(0.081)	(0.077)
F.Educ	**-**	**-**	**-**	**-**	**-**
.	**0.087** **	**0.144**	**0.133**	**0.056**	**0.036**
(Illit					
=Base)					
F.Read					
&Write					
	(0.032)	(0.083)	(0.136)	(0.073)	(0.052)
F.Prim	**-**	**-**	**-**	**-**	**-**
ary	**0.100**	**0.064**	**0.037**	**0.012**	**0.007**
	(0.115)	(0.062)	(0.035)	(0.012)	(0.007)
F.Prep	**-**	**-**	**-**	**-**	**-**
.	**0.044**	**0.031**	**0.019**	**0.006**	**0.004**
	(0.138)	(0.086)	(0.050)	(0.017)	(0.010)
F.Seco					
ndary	**0.057**	**0.074**	**0.058**	**0.022**	**0.014**

	(0.041)	(0.140)	(0.139)	(0.059)	(0.038)
F.	**-**	**-**	**-**	**-**	**-**
Univ.	**0.062**	**0.041**	**0.024**	**0.008**	**0.005**
	(0.133)	(0.074)	(0.041)	(0.013)	(0.008)
Sib<=6					
	0.011	**0.009**	**0.006**	**0.002**	**0.001**
	(0.011)	(0.009)	(0.005)	(0.002)	(0.001)
Sib>6					
	0.001	**0.001**	**0.000**	**0.000**	**0.000**
	(0.005)	(0.004)	(0.002)	(0.001)	(0.000)

Source: Authors' own calculations from1991 and 1999 MLSMS, Morocco.

Table (17) Regression Results, Egypt, Males, 1988

	Public Males, 1988		Private Males, 1988	
	Log Real Wage	Log Real Wage	Log Real Wage	Log Real Wage
exp	**0.060**	**0.058**	**0.067**	**0.055**
	(0.004)**	(0.006)**	(0.005)**	(0.006)**
exp2	**-0.062**	**-0.061**	**-0.116**	**-0.092**
	(0.008)**	(0.012)**	(0.010)**	(0.012)**
Urban(rural	**0.182**	**0.194**	**-**	**-**

=base)			**0.034**	**0.058**
	(0.029)**	(0.030)**	(0.043)	(0.043)
Read&write	**0.129**	**-0.041**	**0.057**	**0.347**
	(0.044)**	(0.112)	(0.048)	(0.114)**
Primary	**0.287**	**0.547**	**0.093**	**-0.024**
	(0.049)**	(0.205)**	(0.050)	(0.093)
Prep.	**0.702**	**0.572**	**0.285**	**0.167**
	(0.047)**	(0.139)**	(0.058)**	(0.102)
Secondary	**0.850**	**0.684**	**0.238**	**-0.558**
	(0.065)**	(0.180)**	(0.127)	(0.283)*
University	**1.127**	**1.099**	**0.675**	**0.662**
	(0.050)**	(0.057)**	(0.082)**	(0.083)**
lambdam	-0.063	-0.063	-0.130	-0.129
	(0.035)	(0.035)	(0.062)*	(0.061)*
Primary*Exp		0.000		-0.000
		0.002		(0.00

			0)*
	Primary*Exp	(0.00	-
2		0)*	0.014
		(0.00	(0.00
		6)	7)
	Prep*Exp	-	0.015
		0.025	
		(0.01	(0.01
		6)	3)
	Prep*Exp2	0.047	-
			0.028
		(0.02	(0.03
		9)	8)
	Secon*Exp	0.007	-
			0.004
		(0.01	(0.01
		3)	7)
	Secon*Exp2	-	0.123
		0.006	
		(0.03	(0.06
		0)	1)*
	Univ*Exp	0.015	0.164
		(0.02	(0.06
		1)	5)*
	Univ*Exp2	-	-
		0.026	0.497
		(0.05	(0.27
		4)	8)

Constant	-0.962	-0.916	-0.113	-0.001
	(0.078)**	(0.097)**	(0.069)	(0.079)
Observations	1689	1689	1595	1595
R-squared	0.40	0.40	0.16	0.18

Standard errors in parentheses

* significant at 5% level; ** significant at 1% level

Table (18) Regression Results, Egypt 1988

	Public Females		Private Females	
	lrhr wg	lrhr wg	lrhr wg	lrhr wg
exp	**0.083**	**0.058**	**0.057**	**0.041**
	(0.007)**	(0.006)**	(0.014)**	(0.016)*
exp2	**-0.111**	**-0.061**	**-0.097**	**-0.069**
	(0.019)**	(0.012)**	(0.031)**	(0.035)
Urban(rural =base)	**0.145**	**0.203**	**-0.002**	**0.061**
	(0.057)*	(0.030)**	(0.197)	(0.197)
Read&write	**0.121**	**-0.032**	**0.065**	**0.775**
	(0.199)	(0.112)	(0.244)	(0.560)
Primary	**0.407**	**0.557**	**0.242**	**0.041**
	(0.144)**	(0.205)**	(0.168)	(0.351)
Prep.	**0.920**	**0.597**	**0.324**	**-0.090**
	(0.111)**	(0.139)**	(0.149)*	(0.276)
Secondary	**1.061**	**0.707**	**-**	**-**

	9	**5**	**0.098**	**0.689**
	(0.119)**	(0.181)**	(0.296)	(0.800)
University	**1.354**	**1.122**	**1.245**	**1.179**
	(0.117)**	(0.054)**	(0.172)**	(0.174)**
lambdam	-0.020	-0.045	0.202	0.270
	(0.060)	(0.043)	(0.258)	(0.258)
Primary*Exp		0.000		-0.000
		(0.000)*		-0.339
Primary*Exp2		0.002		(0.000)
		(0.006)		(0.176)
Prep*Exp		-0.024		0.012
		(0.016)		(0.047)
Prep*Exp2		0.045		0.009
		(0.029)		(0.113)
Secon*Exp		0.000		0.060

	7		9	
	(0.0		(0.0	
	13)		56)	
Secon*Exp2	-		-	
	0.005		0.120	
	(0.0		(0.2	
	30)		28)	
Univ*Exp	0.01		0.16	
	4		5	
	(0.0		(0.4	
	21)		04)	
Univ*Exp2	-		-	
	0.025		0.443	
	(0.0		(3.2	
	54)		04)	
Constant	-	-	-	-
	1.410	0.939	0.725	0.637
	(0.1	(0.1	(0.2	(0.2
	43)**	02)**	35)**	48)*
Observations	589	589	254	254
R-squared	0.48	0.40	0.23	0.27

Standard errors in parentheses

* significant at 5% level; **

significant at 1%

level

Table (19) Regression Results for Egypt, Males, 1998

	Public Males		Private Males	
	lrhr wg	lrhr wg	lrhr wg	lrhr wg
exp	**0.055**	**0.056**	**0.035**	**0.042**
	(0.007)**	(0.012)**	(0.010)**	(0.015)**
exp2	**-0.050**	**-0.055**	**-0.045**	**-0.054**
	(0.013)**	(0.022)*	(0.017)**	(0.024)*
Urban(rural =base)	**0.148**	**0.128**	**-0.027**	**-0.016**
	(0.040)**	(0.041)**	(0.059)	(0.062)
Read&write	**0.152**	**0.407**	**0.214**	**0.133**
	(0.067)*	(0.178)*	(0.068)**	(0.148)
Primary	**0.363**	**0.684**	**0.225**	**0.291**
	(0.062)**	(0.405)	(0.064)**	(0.404)
Prep.	**0.723**	**0.904**	**0.345**	**0.491**
	(0.062)**	(0.250)**	(0.083)**	(0.309)
Secondary	**0.898**	**0.799**	**0.420**	**0.800**

6	**3**	**6**	**1**	
(0.074)**	(0.378)*	(0.138)**	(0.768)	
University	**1.116**	**1.102**	**0.707**	**0.722**
(0.164)**	(0.072)**	(0.093)**	(0.100)**	
lambdam	-0.080	-0.078	-0.158	-0.160
(0.037)*	(0.037)*	(0.051)**	(0.052)**	
Primary*Exp		-0.000		0.000
		(0.000)		-0.000
Primary*Exp2		-0.011		(0.000)
		(0.012)		(0.011)
Prep*Exp		-0.024		-0.003
		(0.027)		(0.030)
Prep*Exp2		0.040		0.002
		(0.044)		(0.051)
Secon*Exp		-		-

		0.024		0.008
		(0.020)		(0.028)
Secon*Exp2		0.058		0.002
		(0.038)		(0.065)
Univ*Exp		0.001		-0.035
		(0.033)		(0.074)
Univ*Exp2		0.011		0.065
		(0.067)		(0.145)
Constant	-1.320	-1.281	-0.205	-0.318
	(0.116)**	(0.157)**	(0.151)	(0.224)
Observations	1307	1307	745	745
R-squared	0.37	0.37	0.13	0.13

Standard errors in parentheses

* significant at 5% level; **

significant at 1%

level

Table (20) Regression Results, Egypt Females, 1998

	Public Females		Private Females	
	lrh rwg	lrh rwg	lrh rwg	lrh rwg
exp	**0.044**	**0.055**	**0.026**	**-0.003**
	(0.009)**	(0.012)**	(0.034)	(0.041)
exp2	**-0.012**	**-0.053**	**-0.012**	**0.047**
	(0.020)	(0.022)*	(0.067)	(0.079)
Urban(rural =base)	**0.019**	**0.056**	**0.061**	**0.283**
	(0.057)	(0.036)**	(0.401)	(0.411)
Read&write	**0.036**	**0.417**	**-0.103**	**-0.876**
	(0.251)	(0.179)*	(0.437)	(0.378)
Primary	**0.603**	**0.724**	**0.487**	**-0.469**
	(0.197)**	(0.404)	(0.336)	(0.347)
Prep.	**0.940**	**0.929**	**0.615**	**-0.504**
	(0.162)**	(0.250)**	(0.294)*	(0.001)
Secondary	**1.203**	**0.870**	**0.330**	**-**

	10	**11**	**06**	**0.662**
	(0.	(0.	(0.	(2.
	167)**	378)*	437)	970)
University	**1.4**	**1.1**	**1.5**	**1.5**
	40	**21**	**96**	**43**
	(0.	(0.	(0.	(0.
	165)**	071)**	287)**	307)**
lambdam	-	-	-	0.0
	0.160	0.096	0.048	27
	(0.	(0.	(0.	(0.
	059)**	052)	694)	714)
Primary*Exp		-		0.0
		0.000		01
		-		(0.
		0.011		001)
Primary*Exp		(0.		-
2		000)		0.030
		(0.		(0.
		012)		136)
Prep*Exp		-		0.1
		0.025		24
		(0.		(0.
		027)		120)
Prep*Exp2		0.0		-
		42		0.290
		(0.		(0.
		044)		235)
Secon*Exp		-		0.1

	0.024		19	
	(0.		(0.	
	020)		102)	
Secon*Exp2	0.0		-	
	57		0.228	
	(0.		(0.	
	038)		213)	
Univ*Exp	0.0		0.0	
	02		86	
	(0.		(0.	
	033)		286)	
Univ*Exp2	0.0		-	
	09		0.157	
	(0.		(0.	
	067)		570)	
Constant	-	-	-	-
	1.443	1.285	0.944	0.672
	(0.	(0.	(0.	(0.
	197)**	158)**	546)	629)
Observation	636	636	78	78
s				
R-squared	0.4	0.3	0.4	0.4
	2	7	0	4
Standard				
errors in				
parentheses				
*				
significant at 5%				

level; **

significant at 1%

level

Table (21) Regression Results, Morocco, Males 1991

	Public Males		Private Males	
	lnhw	lnhw	lnhw	lnhw
	age_91	age_91	age_91	age_91
exp	**0.066**	**0.123**	**0.071**	**0.038**
	(0.017)**	(0.023)**	(0.010)**	(0.014)**
exp2	**-0.090**	**-0.196**	**-0.103**	**-0.053**
	(0.030)**	(0.037)**	(0.018)**	(0.024)*
Urban(rural=base)	**0.005**	**-0.070**	**0.289**	**0.303**
	(0.154)	(0.151)	(0.144)*	(0.143)*
Read&write	**0.392**	**2.872**	**0.153**	**-0.113**
	(0.132)**	(1.024)**	(0.075)*	(0.302)
Primary	**0.830**	**2.341**	**0.351**	**-0.833**
	(0.116)**	(1.195)	(0.098)**	(0.354)*
Prep.	**1.159**	**1.426**	**0.606**	**0.258**
	(0.124)**	(0.752)	(0.147)**	(0.476)
Secondary	**1.441**	**4.204**	**1.271**	**-**

0	**3**	**9**	**0.241**	
(0.133)**	(0.772)**	(0.145)**	(0.562)	
University	**2.474**	**2.444**	**2.282**	**2.163**
(0.147)**	(0.165)**	(0.237)**	(0.236)**	
lambdam	-0.310	-0.378	0.138	0.149
(0.116)**	(0.113)**	(0.141)	(0.140)	
Primary*Exp		0.390		0.045
		(0.108)**		(0.059)
Primary*Exp2		-0.214		-0.000
		(0.069)**		(0.028)
Prep*Exp		0.217		-0.207
		(0.131)		(0.081)*
Prep*Exp2		-0.123		0.108
		(0.080)		(0.035)**
Secon*Exp		0.11		0.09

	4		1	
	(0.1		(0.1	
	05)		11)	
Secon*Exp2	-		-	
	0.048		0.007	
	(0.0		(0.0	
	56)		49)	
Univ*Exp	0.50		-	
	6		0.212	
	(0.1		(0.1	
	46)**		93)	
Univ*Exp2	-		0.12	
	0.255		9	
	(0.0		(0.0	
	69)**		72)	
Constant	-	-	-	-
	3.125	3.620	3.786	3.339
	(0.2	(0.3	(0.2	(0.2
	79)**	81)**	62)**	86)**
Observation	376	376	660	660
s				
R-squared	0.57	0.60	0.28	0.31
Standard				
errors in				
parentheses				
*				
significant at 5%				
level; **				

significant at 1%

level

Table (22) Regression Results, Morocco, Females, 1991

	Public Females		Private Females	
	lnhw	lnhw	lnhw	lnhw
	age_91	age_91	age_91	age_91
exp	**-0.055**	**0.113**	**0.060**	**0.053**
	(0.034)	(0.020)**	(0.018)**	(0.020)**
exp2	**0.157**	**-0.180**	**-0.089**	**-0.077**
	(0.064)*	(0.034)**	(0.033)**	(0.037)*
Urban(rural=base)	**0.371**	**0.078**	**0.022**	**0.024**
	(0.514)	(0.157)	(0.142)	(0.144)
Read&write	**1.339**	**2.214**	**0.518**	**0.487**
	(0.375)**	(0.641)**	(0.183)**	(0.656)
Primary	**1.720**	**1.079**	**0.782**	**-12.513**
	(0.332)**	(0.686)	(0.322)*	(9.843)
Prep.	**2.085**	**1.488**	**1.478**	**-0.442**
	(0.340)**	(0.613)*	(0.238)**	(1.688)
Secondary	**2.142**	**2.642**	**1.521**	**1.341**

	1	**1**	**5**	**4**
	(0.341)**	(0.580)**	(0.238)**	(2.056)
University	**2.708**	**2.470**	**2.555**	**2.545**
	(0.383)**	(0.156)**	(0.283)**	(0.288)**
lambdam	-2.431	-1.067	-0.082	-0.070
	(1.703)	(0.611)	(0.176)	(0.181)
Primary*Exp		0.282		-0.035
		(0.076)**		(0.114)
Primary*Exp2		-0.153		0.011
		(0.045)**		(0.059)
Prep*Exp		0.077		-3.651
		(0.085)		(2.754)
Prep*Exp2		-0.036		1.429
		(0.048)		(1.065)
Secon*Exp		0.080		-

		7		0.319
		(0.0		(0.3
		89)		72)
Secon*Exp2		-		0.16
		0.039		4
		(0.0		(0.1
		47)		62)
Univ*Exp		0.21		0.10
		2		1
		(0.1		(0.6
		16)		72)
Univ*Exp2		-		-
		0.110		0.007
		(0.0		(0.2
		53)*		41)
Constant	-	-	-	-
	3.137	3.748	3.631	3.582
	(0.7	(0.3	(0.3	(0.3
	13)**	51)**	37)**	50)**
Observation	109	109	154	154
s				
R-squared	0.58	0.58	0.54	0.55
Standard				
errors in				
parentheses				
*				
significant at 5%				
level; **				

significant at 1%

level

Table (23) Regression Results, Morocco, 1999

	Public Males		Private Males	
	lnhw	lnhw	lnhw	lnhw
	age_99	age_99	age_99	age_99
exp	**0.091**	**0.125**	**0.097**	**0.071**
	(0.018)**	(0.034)**	(0.012)**	(0.017)**
exp2	**-0.130**	**-0.184**	**-0.144**	**-0.112**
	(0.028)**	(0.049)**	(0.020)**	(0.028)**
Urban(rural=base)	**0.373**	**0.380**	**0.590**	**0.528**
	(0.093)**	(0.096)**	(0.115)**	(0.114)**
Read&write	**0.329**	**0.138**	**0.173**	**-0.148**
	(0.095)**	(1.272)	(0.074)*	(0.399)
Primary	**0.475**	**0.879**	**0.198**	**-0.122**
	(0.087)**	(0.910)	(0.097)*	(0.438)
Prep.	**0.775**	**1.224**	**0.552**	**-2.347**
	(0.081)**	(0.924)	(0.142)**	(0.745)**
Secondary	**1.041**	**2.072**	**1.121**	**-**

4	**6**	**8**	**0.047**	
(0.088)**	(0.740)**	(0.181)**	(1.632)	
University	**1.241**	**1.216**	**1.476**	**1.416**
(0.095)**	(0.097)**	(0.227)**	(0.224)**	
lambdam	-0.023	-0.031	-0.159	-0.230
(0.045)	(0.045)	(0.096)	(0.095)*	
Primary*Exp	0.001		0.017	
	0.011		(0.031)	
Primary*Exp2	(0.080)		-0.020	
	(0.121)		(0.057)	
Prep*Exp	-0.035		-0.005	
	(0.058)		(0.037)	
Prep*Exp2	0.064		0.049	
	(0.088)		(0.070)	
Secon*Exp	-		0.16	

		0.038		9
		(0.059)		(0.061)**
Secon*Exp2		0.070		-0.192
		(0.091)		(0.115)
Univ*Exp		-0.067		0.067
		(0.051)		(0.118)
Univ*Exp2		0.095		-0.084
		(0.085)		(0.207)
Constant	0.324	-0.147	-0.156	0.439
	(0.303)	(0.544)	(0.244)	(0.324)
Observations	434	434	1055	1055
R-squared	0.46	0.47	0.28	0.31

Standard errors in parentheses

* significant at 5% level; **

significant at 1%

level

Table (24) Regression Result, Morocco, Females 1999

	Public Females		Private Females	
	lnhw	lnhw	lnhw	lnhw
	age_99	age_99	age_99	age_99
exp	**-0.007**	**0.125**	**0.054**	**0.043**
	(0.036)	(0.033)**	(0.017)**	(0.018)*
exp2	**0.044**	**-0.185**	**-0.082**	**-0.067**
	(0.061)	(0.049)**	(0.034)*	(0.037)
Urban(rural =base)	**-0.218**	**0.695**	**1.157**	**1.147**
	(0.433)	(0.232)**	(0.287)**	(0.288)**
Read&write	**0.097**	**0.177**	**0.239**	**-0.198**
	(0.217)	(1.269)	(0.148)	(0.522)
Primary	**0.641**	**0.961**	**0.542**	**0.602**
	(0.196)**	(0.911)	(0.175)**	(0.931)
Prep.	**1.047**	**1.228**	**1.139**	**-1.749**
	(0.341)**	(0.920)	(0.214)**	(1.309)
Secondary	**1.191**	**2.032**	**1.531**	**5.195**

	0	**1**	**3**	**3**
	(0.161)**	(0.736)**	(0.321)**	(4.277)
University	**1.715**	**1.231**	**1.556**	**1.572**
	(0.161)**	(0.093)**	(0.386)**	(0.383)**
lambdam	-0.006	0.167	0.081	0.081
	(0.225)	(0.122)	(0.189)	(0.190)
Primary*Exp		0.000		0.065
		0.012		(0.056)
Primary*Exp2		(0.080)		-0.170
		(0.120)		(0.128)
Prep*Exp		-0.040		-0.043
		(0.058)		(0.094)
Prep*Exp2		0.071		0.160
		(0.088)		(0.204)
Secon*Exp		-		0.22

		0.038		5
		(0.059)		(0.127)
Secon*Exp2		0.070		-0.354
		(0.091)		(0.281)
Univ*Exp		-0.064		-0.356
		(0.050)		(0.367)
Univ*Exp2		0.091		0.793
		(0.085)		(0.738)
Constant	1.658	-0.580	-0.966	-0.821
	(0.718)*	(0.610)	(0.481)*	(0.491)
Observations	147	147	379	379
R-squared	0.55	0.47	0.32	0.35

Standard errors in parentheses

* significant at 5% level; **

significant at 1%

level

Source: Authors' own calculations from1991 and 1999 MLSMS, Morocco.

Table (25): % Differences in Private Rates of Return By Sector of Employment, Egypt, 1988 and 1998

Males

Education Level	Public, 88	Public, 98	Private, 88*	Private, 98
Primary to R&W	5.27	7.03	1.20	0.37
Prep. To Primary	13.83	12.00	6.40	4.00
Sec. to Prep.	4.93	5.77	-1.57	2.70
Univ. to Sec.	6.93	5.50	10.93	7.03

Females,

Education Level	Public, 88	Public, 98	Private, 88*	Private, 98*
Primary to R&W	9.53	18.90	5.90	12.80
Prep. To Primary	17.10	11.23	2.73	4.27
Sec. to Prep.	4.97	9.00	-7.53	-10.30
Univ. to Sec.	7.13	5.75	28.68	32.25

* Corresponds to insignificant coefficients.

Shaded areas correspond to insignificant coefficients.

Source: Authors' own calculations from LFSS 1988 and ELMS 1998.

Table (26): % Differences in Private Rates of Return By Sector of Employment, Morocco 1991 and 1999

Males

Education Level	Public, 91	Public, 99	Private, 91*	Private, 99
Primary to R&W	14.60	4.87	6.60	0.83
Prep. To Primary	10.97	10.00	8.50	11.80
Sec. to Prep.	9.37	8.97	22.43	19.20
Univ. to Sec.	25.85	4.93	25.08	8.58

Females,

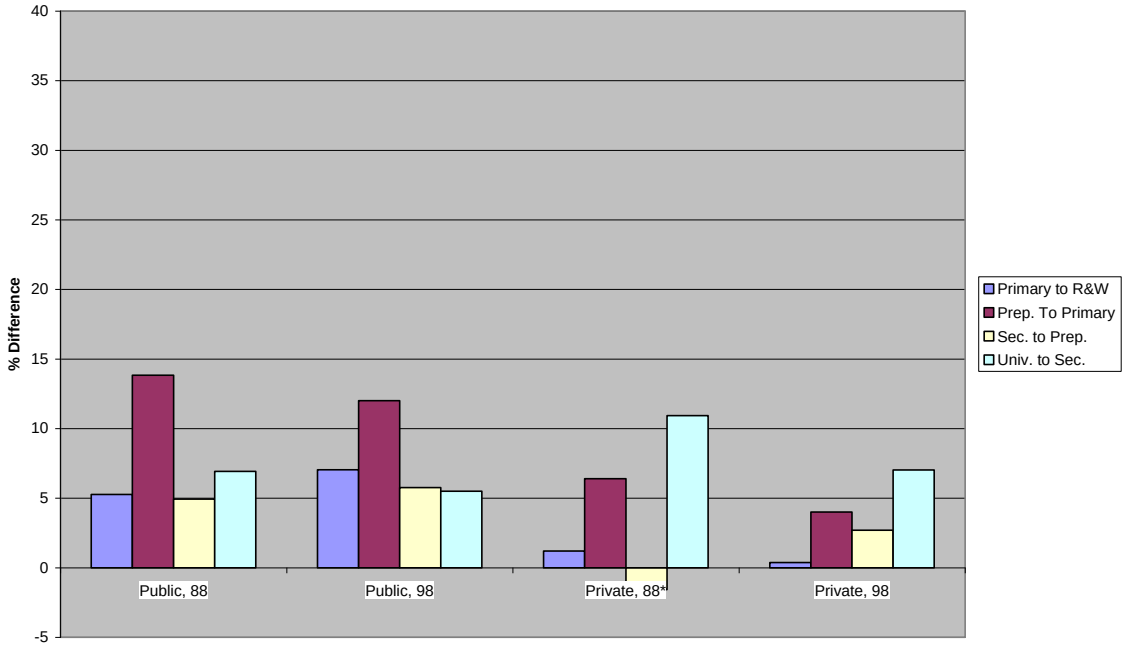
Education Level	Public, 91	Public, 99	Private, 91*	Private, 99*
Primary to R&W	12.70	18.13	8.80	10.10
Prep. To Primary	12.17	13.53	23.20	19.90
Sec. to Prep.	1.87	4.77	1.57	13.13
Univ. to Sec.	14.18	13.13	25.75	0.58

* Corresponds to insignificant coefficients.

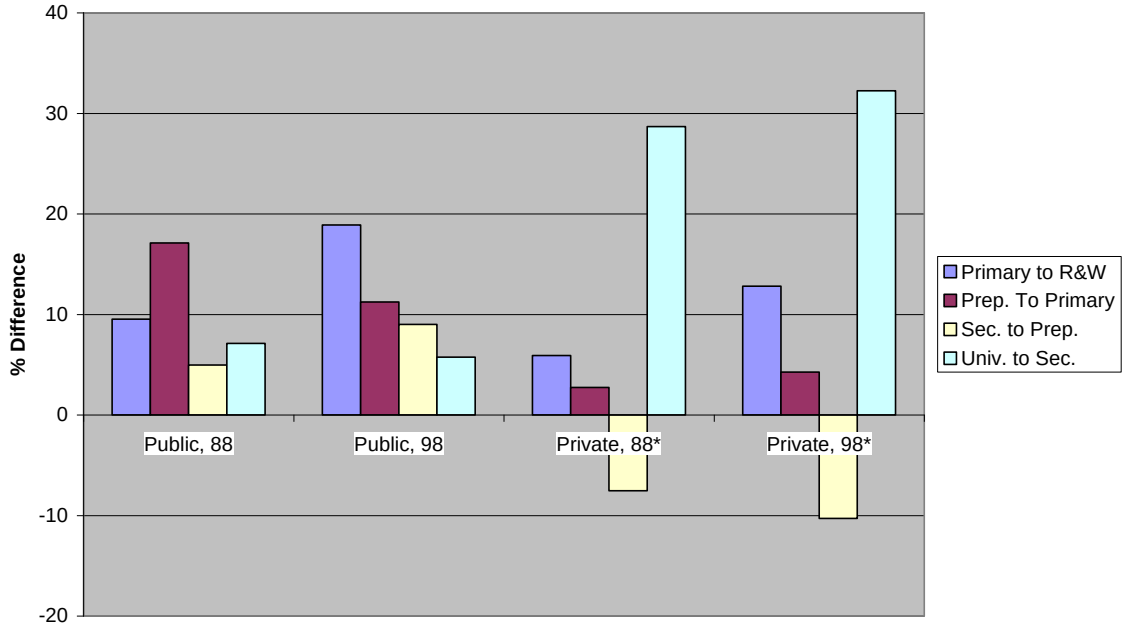
Shaded areas correspond to insignificant coefficients.

Source: Authors' own calculations from1991 and 1999 MLSMS, Morocco.

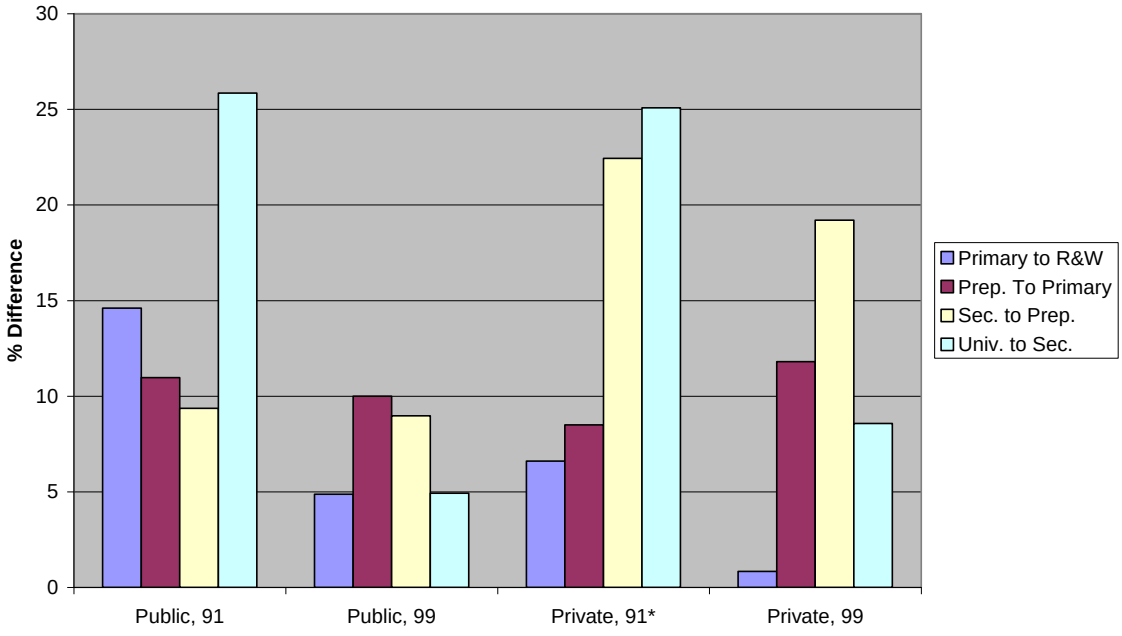
Differences in Private Rates of Returns to Education, By Sector of Employment, Males, Egypt



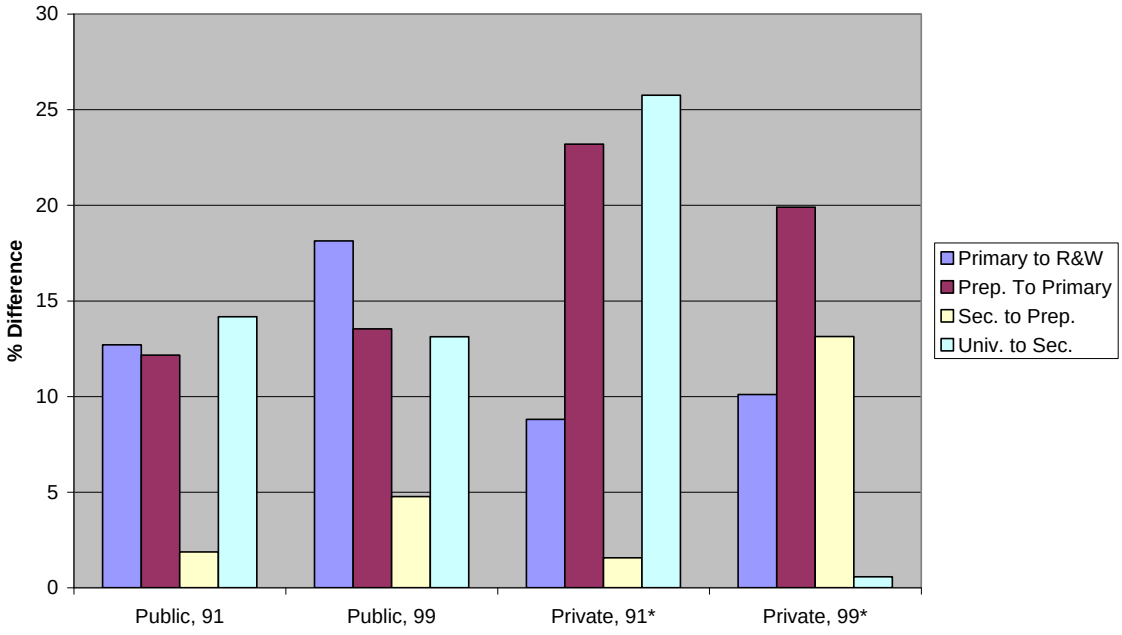
Differences in Private Rates of Return to Education, By Sector of Employment, Females, Egypt



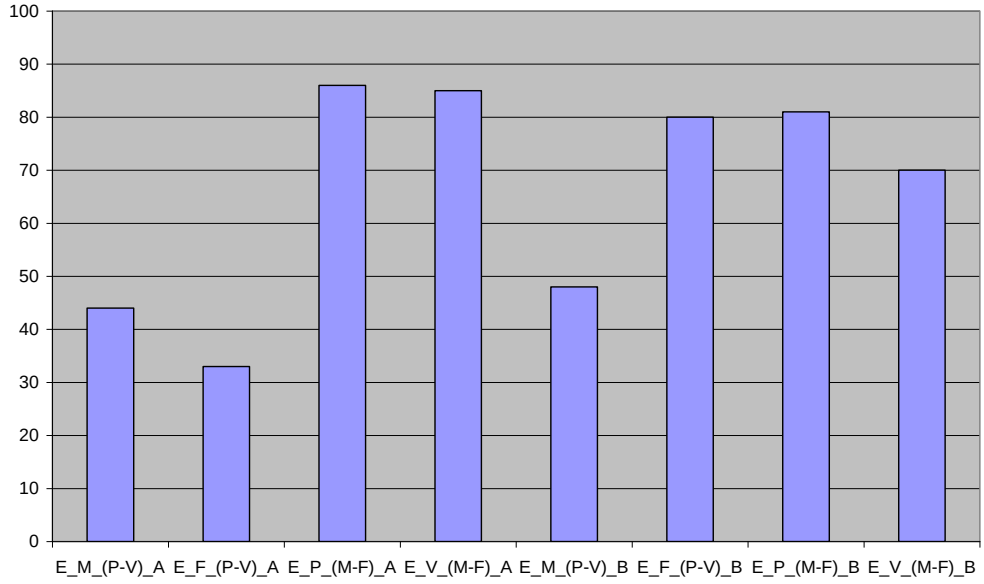
Differences in Private Rates of Returns to Education, By Sector of Employment, Males, Morocoo



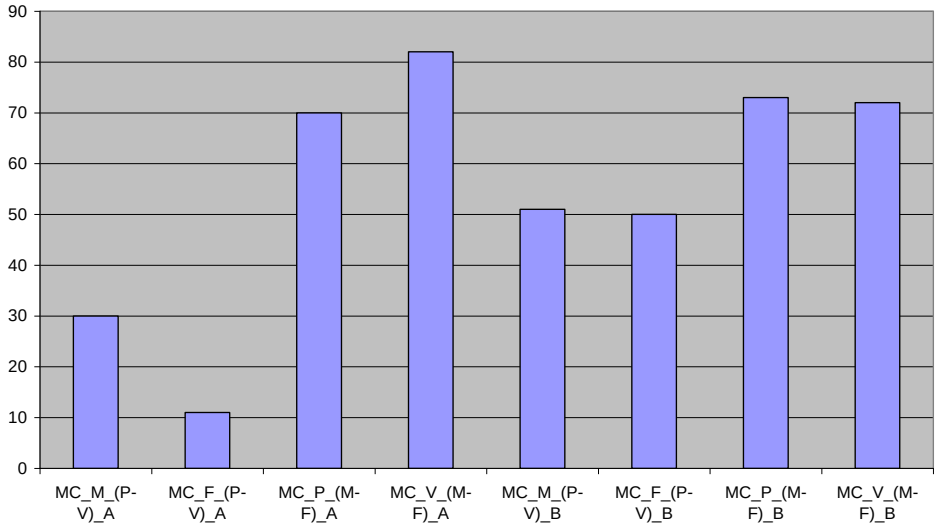
Differences in Private Rates of Return to Education, By Sector of Employment, Females, Morocco



% Difference in Wages Unexplained (i.e. Due to Discrimination), Egypt



% Difference in Wages Unexplained (i.e. Due to Discrimination), Morocco



Key for Graphs

M= Male

F=Female

P=Public

V=Private

E=Egypt

MC=Morocco
A=1988 for Egypt, and 1991 for Morocco
B=1998 for Egypt, and 1999 for Morocco

Table (27):Wage Decomposition for Egypt and Morocco: Public vs. Private; Males vs. Females

	Raw Diff. in logs	%Explained Endowments	%Unexplained Discrimination	Adjusted Gap (%)
Egypt				
Males, Public-Private Wage Differentials (1998)	0.06	52	48	3
Females, Public-Private Wage Differentials (1998)	0.20	20	80	16
Public (Males-Females) Wage Differentials (1998)	0.04	19	81	3
Private (Males-Females) Wage Differentials (1998)	0.17	30	70	12
Males, Public-Private Wage Differentials (1988)	0.15	55	44	7
Females, Public-Private Wage Differentials (1988)	0.52	67	33	17
Public (Males-Females) Wage Differentials (1988)	0.09	14	86	8
Private (Males-Females) Wage Differentials (1988)	0.46	15	85	39
Morocco				
Males, Public-Private Wage Differentials (1999)	1.13	49	51	58
Females, Public-Private Wage Differentials (1999)	1.62	50	50	81
Public (Males-Females) Wage Differentials (1999)	0.08	27	73	6
Private (Males-Females) Wage Differentials (1999)	0.58	28	72	42
Males, Public-Private Wage Differentials (1991)	1.10	70	30	33
Females, Public-Private Wage Differentials (1991)	1.29	89	11	14
Public (Males-Females) Wage Differentials (1991)	0.05	30	70	3
Private (Males-Females) Wage Differentials (1991)	0.24	18	82	20

Table (A-1)Summary Statistics for Variables Used in the Analysis

1- Public Sector Males, 1998, Egypt

No. of Observations= 1307

Variable	Mean	Std. Dev.
Log Real Wage	0.369	0.646
Urban	0.706	0.456
Experience	23.550	11.423
Experience Sq.	6.850	5.649
Illiterate	0.000	0.000
Read&Write	0.090	0.286
Primary	0.151	0.358
Preparatory	0.291	0.454
Secondary	0.105	0.307
University+	0.287	0.452
M. Illiterate	0.208	0.406
F. Read&Write	0.388	0.487
F.Primary	0.037	0.188
F. Secondary	0.020	0.139
F. University	0.045	0.208
Sibling 0-6 Years	0.819	1.033
Sibling >6 Years	3.826	2.313

2- Public Sector Females, 1998, Egypt

No. of Observations= 636

Variable	Mean	Std. Dev.
Log Real Wage	0.356	0.656
Urban	0.848	0.360
Experience	18.349	9.805
Experience Sq.	4.327	4.021
Illiterate	0.000	0.000
Read&Write	0.007	0.086
Primary	0.029	0.169
Preparatory	0.397	0.490
Secondary	0.177	0.382
University+	0.370	0.483
M. Illiterate	0.363	0.481
F. Read&Write	0.407	0.492
F.Primary	0.063	0.244
F. Secondary	0.027	0.163
F. University	0.095	0.293
Sibling 0-6 Years	0.585	0.844
Sibling >6 Years	3.173	1.795

3- Private Sector Males, 1998, Egypt

No. of Observations= 745

Variable	Mean	Std. Dev.
Log Real Wage	0.223	0.646
Urban	0.631	0.483
Experience	16.958	12.146
Experience Sq.	4.350	5.511
Illiterate	0.000	0.000
Read&Write	0.122	0.328
Primary	0.249	0.433
Preparatory	0.240	0.427
Secondary	0.036	0.186
University+	0.086	0.280
M. Illiterate	0.156	0.363
F. Read&Write	0.300	0.458
F.Primary	0.024	0.153
F. Secondary	0.006	0.080
F. University	0.025	0.156

4- Private Sector Females, 1998, Egypt

No. of Observations= 78

Variable	Mean	Std. Dev.
Log Real Wage	-0.048	0.902
Urban	0.775	0.419
Experience	12.030	11.326
Experience Sq.	2.724	4.446
Illiterate	0.000	0.000
Read&Write	0.044	0.206
Primary	0.113	0.317
Preparatory	0.289	0.455
Secondary	0.074	0.262
University+	0.235	0.425
M. Illiterate	0.301	0.462
F. Read&Write	0.309	0.464
F.Primary	0.018	0.134
F. Secondary	0.018	0.134
F. University	0.064	0.245

Sibling 0-6 Years	0.821	1.077
Sibling >6 Years	4.349	2.497

5- Public Sector Males, 1988, Egypt

No. of Observations= 1689

Variable	Mean	Std. Dev.
Log Real Wage	0.628	0.658
Urban	0.677	0.468
Experience	23.011	12.008
Experience Sq.	6.736	6.156
Illiterate	0.000	0.000
Read&Write	0.187	0.390
Primary	0.125	0.331
Preparatory	0.244	0.430
Secondary	0.066	0.248
University+	0.232	0.422
M. Illiterate	0.150	0.357
F. Read&Write	0.348	0.477
F.Primary	0.070	0.256
F. Secondary	0.009	0.093
F. University	0.039	0.193
Sibling 0-6 Years	1.121	1.326
Sibling >6 Years	4.028	2.642

7- Private Sector Males, 1988, Egypt

No. of Observations= 1595

Variable	Mean	Std. Dev.
Log Real Wage	0.484	0.703
Urban	0.590	0.492
Experience	15.379	12.516
Experience Sq.	3.931	5.675
Illiterate	0.000	0.000
Read&Write	0.167	0.373
Primary	0.207	0.405
Preparatory	0.149	0.357
Secondary	0.021	0.143
University+	0.055	0.228
M. Illiterate	0.117	0.321
F. Read&Write	0.262	0.440
F.Primary	0.052	0.222
F. Secondary	0.006	0.075

Sibling 0-6 Years	0.642	0.907
Sibling >6 Years	3.995	2.180

6- Public Sector Females, 1988, Egypt

No. of Observations= 589

Variable	Mean	Std. Dev.
Log Real Wage	0.536	0.657
Urban	0.845	0.362
Experience	13.697	8.906
Experience Sq.	2.668	3.381
Illiterate	0.000	0.000
Read&Write	0.013	0.115
Primary	0.039	0.193
Preparatory	0.466	0.499
Secondary	0.148	0.356
University+	0.291	0.455
M. Illiterate	0.367	0.482
F. Read&Write	0.438	0.497
F.Primary	0.094	0.293
F. Secondary	0.025	0.157
F. University	0.084	0.278
Sibling 0-6 Years	0.774	1.034
Sibling >6 Years	3.258	2.098

8- Private Sector Females, 1988, Egypt

No. of Observations= 254

Variable	Mean	Std. Dev.
Log Real Wage	0.044	0.779
Urban	0.627	0.484
Experience	13.220	11.235
Experience Sq.	3.005	4.741
Illiterate	0.000	0.000
Read&Write	0.043	0.203
Primary	0.097	0.296
Preparatory	0.233	0.423
Secondary	0.032	0.177
University+	0.118	0.324
M. Illiterate	0.204	0.404
F. Read&Write	0.216	0.412
F.Primary	0.098	0.298
F. Secondary	0.008	0.088

F. University	0.020	0.140
Sibling 0-6 Years	1.145	1.420
Sibling >6 Years	4.549	2.791

9- Public Sector Males, 1999, Morocco

No. of Observations= 434

Variable	Mean	Std. Dev.
Log Real Wage	2.640	0.695
Experience	28.597	9.188
Experience Sq.	9.020	5.495
Urban	0.894	0.308
Illiterate	0.296	0.457
Read&Write	0.125	0.331
Primary	0.174	0.380
Preparatory	0.223	0.416
Secondary	0.165	0.372
University+	0.142	0.349
M. Illiterate	0.031	0.173
F. Read&Write	0.679	0.467
F.Primary	0.220	0.415
F. Preparatory	0.067	0.251
F. Secondary	0.016	0.125
F. University	0.012	0.109
Sibling 0-6 Years	0.891	1.042
Sibling >6 Years	5.245	2.483

11- Private Sector Males, 1999, Morocco

No. of Observations= 1055

Variable	Mean	Std. Dev.
Log Real Wage	1.354	1.079
Experience	20.364	11.783
Experience Sq.	5.535	5.807
Urban	0.608	0.488
Illiterate	0.713	0.452
Read&Write	0.304	0.460
Primary	0.184	0.388
Preparatory	0.063	0.242
Secondary	0.026	0.159
University+	0.014	0.118
M. Illiterate	0.021	0.144
F. Read&Write	0.778	0.416
F.Primary	0.130	0.337
F. University	0.063	0.243
Sibling 0-6 Years	0.832	1.068
Sibling >6 Years	3.910	2.235

10- Public Sector Females, 1999, M orocco

No. of Observations= 147

Variable	Mean	Std. Dev.
Log Real Wage	2.553	0.703
Experience	26.800	7.754
Experience Sq.	7.781	4.386
Urban	0.990	0.099
Illiterate	0.185	0.390
Read&Write	0.059	0.235
Primary	0.073	0.261
Preparatory	0.322	0.468
Secondary	0.210	0.408
University+	0.210	0.408
M. Illiterate	0.105	0.308
F. Read&Write	0.512	0.501
F.Primary	0.227	0.420
F. Preparatory	0.151	0.359
F. Secondary	0.070	0.255
F. University	0.023	0.151
Sibling 0-6 Years	0.634	0.856
Sibling >6 Years	5.068	2.293

12- Private Sector Females, 1999, Morocco

No. of Observations= 379

Variable	Mean	Std. Dev.
Log Real Wage	1.050	1.111
Experience	18.022	10.890
Experience Sq.	4.432	5.007
Urban	0.827	0.379
Illiterate	0.699	0.459
Read&Write	0.217	0.412
Primary	0.158	0.365
Preparatory	0.092	0.289
Secondary	0.031	0.172
University+	0.020	0.141
M. Illiterate	0.029	0.169
F. Read&Write	0.754	0.431
F.Primary	0.125	0.331

F. Preparatory	0.057	0.231
F. Secondary	0.014	0.116
F. University	0.010	0.097
Sibling 0-6 Years	0.890	1.033
Sibling >6 Years	6.088	2.602

13- Public Sector Males, 1991, Morocco

No. of Observations= 376

Variable	Mean	Std. Dev.
Log Real Wage	-1.243	1.011
Urban	0.854	0.353
Illiterate	0.000	0.000
Read&Write	0.139	0.346
Primary	0.184	0.388
Preparatory	0.177	0.382
Secondary	0.168	0.374
University+	0.146	0.353
M. Illiterate	0.005	0.070
F. Read&Write	0.821	0.384
F.Primary	0.150	0.358
F. Preparatory	0.018	0.132
F. Secondary	0.002	0.047
F. University	0.004	0.066

15- Private Sector Males, 1991, Morocco

No. of Observations= 660

Variable	Mean	Std. Dev.
Log Real Wage	-2.412	0.836
Urban	0.486	0.500
Illiterate	0.000	0.000
Read&Write	0.271	0.445
Primary	0.132	0.339
Preparatory	0.046	0.210
Secondary	0.037	0.188
University+	0.011	0.105
M. Illiterate	0.013	0.114
F. Read&Write	0.838	0.369
F.Primary	0.112	0.316
F. Preparatory	0.033	0.180
F. Secondary	0.009	0.095
F. University	0.005	0.067

F. Preparatory	0.077	0.267
F. Secondary	0.008	0.089
F. University	0.012	0.109
Sibling 0-6 Years	0.629	0.927
Sibling >6 Years	5.736	2.546

14- Public Sector Females, 1991, Morocco

No. of Observations= 109

Variable	Mean	Std. Dev.
Log Real Wage	-1.374	1.017
Urban	0.942	0.235
Illiterate	0.000	0.000
Read&Write	0.051	0.220
Primary	0.145	0.353
Preparatory	0.203	0.404
Secondary	0.312	0.465
University+	0.145	0.353
M. Illiterate	0.031	0.174
F. Read&Write	0.780	0.416
F.Primary	0.119	0.326
F. Preparatory	0.064	0.246
F. Secondary	0.018	0.135
F. University	0.018	0.135

16- Private Sector Females, 1991, Morocco

No. of Observations= 154

Variable	Mean	Std. Dev.
Log Real Wage	-2.684	0.950
Urban	0.728	0.446
Illiterate	0.000	0.000
Read&Write	0.168	0.374
Primary	0.052	0.223
Preparatory	0.071	0.257
Secondary	0.056	0.230
University+	0.026	0.160
M. Illiterate	0.021	0.143
F. Read&Write	0.799	0.402
F.Primary	0.143	0.351
F. Preparatory	0.032	0.178
F. Secondary	0.026	0.160
F. University	0.000	0.000