Gender Pay Discrimination In Lebanon, Assessment Of Recent Data

Abdallah Dah

Lebanese American University

Salah Abosedra

Lebanese American University

Farouk Dahbourah

Earnest & Young Kuwait

Abstract

The factors relating to gender pay inequity have been studied extensively in the economics literature. This study examines the earnings differential between males and females in Lebanon utilizing a random sample that includes more than 17,000 Lebanese households. The results indicate that although a positive correlation exists between education level and income, females are still paid significantly less than their counterparts. Results also show that the gap in pay is not directly related to age. On the contrary, the gap in pay seems to have widened over time. This suggests that a targeted government policy is needed to reduce such inequity in the labor market of Lebanon.

Introduction

Issues related to gender pay inequity have been studied by researchers in many countries of the world, [Gunderson, M. (2006), Meng, X. (2004), Black S. & Brainerd, E. (2004), Blau, F. & Kahn, L. (2003) among others]. Such inequity in pay is usually found to be higher in developing nations as compared to developed countries. In addition, the gender earnings gap tends to be more apparent at the segment of population characterized by low levels of education than in the other segments with higher levels of education. Finally, this gender gap seems to be declining over time.

The purpose of this paper is to examine the earnings differential between males and females in Lebanon. The goal of the study is to determine whether educational level or age is   more significant in explaining the gender earnings gap. Results from this study would have valuable policy implications that could be used by the government of Lebanon to reduce such pay inequity. For example, if such gap is found to be significantly related to age, then one can argue that such inequity will tend to be reduced over time, regardless of government policy. However, if the educational level is more important, then one should not expect the pay inequity to work itself out over time and a targeted policy should be implemented to address issues related to education.

Data and the testing models:

As the case in most developing countries, data availability is a major issue facing researchers. In this study, we rely on a cross section data which has been obtained from a survey of the Central Directorate of Statistics of Lebanon (1997). This survey covered over 17,000 Lebanese households and is the most recent survey available, to the best of our knowledge.

Two major hypotheses are presented and tested using our data. The first hypothesis tests whether higher education is the main variable that relates to the observed gender inequity between males and females in Lebanon. Hypothesis two tests whether time (measured as years of experience) tends to lower the gender pay gap.

In testing these hypotheses, we will use descriptive analysis and inferential analysis. In the former, we will present the medians of male and female income at different levels of education and then compare the female-male earning ratios to determine whether higher education is an important variable that corrects or reduces the pay gap. Moreover, the presentation of the medians of males and females at specific age brackets and the comparison of the ratios throughout the age levels will give us a picture of whether such inequity tends to be reduced over time.

Our inferential analysis will rely on estimating three different functional forms equations that differ only in the dependent variable. While in the first equation we use total income as our dependent variable, in the second we use ln (income) and in the third, we have ln (total income/ yearly hours of work) as our dependent variable. The aim of running these three different types is to select the most suitable regression based on the standard statistical tests.

Definition of variables:

1."inctotal": Total income or total earnings: represents the annual earnings of an individual in U.S. dollars.

- Lninc: Natural logarithm of total income

- Lninchours: Natural logarithm of total income divided by annual hours

2. "Age": represents the age in years of an individual in 1997.

- "Age2": represents age squared.

3. "Prempost": a vector of dummy variables that includes the following common types of positions jobs in Lebanon;

a.   Self employed or in a company without employees (reference group)

b.   Employer with a company of 1-2 employees

c.   Employer with a company of 3-9 employees

d.   Employer with a company with >9 employees

e.   Employee with monthly salary

f.   Employee with a weekly salary

g.   Employee, daily or hourly basis

h.   Employee, salary based on production

i.   Helps household member, or other person, without salary

4. "Sector": a vector of dummy variables that describes the sector where individuals work;

a.   Public

b.   Private company (reference group)

c.   Private Association

d.   Mixed public/private

e.   International Institution

f.   Embassy

g.   Private household

5. "Status": Marital status: a vector of dummy variables which includes;

a.   Single (reference group)

b.   Married

c.   Widow

d.   Divorced

6. "Regions": vector of dummy variables including different districts in Lebanon;

a.   Living in Beirut

b.   Living in Mount Lebanon

c.   living in North Lebanon

d.   Living in Nabatieh

e.   Living in Beka'a

7.'Head": dummy variable that takes a value of "1" if the individual is the head of the family and "0 "otherwise.

8."Educ": a vector of dummy variables including four levels of education;

a.   Level I: illiterates

b.   Level II : Primary

c.   Level III: Intermediate and secondary education

d.   Level IV : University

9. "Hours": Hours of work per year.

10. Gender: is a dummy variable that takes a value of one for males and zero for females.

Descriptive analysis:

A survey conducted by the Central Directorate of Statistics on Lebanese household living standards in 1997 covered 82,000 individuals, where the working individuals amounted to 22580, 19.3 percent of whom were females and the remaining 80.7 percent were males. All of the frequencies and data analysis are based on the 22,580 sample.

The annual average earnings of the individual in this sample turned out to be $10,399 and the annual median income is $7,200. The annual average earnings of males is $11,151 as compared to $7,254 for females. The median annual income for males is 7,800 and 5,767 for females. The average age of males is 38.5 while that of females is 34.5.

Table 1 and figures 1-2; show the percentage distribution of males and females in different production sectors in the Lebanese labor market.

Table 1 shows that the private sector is the dominant sector in providing employment in the Lebanese economy. However, comparing the percentages of males to those of females, we can conclude that females' percentages are higher in all sectors other than in the private companies.

Frequencies for educational attainment for males and females are shown in table 2 and figures 3-4. From the table and figures, we can conclude that level II and level III of education constitute the highest percentages among other levels of education for all working

individuals. A comparison of the percentages of males and females at each level shows that females are more educated than males. With respect to the highest level, "Level IV," females show a higher percentage than males: 29.3 percent for females compared to 12.8 percent for males. One reason for this surprising result might be attributed to the fact that males with university education tend to immigrate or seek job opportunities outside Lebanon. Females, on the other hand, are less likely to follow the same pattern due to social factors.

Table 3 that shows the Female/Male earnings ratio calculated via medians of income at different levels of education. The ratio is 0.5556 at Level I of education and declines to 0.5530 at Level II. The ratio dramatically increases to 0.6429 at Level III of education, then decreases to 0.5472 at Level IV. As these ratios seem to have no trend, our descriptive analysis does not support the argument that higher education corrects gender pay inequity.

Next we present the age brackets and the median incomes of both males and females are used to determine if an automatic correction mechanism exists in the labor market to lower income inequity.

Table 4 shows that the income inequity between males and females tends to increase with age and experience. The income differential is at its lowest at the entry level or early employment. For the age group of 18-25, a female earns 93.75 % of what a male earns. This ratio declines to 68.75 % for the age group of 41 and above.

Inferential analysis:

As previously mentioned, three regressions are estimated and table 5 summarizes the overall significance of each regression. Since the second model, exhibits the highest R^2 and relatively the smallest value of Standard Error (0.6141), this model, therefore, will be used throughout this study. Regressing Ln (income) as a function of all the selected variables aims at determining the gender bias in the Lebanese labor market after controlling for education, age, firm size, economic sector, place of residence, hours of work, marital status, etc. Our results from estimating the above mentioned equation, available upon request, show that most of our independent variables are significant at the 5% level of significance. Furthermore the estimated coefficients have the correct signs as indicated by previous research, economic theory, and common sense.

The gender coefficient is found to be equal 0.34 and is significant at the 1% level of significance indicating that the hypothesis that gender resulted in significant difference in pay is supported. This shows that a male is expected to earn 40.5 % more than a female, other things being equal. This percentage is comparable with other findings in developing nations and twice as great as in developed countries.

Finally, our results suggest a statistically significant relationship between income and education. The coefficients for level II, III, and IV were found to be significant at 1% level and equal to 0.26, 0.5, and 0.96 respectively.

Table 6 shows the percentage increase that each level of education has in reference to Level I of education.

Working individuals with primary education attained earnings, on the average, of 29.0 percent more than the illiterates. Individuals who have completed intermediate or secondary education earn 64.71 percent more than the reference group. This percentage increases to almost 161 percent for individuals with a university degree.

Returns on education for males and females:

To compare the returns on education for both groups, two regression equations are used for estimating the coefficients of education for males and females independently. Results from estimating the equation for males only were used to find the returns on education for males which are shown in Table 7.

Working males who have completed the second level of education are expected to earn 28.79 % more than an individual with the first level of education. This percentage increases to 61.77 % and 160.13 % for males who have finished the third and fourth levels of education respectively.

Results from estimating the same equation for females were used to find the returns on education for females. Table 8 shows that a female with level II of education earns 31.26 % percent more than a female with level I of education. Similarly a female with the third level of education is expected to earn 81.85% more than a female with the level I of education. Finally, and with respect to Level IV of education, a female is expected to earn 178.71 % more than a female at level I of education. We presented figure 5 which shows the difference in the returns on education between males and females.

Education and income inequity gap in Lebanon:

The following regressions include all individuals; however, each level of education is taken alone. Table 9 shows the coefficients of the gender variable at the different levels of education from the four estimated regressions.

The gender coefficients in Table 9 were then used to calculate the percentages of differential of earnings, which are shown in Table 10.

The important role that education plays in diminishing the gender pay gap between males and females, in Lebanon is easily seen from Table 10 and figure 6.

At all levels of education the gender coefficients are statistically significant at the 1 percent level. We can see that at the first level of education the gender coefficient is 0.409, which means that a male is expected to earn 50.53 % more than a female, when other things are constant. In level II of education the gender coefficient is 0.371, meaning that a male with level II of education is expected to earn 44.92 %

more than a female at the same level, after controlling for other variables. Moreover, a male individual is expected to earn 36.62% more than a female at level III of education, keeping other things constant.

Finally, in the last and highest level of education "Level IV", a male is expected to earn 34.85% more than a female who is also at the fourth level of education, keeping other things constant.

These results demonstrate clearly that as the educational level increases, the level of discrimination between males and females decreases.

Is there a self- correcting mechanism in the Lebanese labor market?

The last regression model calls for running four independent equations including only one age group in addition to all other variables. Table 11 below shows the gender coefficient values and its corresponding wage differential for each age group.

At an early stage of his career, a male earns 28.53 % more than a female, keeping other things equal. For workers who belong to the second age group, the earnings differential between males and females seems to peak, reaching 44 %. The inequity gap then falls to around 37% for workers who are older than 41 years.

Apparently there is no evidence of any self correcting mechanism in the Lebanese labor market. The wage differential seems to be reinforced with greater experience. The decrease in % difference of income that the third age group realizes can hardly be attributed to any built-in correcting mechanism.

Concluding observations

Despite the higher level of education that females exhibit in the Lebanese labor market as compared to males, and despite the positive correlation that exists between education and income, females are still paid significantly less than their male counterparts. On average a female earns 71% of what a male earns. The models presented have shown that the income inequity gap is reduced but not eliminated with higher education. Furthermore, no evidence is established as to a self-correcting mechanism in the Lebanese labor market. On the contrary, the gap that exists upon arrival to the labor market is widened dramatically, probably through discriminatory promotion policies. This calls for government actions to eliminate such discrimination and encourage the "equal pay for equal work" principle.

References

Altonji, J., and Blank, R.M. (1999). "Race and gender in the labor market" in Handbook

Of Labor Economics, Vol. 3. Ed Orley Ashenfelter and David Card (Amsterdam:

North-Holland).

Black, S., and Brainerd, E. (2004). "Importing equality? The impact of Globalization on

 gender discrimination." Industrial and Labor Relations Review 57, 540-559.

Blau, F., Ferber, A., and Winkler, A. (2002). The Economics of Women, Men and Work.

   Upper Saddle River, NJ: Prentice-Hall.

Blau, F., and Kahn, L. (2003). "Understanding International Differences in the Gender

Pay Gap." Journal of Labor Economics 21, 106-144.

Carrington, W., and Troske, K. (1998). "Sex segregation in U.S. Manufacturing."

   Industrial and Labor Relations Review 51, 445-464.

Donald, S., and Hamermesh, D. (2004). What is discrimination? Gender in the American

Economic Association. National Bureau of Economic Research Working Paper No. 10684.

Drolet, M. (2001). The Persistent Gap: New Evidence on the Canadian Gender Wage

Gap. Ottawa: Statistics Canada, Business and Labour Market Analysis Division.

Gunderson, M. (2006). "Viewpoint: Male-female wage differentials: how can that be?"

Canadian Journal of Economics, Vol. 39, No.1. 1-21.

Heywood, J.and Jirjan, U. (2002). "Payment Schemes and Gender in Germany."

Industrial and Labor Relations Review, 56, 44-46.

Kolpin, V, and Singell, L. Jr (1996). "The Gender Composition and Scholarly

Performance of Eonomics Departments." Industrial and Labor Relations Review,

49, 408-423.

Lazear, E. (2000). "Performance Pay and Productivity." American Economic Review, 90, 1346-1361.

Meng, X. (2004). "Gender earnings gap: the role of firm specific effects."

Labour Economics 11, 555-573.

Table 1: Distribution of males and females in the production sectors in Lebanon

	Males%	Females%
Public sector	14.4	16.9
Private Company	82.6	76.6
Private Association	0.8	2.2
Mixed Public /Private	0.5	0.6
International Institution	0.3	0.6
Embassy	0.1	0.3
Private Household	1.3	2.8
Total	100	100

Table 2: Frequencies for educational attainment for males and females in Lebanon

	all individuals %	Males%	Females%
Level I	15.9	17.2	10.1
Level II	29	32.5	14.4
Level III	39.1	37.5	46.2
Level IV	16	12.8	29.3

Table 3: The Female/Male earnings ratio at different levels of education in Lebanon

EDUCATIONAL LEVEL	females	males	Female/Male earnings ratio
Level I	3000	5400	0.5556
Level II	3600	6510	0.5530
Level III	5400	8400	0.6429
Level IV	8400	15350	0.5472

Table 4: Age and income inequity between males and female in Lebanon

Category	Females	Males	Female/ Male Ratio
18 - 25	4500	4800	0.9375
26 - 33	5580	7200	0.7750
34 - 40	6505	9600	0.6776
41 and above	6600	9600	0.6875

v **Table 5: Results of estimated regressions**

Type of regression model	R^2
Income as dependent variable	0.28
Ln(income) as dependent variable	0.43
Ln(income/yearly Hours) as dependent variable; zero hours deleted	0.38
Ln(income/yearly Hours) as dependent variable; zero hours changed to one	0.24

Table 6: Returns on education in Lebanon

Educational levels	Returns to education
Level II	29.18%
Level III	64.71%
Level IV	160.91%

Table 7: Returns on education for males in Lebanon

Educational levels	Returns to education
Level II	28.79%
Level III	61.77%
Level IV	160.13%

Table 8: Returns on education for females in Lebanon

Educational levels	Returns to Education
Level II	31.26%
Level III	81.85%
Level IV	178.71%

Table 9: Coefficients of the gender variable at the different levels of education

Educational levels	Gender Coefficient
Level I	0.409
Level II	0.371
Level III	0.312
Level IV	0.299

Table 10: Calculated percentages of differential of earnings in Lebanon

Educational levels	% diff. of earnings
Level I	50.53%
Level II	44.92%
Level III	36.62%
Level IV	34.85%

Table 11: Gender coefficient values and its corresponding wage differential in Lebanon

Category	Gender Coefficient	% diff. of earnings
18 - 25	0.251	28.53%
26 - 33	0.365	44.05%
34 - 40	0.316	37.16%
41 and above	0.315	37.03%

Figure 1: Distribution of males according to sector
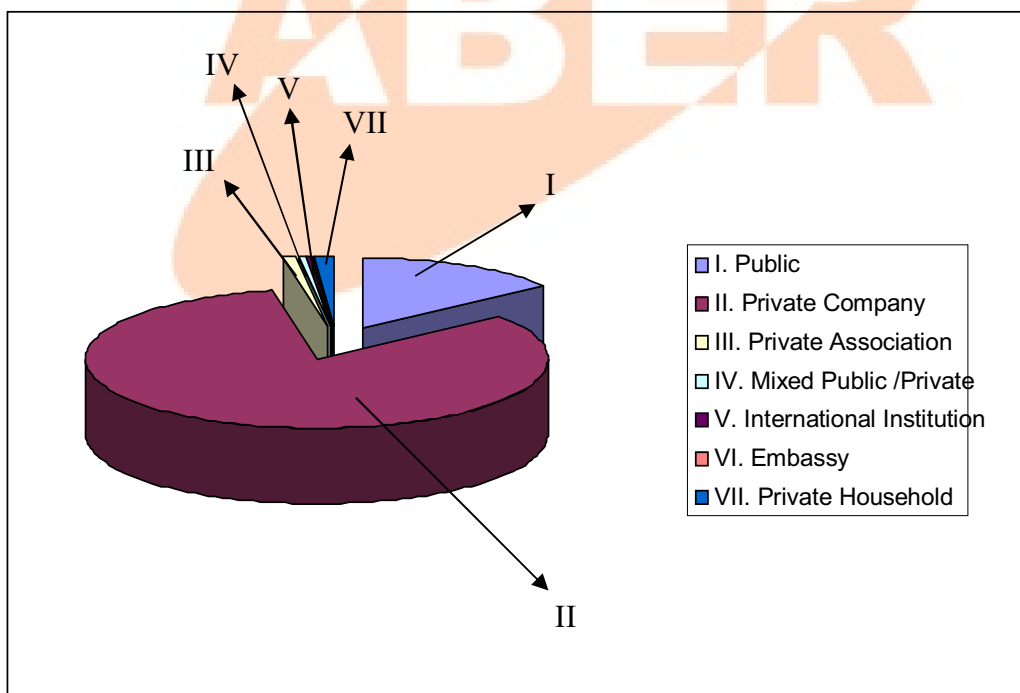
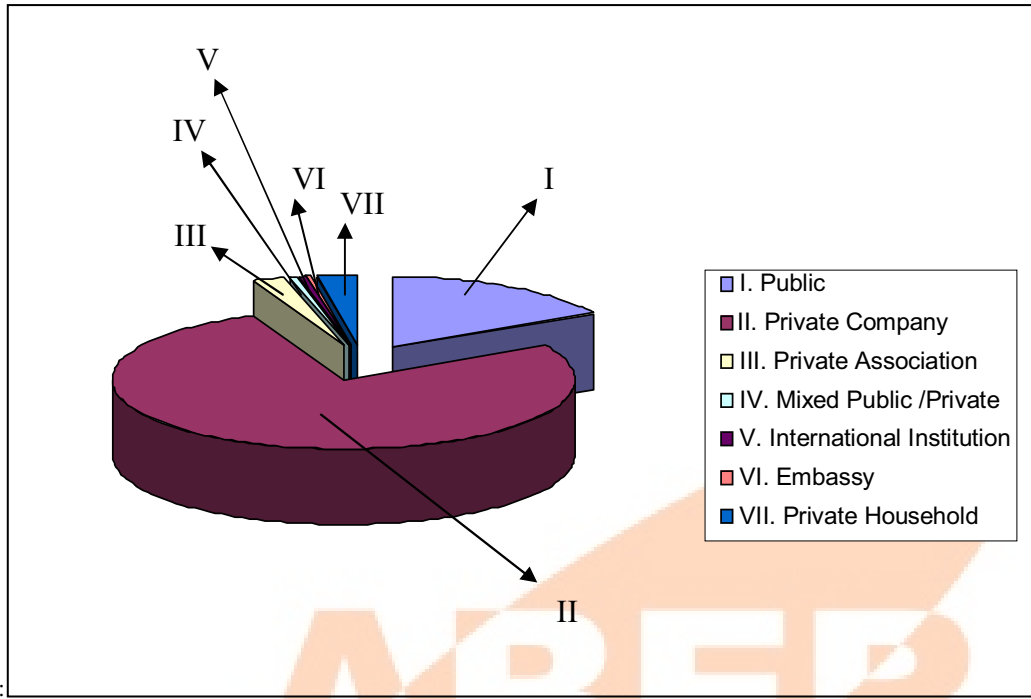**Figure 2: Distribution of females according to sector**
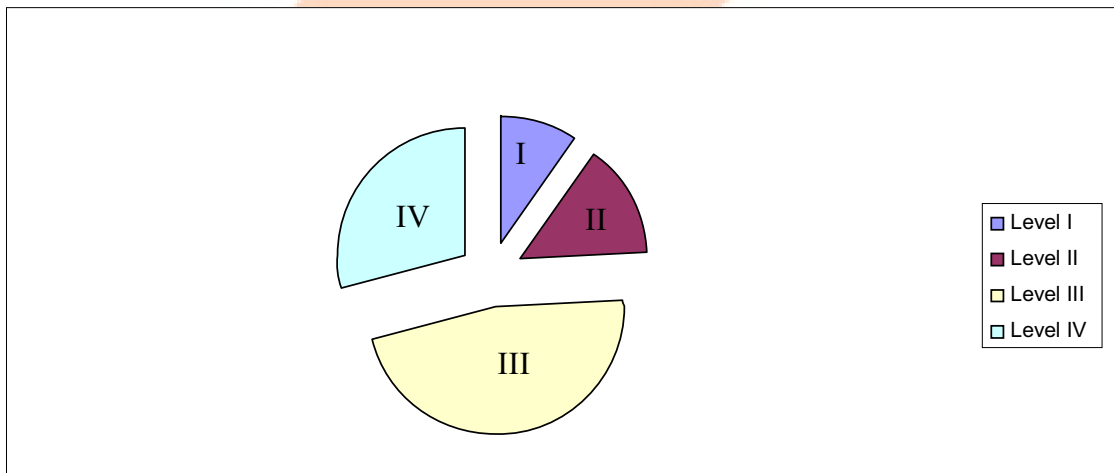

Figure 3: Educational attainment-females
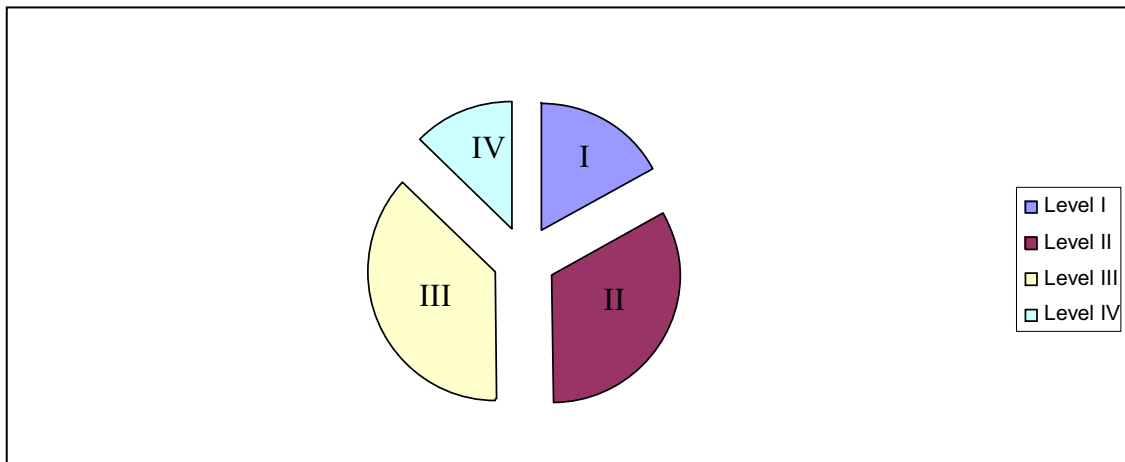
Figure 4: Educational attainment-males

Figure 5: The difference in the returns on education between males and females in Lebanon
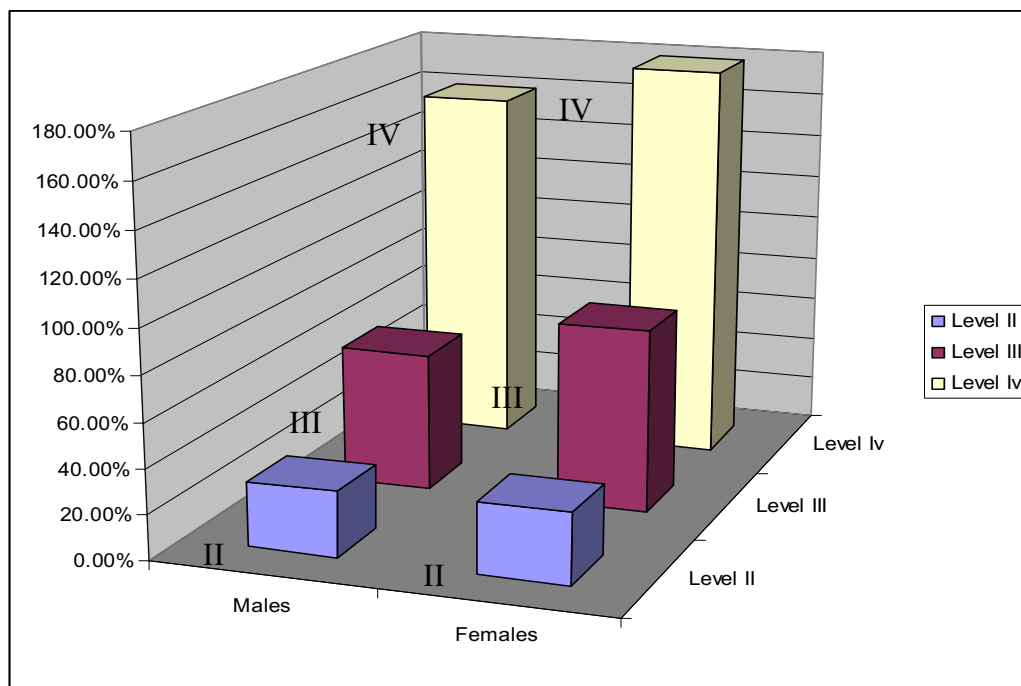
Figure 6: % Diff. of Earnings