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THE FALL AND RISE OF EARNINGS  
AND INEQUALITY IN EGYPT:  
NEW EVIDENCE FROM THE ELMPS, 2006

Mona Said

Working Paper No. 0708

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Send correspondence to: Dr. Mona Said, Economics Department  
The American University in Cairo  
Email: [mona\\_said@aucegypt.edu](mailto:mona_said@aucegypt.edu)

## Abstract

This paper investigates the distributional and structural developments of real hourly wages and monthly earnings in Egypt in the last two decades on the basis of three nation-wide labor force sample surveys (the 1988 LFSS, the 1998 ELMS and the 2006 ELMPS). The results reveal that after the initial period of real wage erosion and wage compression (1988-98), both real wages and wage inequality started rising again for most groups in Egypt. In 2006, although the overall wage distribution is much wider, median real wages have sufficiently increased such that the proportion of wage workers that can be classified as low-waged has significantly declined in comparison to 1998. In fact, in many ways, the 2006 wage structure very much resembles that of 1988, in terms of the level and dispersion of real wages as well as the percentage of workers with low wages. In other words, after almost twenty years of structural adjustment measures, labor market rewards in Egypt have mostly followed a "U-turn path" of decline followed by recovery and return to pre-adjustment levels. Further analysis of returns to education, sector and gender-based wage differentials indicate that the relative rewards of women have significantly improved compared to the situation in 1998. Finally, compared to 1988, the Egyptian labor market seems much less affected by the legacy of the public sector employment guarantee. Thus, although the government sector remains a haven for groups such as women or vocational school graduates, paying them higher wages than elsewhere, the magnitude of those wage gaps have significantly declined compared to the past. Moreover, rewards to the university level of education are now highest in the private sector, and the government sector has a much more decentralized/dispersed wage structure than in the 1980s.

## ملخص

تبحث هذه الورقة التطورات التوزيعية والهيكلية للأجور الفعلية بالساعة والدخول الشهرية في مصر خلال العقدين الماضيين. تعتمد هذه الورقة على ثلاث دراسات لعينات من القوى العاملة على مستوى الجمهورية (دراسة لعينة من سوق العمل لعام 1988 ومسح سوق العمل في مصر لعام 1998 ومسح فريق سوق العمل في مصر لعام 2006). تكشف النتائج أنه بعد الفترة المبدئية لتآكل الأجور الفعلية وتدني الأجور (1988-1998)، فإن كلا من الأجور الفعلية وعدم المساواة في الأجور لمعظم المجموعات في مصر بدأت في الارتفاع مرة أخرى. على الرغم من أن توزيع الأجر الكلي كان واسعاً جداً في عام 2006، فإن الأجور الفعلية المتوسطة زادت بشكل كافٍ لدرجة أن نسبة العمال الذين يمكن تصنيفهم منخفضي الأجر انخفضت بشكل لافت بالمقارنة بعام 1998. في الحقيقة، إن هيكل الأجور لعام 2006 يشبه لدرجة كبيرة في كثير من الأحيان هيكل الأجور لعام 1988، من حيث مستوى وتوزيع الأجور الفعلية ونسبة العمال ذوي الدخل المنخفض. أي أنه بعد عشرين سنة تقريباً من إجراءات الضبط الهيكلي فإن المكافآت في سوق العمل المصري انخفضت ثم عادت إلى الانتعاش ومستويات ما قبل الضبط. وبالعودة للفوارق في الأجور على أساس الجنس والقطاع والتعليم يتضح أن المكافآت النسبية للمرأة تحسنت بشكل كبير بالمقارنة بعام 1998. وأخيراً بالمقارنة بعام 1988، يبدو أن سوق العمل المصري أقل تأثراً بكثير بما عرف عن التوظيف في القطاع الخاص من ضمانات. فعلى الرغم من أن القطاع الحكومي يظل ملاذاً لبعض المجموعات مثل المرأة وخريجي المدارس المهنية حيث يعطيهم أجوراً أعلى من أي مكان آخر، إلا أن حجم هذه الفجوات في الأجور قد انخفض بشكل لافت بالمقارنة بالماضي. علاوة على ذلك، فإن المكافآت لحملة المؤهل الجامعي هي الأعلى في القطاع الخاص الآن، وأن القطاع الحكومي عنده قدر أكبر من اللامركزية والتشتت في هيكل الأجور من الثمانينيات.

## I. Introduction

Since 1987, the Egyptian economy witnessed a series of partial liberalization measures, which culminated in 1991 with the signing of an agreement for a full economic reform and structural adjustment program under the auspices of the IMF and the World Bank. Economic theory, backed by a wealth of accumulating developing countries' empirical experience, indicate that such comprehensive liberalization programs are bound to have a profound impact on the level and structure of labor earnings in the short and medium terms. There is less agreement, however, on the direction of the expected change in real wages and inequality, as outcomes diverged across countries and even for the same country over time.

For the case of Egypt, the availability of two comparable nation-wide labor force sample surveys (the 1988 Labour Force Sample Survey, LFSS and 1998 Egypt Labour Market Survey, ELMS) have facilitated the analysis of changes in wage structure over the first decade of implementing these programs (Said, 2002 and World Bank, 2004). The results of these studies highlight that this initial period can be broadly described as one of real wage erosion and overall wage compression, and was particularly characterized by falling returns to experience and education for most groups.

As the pace of liberalization and privatization continued unabated since 1998, coupled with important institutional changes in the labor market including the passing of a new labor law in 2003, it would be interesting to examine, on basis of more recent data, whether the above trends were reinforced or reversed in the new Millennium. This paper investigates the distributional and structural developments of real hourly wages and monthly earnings in Egypt between 1988 and 2006 on the basis of the new Egypt Labor Market Panel Survey (ELMPS), 2006<sup>1</sup> and compares the results to those of the 1988 LFSS and 1998 ELMS.

The analysis attempts to answer four key questions regarding recent developments in earnings in Egypt. First, what happened to real wages in Egypt since 1998 - have they recovered or continued eroding? Second, has the proportion of workers classified as low-wage earners changed significantly over this period, and if so, who are the most affected groups? Third, has the trend towards wage compression and declining wage inequality reported over the 1990s continued in the new Millennium or was it reversed? Fourth, Is Egyptian labor market still segmented along the traditional education, gender and public-private divides – in the sense that there are enduring "unexplained" wage differentials along those lines? Or are there new structural features that recently emerged?

The general picture of real wages that appears for a first-cut analysis of the earnings module of the 2006 ELMPS in comparison to the 1988 LFSS and 1998 ELMS is summarized in Chart 1. It indicates that after sharply falling in the 1990s, real wages recovered in 2006 almost to their 1988 level. Also the trend towards falling inequality and returns to skills coupled with an expansion in the low-wage proportion of the wage structure observed between 1988 and 1998 appears now to be fully reversed. The rest of the paper examines in more detail the different factors underlying the above results and is structured as follows. Section II summarizes the main developments in the consumer price index, real average hourly wages and real monthly earnings across occupations, sectors of economic activity and levels of education. In addition, changes in the proportion of low-waged workers among different ages, education, region and industry groups are also considered. In Section III,

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<sup>1</sup> The Egypt Labor Market Panel Survey (ELMPS 06) is a follow-up survey to the Egypt Labor Market Survey of 1998 (ELMS 98), which was carried out in November-December 1998 by the Economic Research Forum (ERF) in cooperation with the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS). The individual questionnaire contains a wealth of information on parental background, detailed education histories, activity status, job search and unemployment, detailed employment characteristics, migration histories, job histories, time use, and earnings – making the ELMPS ideal as a basis for investigating distributional and structural developments of wages.

empirical wage functions are estimated for different sector/gender groups, and the changes in return to various levels of education as well as sector and gender wage premia are calculated and compared for the three years under study. Section IV then turns to assessing the implications for overall measured inequality in hourly wages and decomposes it into inequality within and between important socioeconomic groups. Section V summarizes the main findings of the paper and concludes.

## **II. Trends in Real Hourly Wages and Monthly Earnings in Egypt, 1988-2006**

To start with, it is interesting to examine the changes in average hourly wages and monthly earnings across important socio-economic groups (gender, occupations, industries, levels of education and sectors of ownership). To facilitate comparability, all 1988 and 1998 wages are inflated to 2006 using the consumer price index, so that everything is in Egyptian pounds in 2006. Chart 2 shows developments in the CPI over the 1998-2006 period, where the latter year is the base (2006=100). Except for a sudden jump in the CPI at the end of 2003 reflecting the inflationary pass-through of the devaluation of the Egyptian pound at the time, the CPI increased at a fairly modest rate over that period - from 70 to 100 or by 43%. This compares to the previous period, between 1988 and 1998, characterized by much higher inflation rates, so the CPI increased by almost two and a half fold. Thus on account of differences in inflationary trends alone, one would expect that real wages would have picked up since 1998.

Besides hourly wages, which can be thought of as the ‘unit price of labor’, we also look at monthly earnings which constitute a measure of ‘income from labor’ and are calculated as the sum of wages earned in the reference month from all primary and secondary jobs. The difference in the pattern of these earnings to hourly wages captures the ability of a particular group to supplement income through working extra hours, changing primary jobs or holding an additional (secondary) job. We also calculate crude government-private, public enterprise-private and male-female wage and earnings ratios for the above groups and compare them for 1988, 1998 and 2006.

In commenting on wage patterns, it was useful to distinguish between developments for ‘traditionally higher paid segments’ in the labor market (males, white collar workers especially in managerial and professional occupations, higher educated workers and those in mining industries or financial and real-estate services) as opposed to ‘traditionally lower paid segments’ (females, blue collar workers especially in unskilled occupations, lower educated workers and those in agriculture or public and personal services). From a poverty and inequality point of view, one is particularly interested in what happened to the low-wage earners in the labor market over this period. So this section will also examine how the share of earners with low-wages changed overtime and across socio-economic groups.

### ***A. Average Hourly Wages and Monthly Earnings Over Time***

Developments in real average hourly wages are presented in Tables 1 and 2 and Charts 4, 5 and 6. Together, these reveal that after significantly declining in real terms over the 1990s period, by 2006 wages recovered to their 1988 level or even surpassed them for almost all groups. It is interesting, however, that whereas the sharpest real wage falls in 1990s were for some of the traditionally higher paid segments of the labor market (males, public sector managers, private sector professionals/technical workers, and those with secondary education and above), the recovery in the new millennium was more across the board if not favoring those higher groups, especially in the private sector more. Thus, based on average wages,

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<sup>2</sup> The detailed figures underlying those charts are reported in Tables A1-A3

there appears to have been a process of compression of the distribution of wages in the earlier decade, which was reversed in the later period. Section IV below studies the issue of wage inequality in more detail.

The trends in real average monthly earnings are very similar, implying that workers that witnessed the sharpest fall in real hourly wages during the 1990s were unable to counteract this by working more hours, changing jobs or working in secondary jobs. In 2006, the groups that had the largest real hourly wage increases also had them on their real monthly earnings.

### ***B. Crude Male-Female and Public-Private Wage Ratios***

The average real wage figures appear to indicate that women on average witnessed a smaller erosion in their wages in 1998 and a larger recovery in 2006 than men. Compared to 1988, crude gender wage gaps appear to have on average narrowed down in the public enterprise and private sector, and even turned into a large premium (21%) in favor of women in the government sector (see Table 4 and Chart 8). Whether this conclusion still holds after we correct for male-female differences in productivity related factors, is examined in Section III below. The average figures in Tables A1-A3 still show that, in 2006, male/female wage ratios remained lower in the government than in the non-government (public enterprises and private) sector. Between 1998 and 2006, the gender pay gap increased the public enterprise sector in favor of men to reach levels comparable to the private sector. In both these sectors, the incidence of the highest gender-based average hourly wage differentials are in the traditionally lower paid segments of the labor market (blue collar occupations, workers with lower than the intermediate level of education) and for graduates of vocational and post-secondary education, where there might be a glut of females. In all sectors, the gender gaps in monthly earnings are much higher than those in hourly wages, reflecting the greater ability of males to supplement their income through working longer hours, changing primary jobs and/or holding secondary jobs.

Calculation of average crude public/private wage ratios across educational groups (see Table 4 and Chart 7) reveals that, over the period under study, they remained broadly constant for males representing an average public sector advantage of 20-50%, but progressively increasing for females reaching in 2006, 77% in public enterprises and 83% in the government. Comparison across educational levels (see Tables A1 and A2) shows that the greatest public sector advantages are for middle educational level male graduates and higher educational group female graduates. In general, the average wage figures indicate that the relative position of both government and public enterprise workers has improved between 1988 and 2006. Again, whether this conclusion still holds after correcting for differences in characteristics amongst workers will be examined in Section III below.

### ***C. Share of Low Wage Earners***

If we take the 25<sup>th</sup> percentile of the 1988 wage structure (around 1.5 L.E. per hour or L.E. 285 per month) as a cut-off point to distinguish the low wage earners from the rest, then the figures reported in Table 2 and Chart 1 indicate that the share increased from 25% in 1988 to almost 40% of the wage earners in 1998, but then returned to 27% in 2006 (almost the 1988 level). Thus, although the overall wage distribution in 2006 is much wider, median real wages have sufficiently increased such that the proportion of wage workers that can be classified as low-waged has recorded a significant decline in comparison to 1998 (see Appendix Charts 1 and 2).

The figures in Table 2 also reveal the decline in the share of low wage earners was much more pronounced for males, prime age workers 25-49, urban upper Egypt dwellers,

vocational high school and post-secondary institute graduates, workers in services and government workers. The only group witnessing an increase of share of low wage workers between 1998 and 2006 was that of workers in agriculture. However, the age, regional and educational structure of the group of low-wage workers in 2006 remained similar to 1988 in that 73% of low wage workers are male, 71% are in younger age groups (15-34 years), 61% reside in upper Egypt, and 37% have a vocational high school degree. Important structural changes happened by sector of economic activity and institutional sector: the share of agriculture increased from 6% to 18% which led to an increase in private sector share also from 43% to 66%, and a decline of the share of government from 48% to 39%.

### **III. Estimating Hourly Wage Differentials Using Wage Equations**

All of the above wage comparisons suffer from ignoring productivity related factors in workers. For example, we may be comparing workers with very different levels of experience and educational attainment. The next step in the research was, therefore, to correct for these factors. Using multivariate regression analysis, 18 log hourly wage equations were estimated (for males and females, in 1988, 1998 and 2006 and across the 3 sectors of ownership: government, public enterprises and private sector). The estimation results are presented in the appendix.

Besides levels of educational attainment, experience and experience squared, the wage regressions also included controls for regions of residence, marital status, unionization, working on an irregular (casual or seasonal) basis, outside establishments, in large establishments (50 employees or more), being a blue collar (as opposed to white collar) worker or industry or services (compared to agriculture). Tables A4 to A6 present the means and standard deviation of these variables for the years 1988, 1998 and 2006 respectively. These summary statistics confirm the importance of correcting for differences in these characteristics in undergoing yearly, sector and gender wage comparisons.

Before looking at individual parameter estimates, it is useful to examine the overall explanatory power of each wage equation as summarized by  $R^2$ , showing the proportion of variation in the dependent variable that is explained by the standard human capital variables (controls for experience, education and region) included in these equations. As expected,  $R^2$  is higher for the government and public enterprise equations than for the private sector indicating the higher importance attached to seniority and education credentials in public sector wage setting. What is interesting, however is that  $R^2$  declined for all sectors in the 2006 equations. This strongly indicates that variability of wages is mostly within major educational groups and not between them. This issue will be revisited again in Section IV below.

#### **A. Parameter Estimates**

The parameter estimates reported in the appendix indicate that the period between 1988 and 1998 witnessed a devaluation of work experience in wage setting and falling education wage premia for both males and females. The decline in returns to education took place for all but the lowest end (read and write or primary school) and the highest end of the educational ladder (higher institute and university level). Between 1988 and 2006, returns to experience either remained constant in the public sector or continued declining in the private sector.

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<sup>3</sup> Besides these 18 equations, estimates for 12 more aggregated equations are reported in the appendix. Three aggregate wage equations for the overall sample of wage workers in each year (with controls for sector and gender), and three wage equation for each year for the three institutional sectors. All of these nine sector equations had a control for gender.

<sup>4</sup> Note that only a few of the parameter estimates on the educational variables were significant for females, especially in the private sector (see notes to Table 3).

However, by 2006 there was a definite trend towards an increase and recovery in returns to education for almost all levels for the three sectors.

As for regional controls, living outside greater Cairo is associated with a wage disadvantage for all sector/gender groups. Up to 1998, this disadvantage was greatest for rural upper Egypt (the notorious poorest governorates). The results show that the efforts to reverse these trends in 1990 have paid off in reducing this disadvantage in 2006 but mainly on account of improvements in the private, not public sector. Nowadays, the greatest disadvantage on a regional basis appears to be in the urban and rural low-Egypt areas.

### ***B. Proportionate Returns to Secondary and University levels of Education***

Table 3 and chart 1 show proportionate returns to vocational secondary, higher institute and university levels of education calculated across years, gender and sectors. The results show that by 2006 (and like returns to experience) they were higher for females than males in the government sector. Except for vocational secondary school certificates, returns to higher educated groups are now higher in the private sector than in public sector. Thus the very notable decline in returns to vocational schools (entry level for those eligible for the public sector employment guarantee) witnessed between 1988 and 1998 has been reversed lately only in the government but not elsewhere.

To sum up, the results on changes in returns to experience and education over the period under study confirm that the legacy of the predominance of the public sector as an employer and the impact of the public sector employment guarantee continues in the labor market in Egypt up to 1998. The public sector in general, and the government in particular, offered the highest rewards for experience and education, and particularly so for females. Since 1998, however, there is evidence that the impact of the public sector employment guarantee started petering off, especially at the post-secondary institute and university levels where labor market returns are now highest in the private sector.

### ***C. Corrected Sector and Gender Wage Differentials***

Gender and sector wage differentials were calculated based on these results (see Table 4, and Charts 7 and 8). These represent the component of the observed wage gaps that are unexplained by productivity related characteristics.

Results reported in Section II above indicated that compared to 1988, crude gender wage gaps appear to have on average narrowed down in the public enterprise and private sector, and even turned into a large premium (21%) in favor of women in the government sector.

After correcting for differences in characteristics amongst workers and corrected unexplained gender gaps, this pattern is maintained for the private and government sectors, but the magnitude of the gaps is quite a lot smaller. The gap in favor of females is only 3% and not 21%; and the gap in favor of males in the private sector is only 21% and not 35%. It is in public enterprises, where the most notable change and crude differentials are with a progressive increase in the gender gap in favor of males, to almost the same level in the private sector. Thus as public enterprises moved away from institutional and uniform wage setting to more de-centralized compensation practices, they started looking more like private sector firms, even in the way they differentiate between males and females.

As for the sector wage gaps, as reported in Section II above, crude differentials figures indicate that the relative position of both government and public enterprise workers has improved between 1988 and 2006; particularly for females where they reached 77-83% in 2006. After correcting for differences in worker characteristics, this conclusion of



improvement in relative position of public sector employees is maintained, but at a lower level than indicated by the crude estimates. In 2006, males are no longer disadvantaged in the government sector as wages are nearly equal to what they would get in the private sector. They now earn a premium in the public enterprise equal to 27%. The corrected female government and public enterprise premiums are about only 33% (not as high as the 77-83% crude rate). These figures still indicate the attractiveness of the government sector for females, but the size of their premium compared to the private sector has now declined from its 50-60% level in 1988. .

#### **IV. Changes in Hourly Wage Inequality**

Finally, in this section we turn to an analysis of the implication of the above changes in wage differentials to the overall observed inequality (or dispersion) of hourly wages. Table 5 presents several standard statistical measures of inequality of both wages and earnings, calculated separately for males and females. In each case, an attempt was made to decompose measured inequality into a component attributable to changes ‘within’ and another one to changes ‘between’ important socio-economic groups (i.e. occupation, industry and education).

Before commenting on the results in the table, it is important to clarify the differences between the different measures of inequality presented.<sup>5</sup> The most commonly reported statistical measure of inequality is usually ‘the standard deviation’, which is a measure of how far each observation is from the mean. It is not, however, a good measure of inequality because if everyone’s income doubles, (or there is inflation), the standard deviation will also double. If the standard deviation is however standardized by dividing it by the mean of the distribution, we obtain the second measure, namely ‘the coefficient of variation’, which does not suffer from this problem. A third measure is ‘the Gini coefficient’ which graphically is defined as the area between the Lorenz curve (which graphs the cumulative fraction of income versus the cumulative fraction of the population arranged in ascending order) and the line of perfect equality. Intuitively, the Gini coefficient can be given the interpretation that if one randomly draws two people from the population, then the expected wage difference between these two people as a proportion of the average wage is twice the Gini coefficient. A problem of all those three measures, however, is that as they take into account all observations, they are sensitive to errors or real changes at the tails of the distribution. It is also, therefore, useful to report ‘the decile ratio’ (ratio of the 90<sup>th</sup> percentile of the wage distribution to the 10<sup>th</sup> percentile) which is not sensitive to outliers.

In this paper, the measures of inequality estimated include the coefficient of variation, the decile ratio and the Gini coefficient. Another measure calculated is ‘half the square of the coefficient of variation’. This is a member of the general entropy (GE) Indices which have the desirable property of being additively decomposable into components within and between groups. The groups considered are level of education (8 groups), occupation (9 groups) and industry (14 groups).

The results in Table 5 show using all measures of inequality, hourly wages dispersion has occurred in the sample over the initial observation period (1988-1998), but rebounded by 2006 again to the 1988 level or even higher in some measures. These results are mainly driven by what happened to males over the two periods, which followed the same pattern as

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<sup>5</sup> For more formal definitions of the different measures of inequality see Cowell (1995), Jenkins (1995) and STATA Technical Bulletin no.48, March 1999, section on “Analysis of Income Distributions”.

<sup>6</sup> The 8 education groups are the same as those in Tables A1-A2. The occupation and industry groups are standard one-digit classifications of occupations and sectors of economic activities used in recent CAPMAS publications.

the total (males are 80% of wage workers in the sample). For females, inequality either increased or, if we take our favored measure of decile ratio, stayed the same until 1998. All measures, however, indicate quite a dramatic increase in female hourly wage inequality between 1998 and 2006.

Further decomposition of the GE index show that most of the observed inequality for males and females in the three years is 'within' (as opposed to 'between') groups. Over the period, however, for both males and females, there were some decline in inequality 'between' educational groups and occupations between 1988 and 1998 (consistent with declining education reported in the above wage regression results). The most important change that occurred between 1998 and 2006 is the dramatic increase in within group inequality for both males and females (see Chart 9). This is consistent with falling  $R^2$  in 2006 reported in the wage regression above which signifies that the standard human capital variables (controls for experience, education and region) are no longer sufficient on their own to explain major variation and dispersion of wages in Egypt.

Table 1 shows Gini coefficients for different socio-economic groups over the period under study. It is noteworthy that the groups that witnessed the largest real wage increases between 1998 and 2006 are also the ones that had the largest increases in inequality (females, higher age groups, rural-lower and urban-upper Egypt, services and higher educational groups). Looking at differences across institutional sectors, it is also interesting to note that whereas in 1988, hourly wages were most compressed (equalized) in the government sector and most dispersed the private sector, by 2006, the highest degree of dispersion is now observed in the government sector. This pattern is even more dramatic if we look at the decile ratios (see Chart 10). This can be taken as further evidence of the declining impact of the public sector employment guarantee and centralized wage bargaining in the government sector in Egypt in the new millennium.

## **V. Conclusion**

This paper investigates the distributional and structural developments of real hourly wages and monthly earnings in Egypt in the last two decades on the basis of three nation-wide labor force sample surveys (the 1988 LFSS, the 1998 ELMS and the 2006 ELMPS). The results reveal that after the initial period of real wage erosion and wage compression (1988-98), both real wages and wage inequality started rising again for most groups in Egypt.

In 2006, although the overall wage distribution is much wider, median real wages have sufficiently increased such that the proportion of wage workers that can be classified as low-waged has significantly declined in comparison to 1998. In fact, in many ways, the 2006 wage structure very much resembles that of 1988, in terms of level and dispersion of real wages as well as the percentage of workers with low wages. Thus, after almost twenty years of structural adjustment measures, labor market rewards in Egypt have mostly followed a "U-turn path" of decline followed by recovery and return to pre-adjustment levels.

Further analysis of returns to education, sector and gender-based wage differentials indicate two important qualifications to the above statement. First, the relative rewards of women have significantly improved compared to the situation in 1998. They witnessed larger real wage improvements in comparison to their male counterparts. This is mostly on account of the fact that women are concentrated in the government sector where real wages increased by 40% as opposed to only 17% in the private sector. But even in the private sector, the unexplained gender pay gap was almost halved in comparison to its magnitude in the 1980s.

Second, compared to 1988, the Egyptian labor market seems much less affected by the legacy of the public sector employment guarantee. Thus, although the government sector remains a haven for groups such as women or vocational school graduates, paying them higher wages

than elsewhere, the magnitude of those wage gaps have significantly declined compared to the past. Moreover, rewards to the university level of education are now highest in the private sector, and the government sector has a much more decentralized/dispersed wage structure than in the 1980s. As real wages increased much faster in the public compared to the private sector, public sector wage premia also widened, particularly in public enterprises.

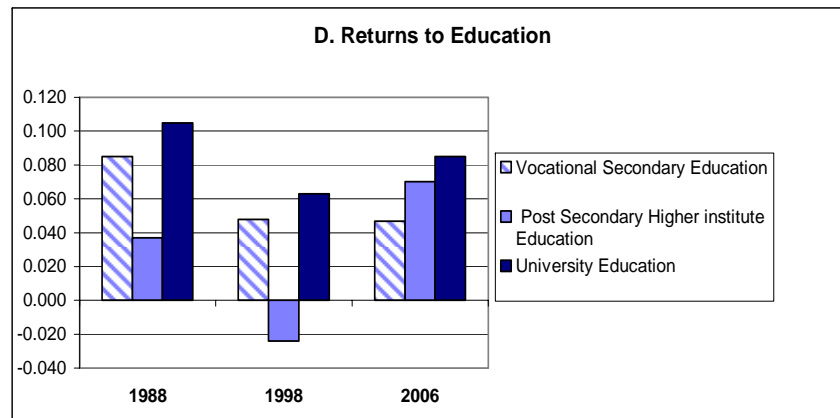
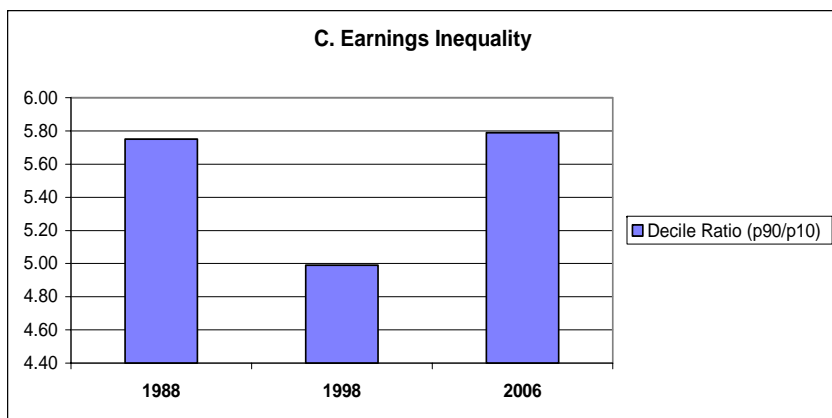
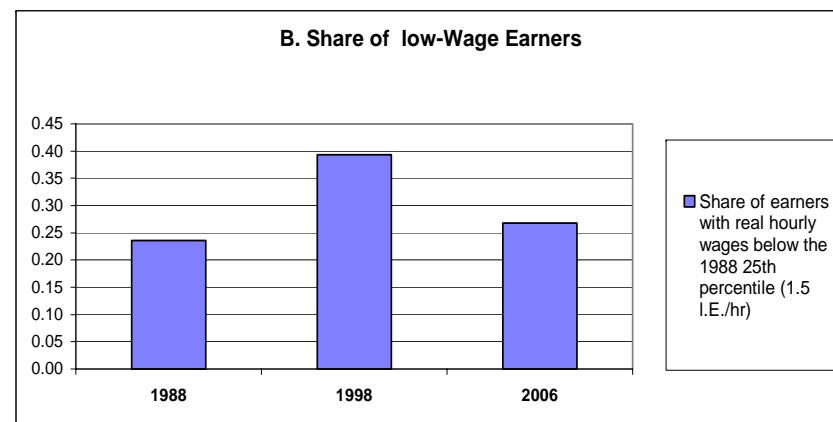
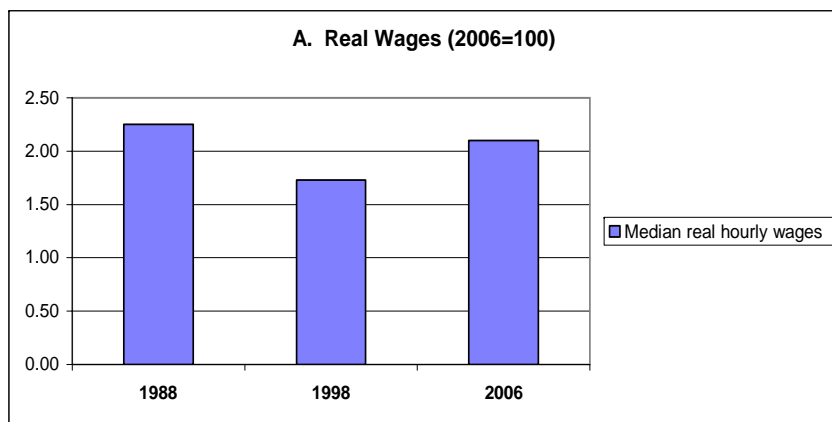
In fact, wage setting in public enterprises now closely resembles that in the private sector to the extent that it might be much more useful to group the two in one category, and analyze segmentation in the Egyptian labor market as being more along a government versus non-government (the latter includes public enterprises) line; as opposed to the traditional public sector-private sector divide.

As this paper is mainly a report on the results of the earning module of the 2006 ELMPS, it has mainly been descriptive in nature. Apart from providing some first cut-analyses of simple returns to education and unexplained wage differentials based on wage-regression estimates, no attempt was made to systematically explore explanations for the observed trends in real wages and wage inequality. Nor has the paper concerned itself with the wider labor market and policy implications of the reported results. Thus besides using more rigorous estimation methodologies, the above two sets of questions represent the most obvious two directions for future research.

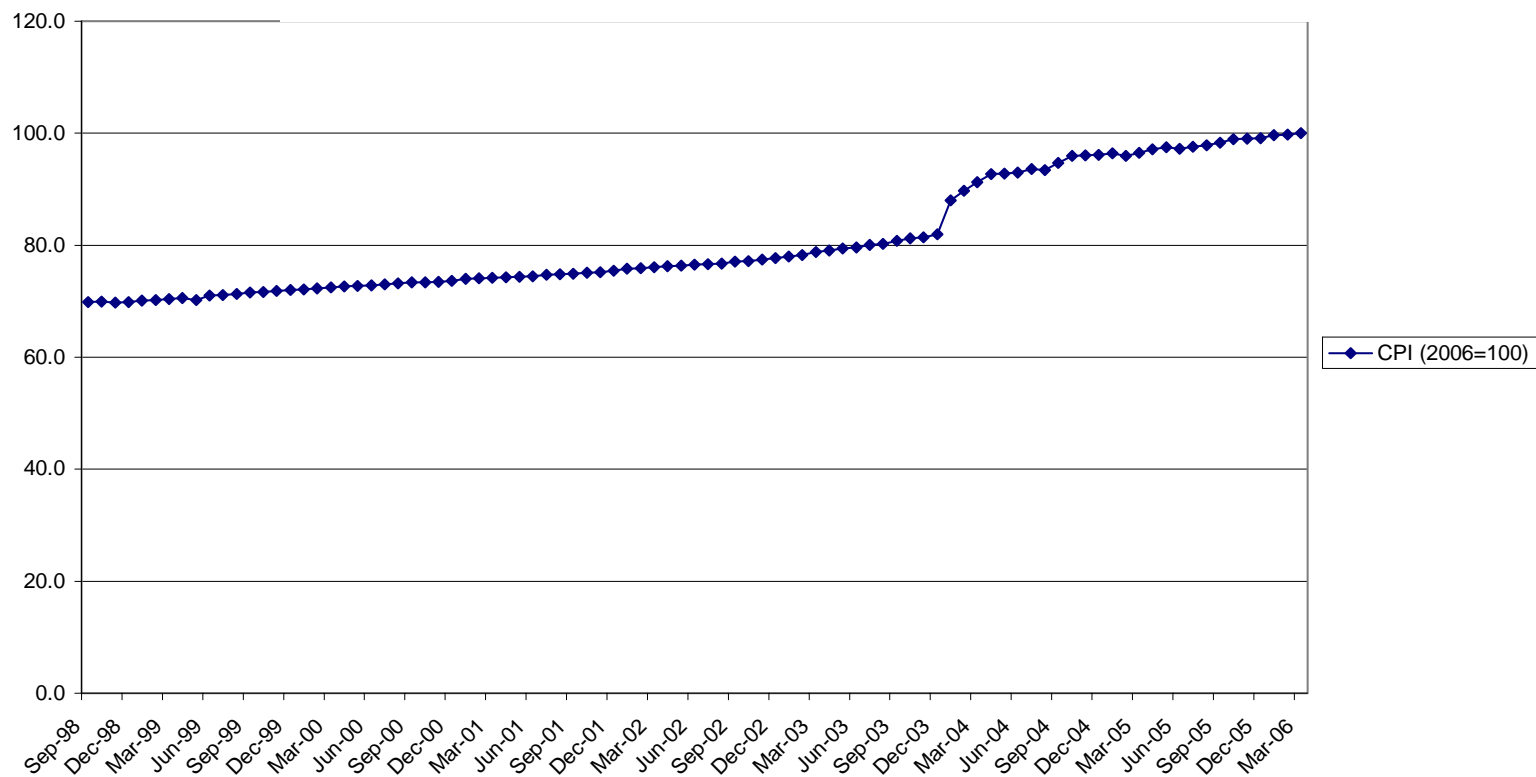
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**Chart 1: Summary of Findings on Real Wages and Earnings Inequality: 1988-2006**

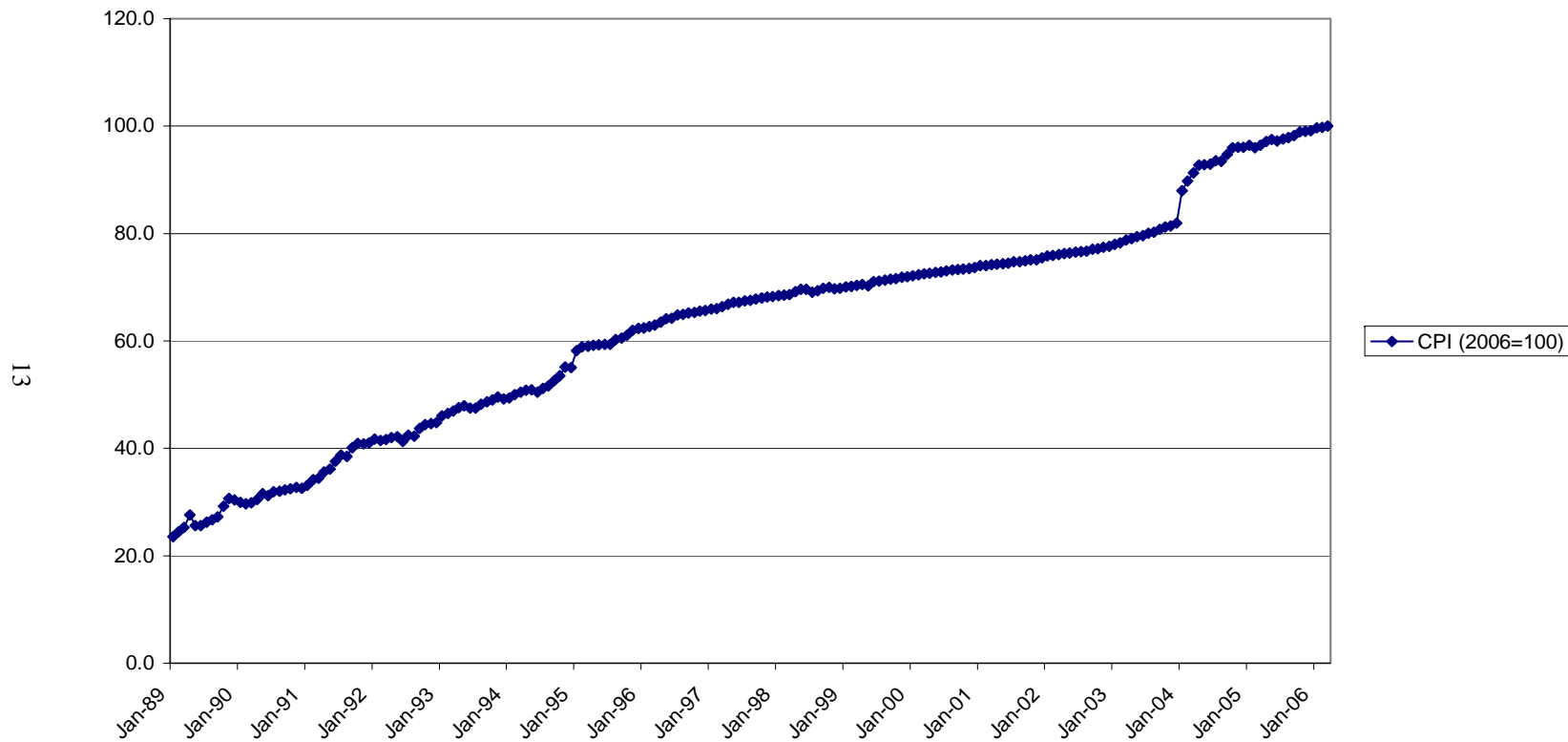


**Chart 2: Consumer Price Index, Oct. 1998-March 2006. . (2006=100)**

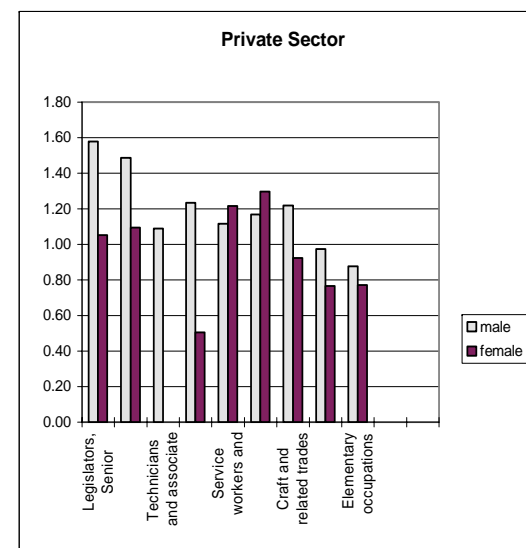
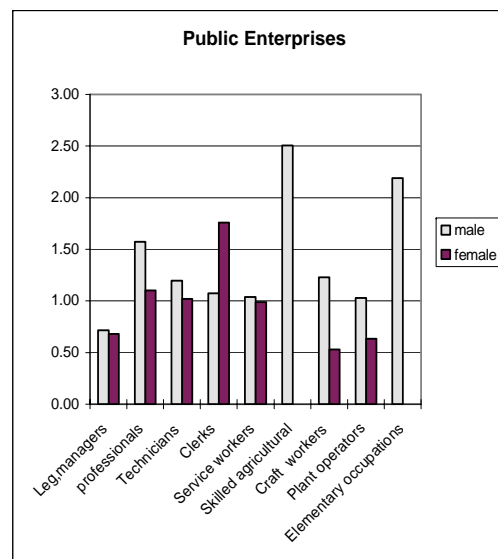
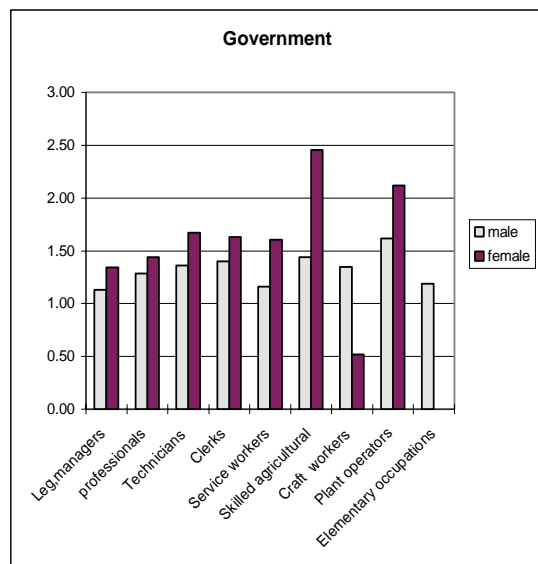


**Source:** Central Agency of Public Mobilisation and Statistics

**Chart 3: Consumer Price Index 1988-2006 (2006=100)**



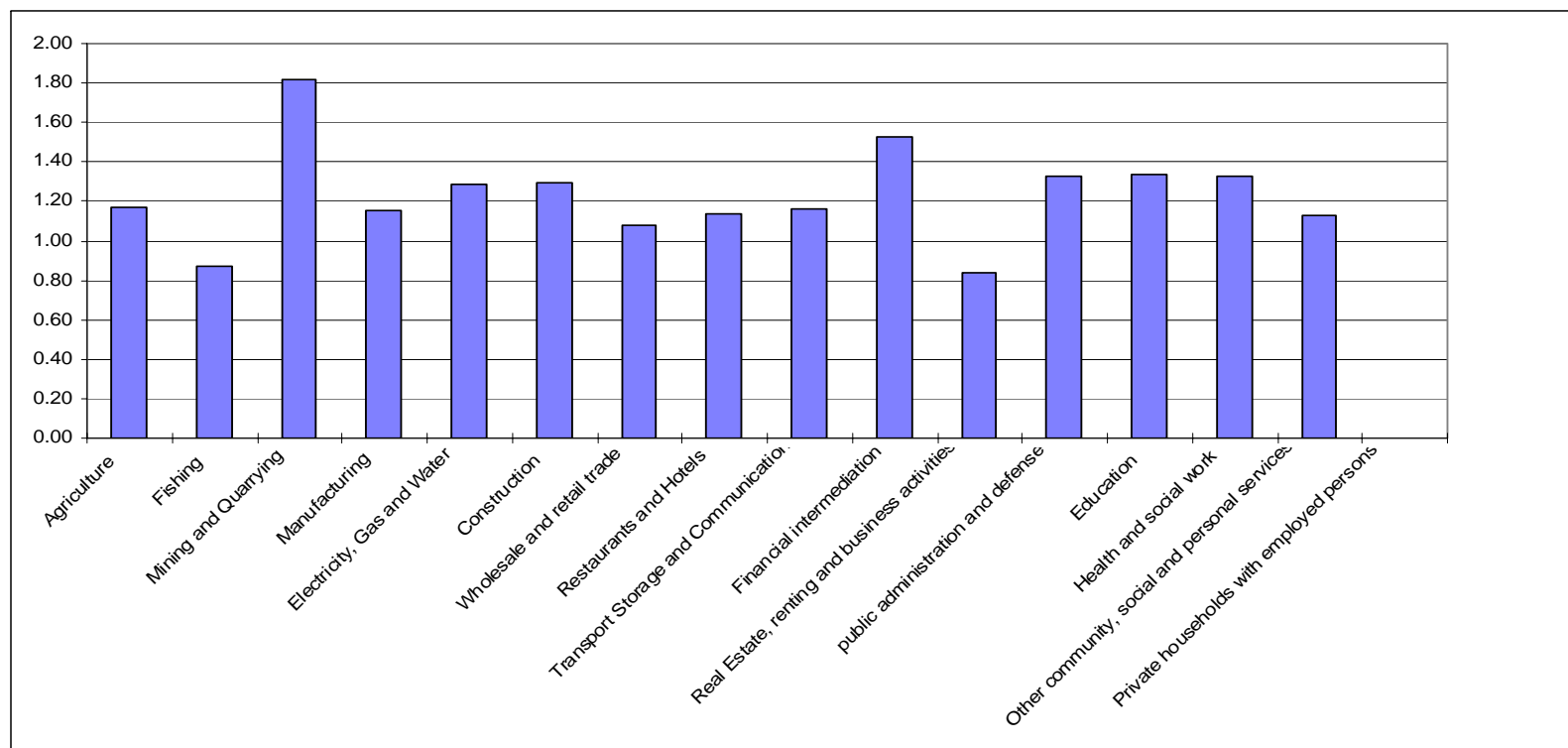
**Chart 4: Real Average Hourly Wage Ratios by Gender and Occupation (2006/1998) (2006 prices)**



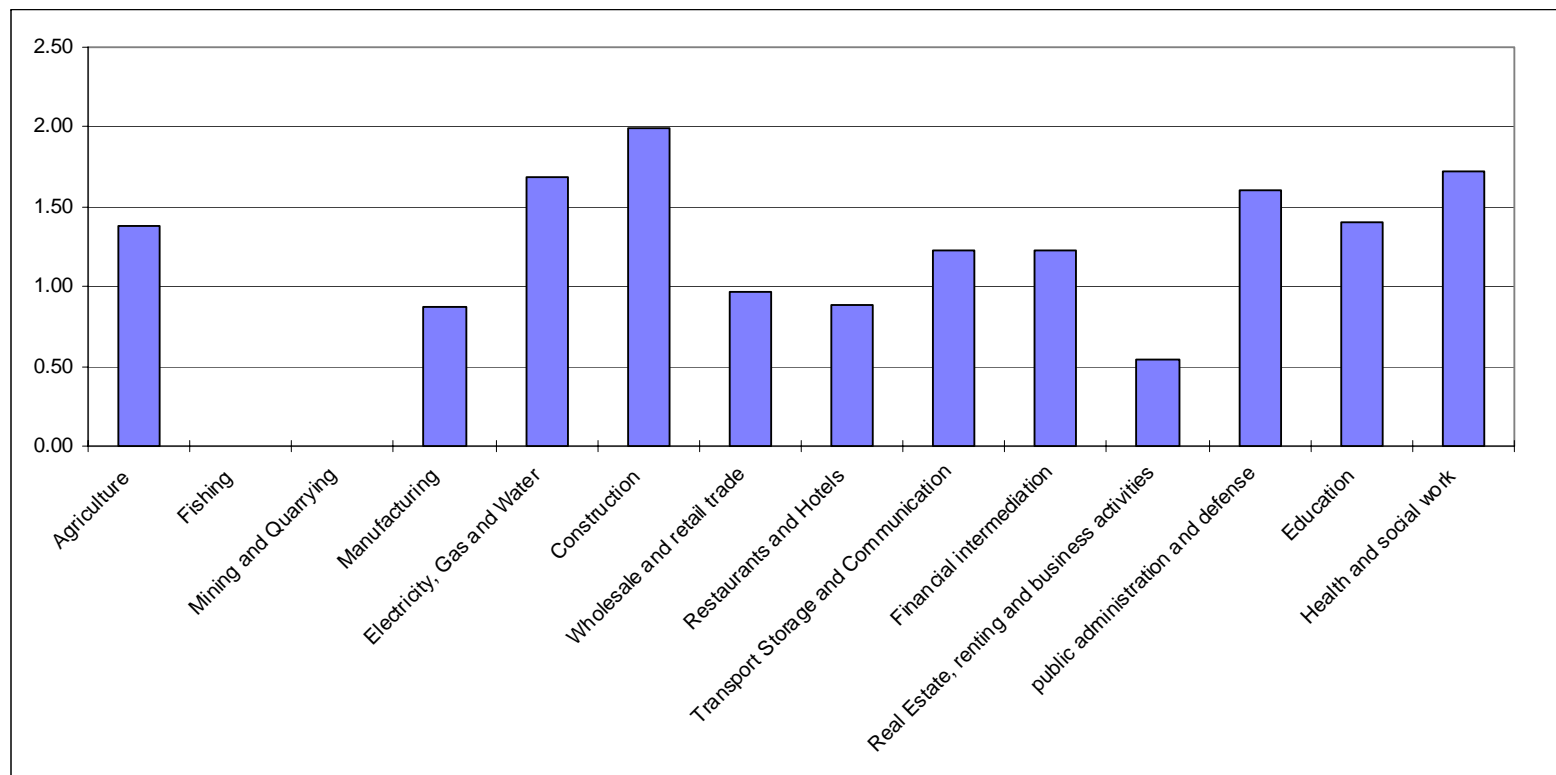


**Chart 5: Real Average Hourly Wage Ratios By Gender and Economic Activity (2006/1998)**

**A. Males**



## B. Females



**Chart 6: Real Average Hourly Wage Ratios by Gender and Education (2006/1998) (2006 prices)**

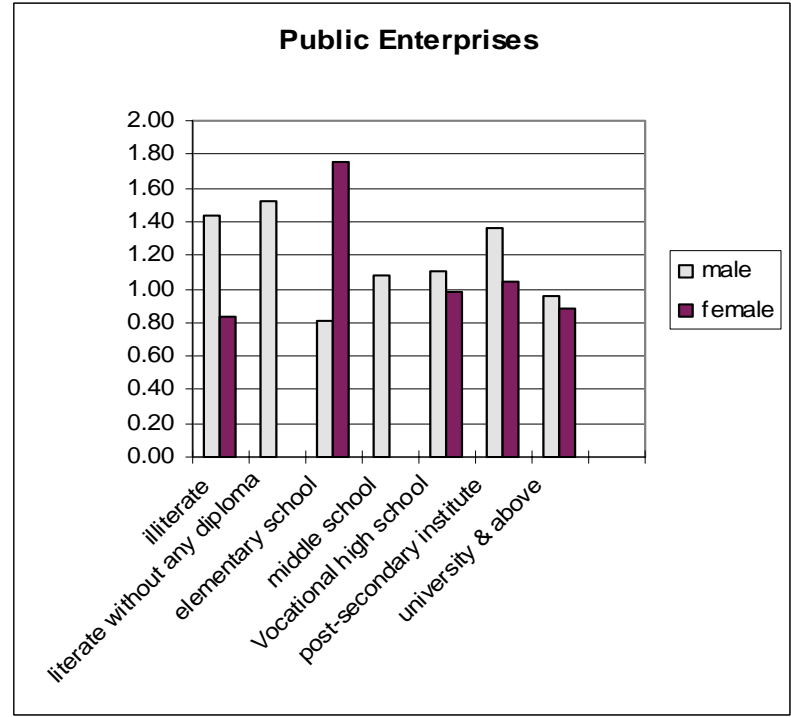
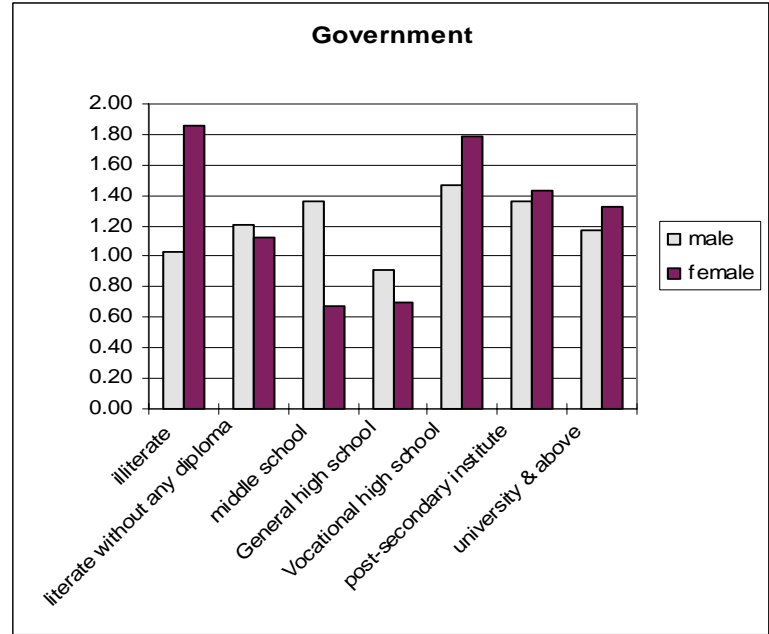
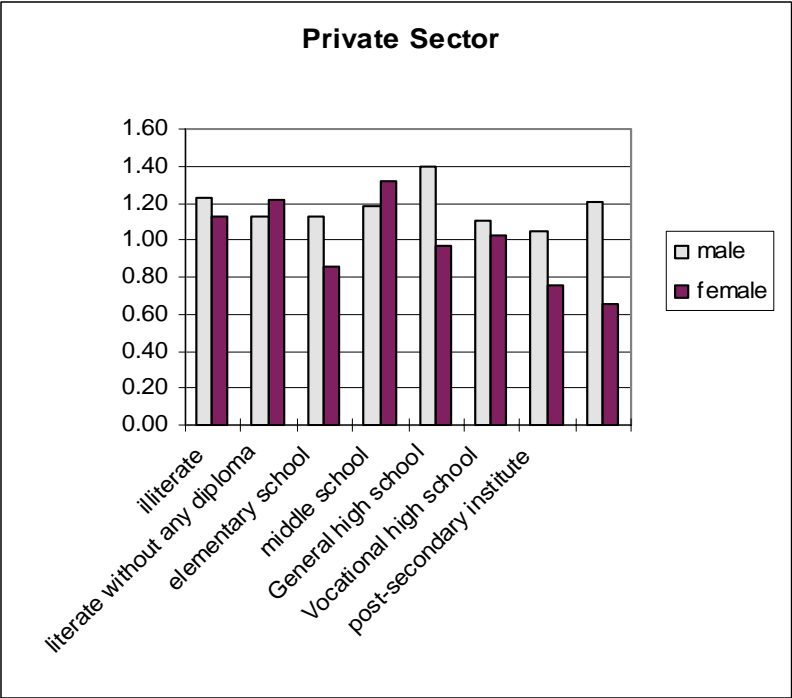


Chart 6: Cont'd.



**Chart 7: Crude and Corrected Public-Private Wage Differentials (1998-1988)**

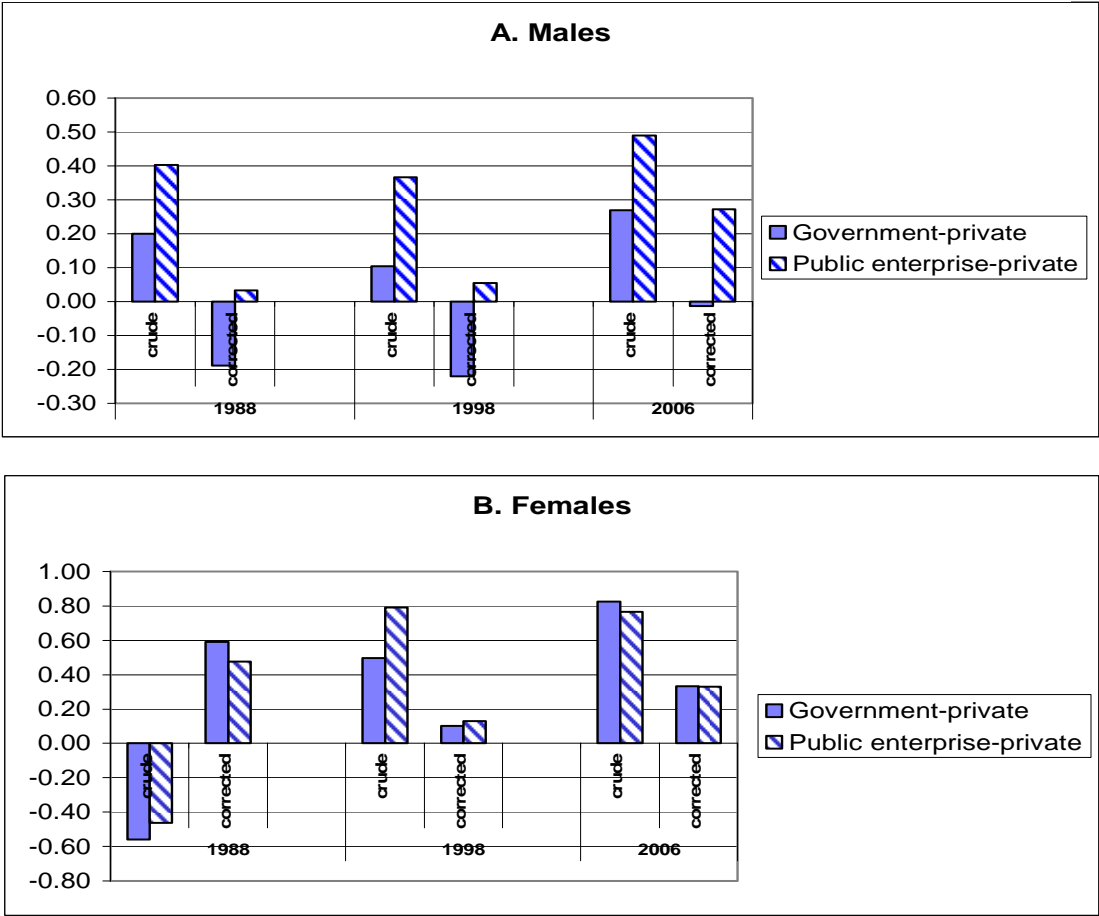
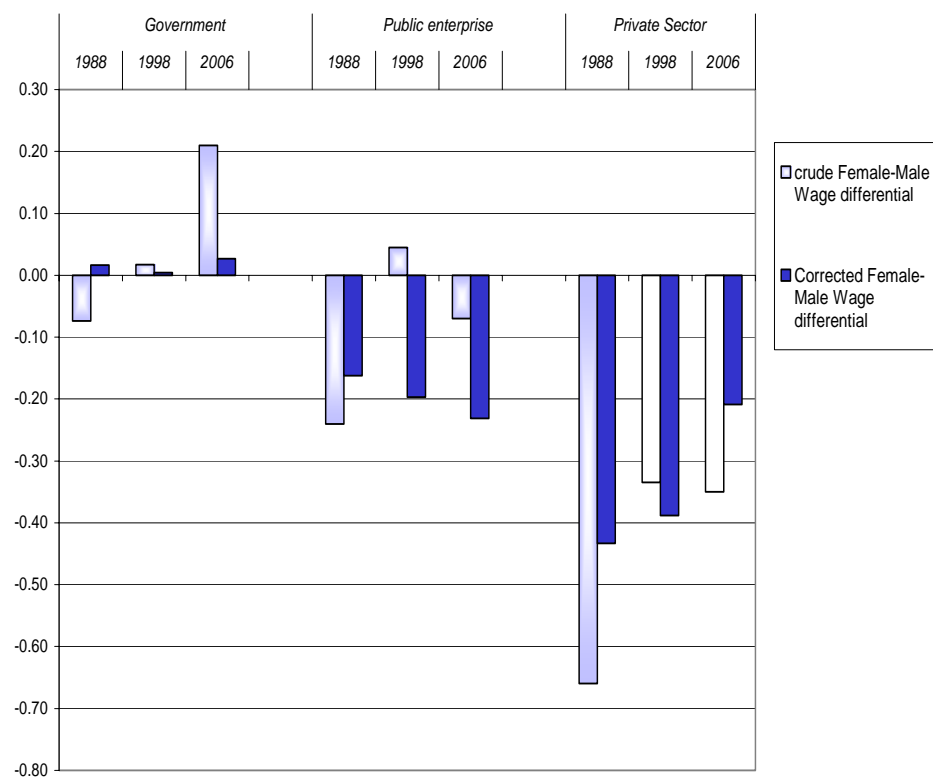
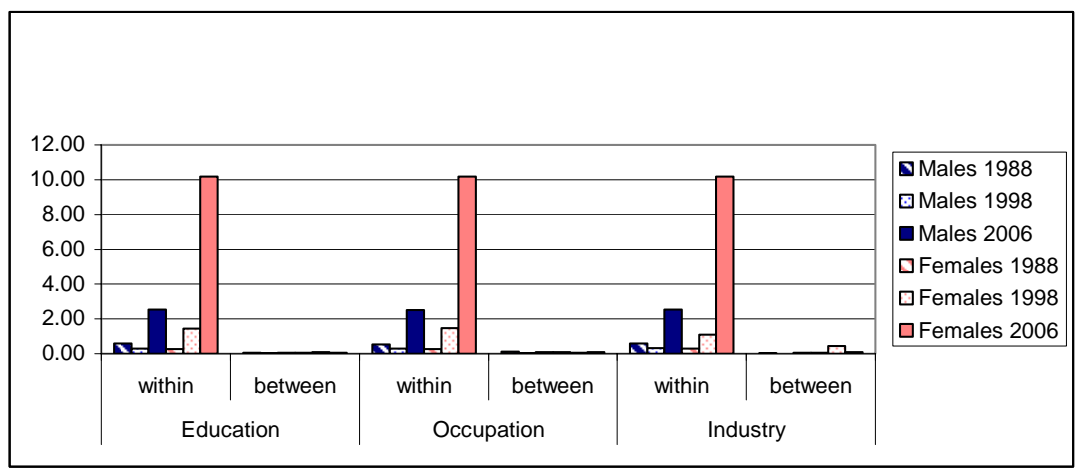


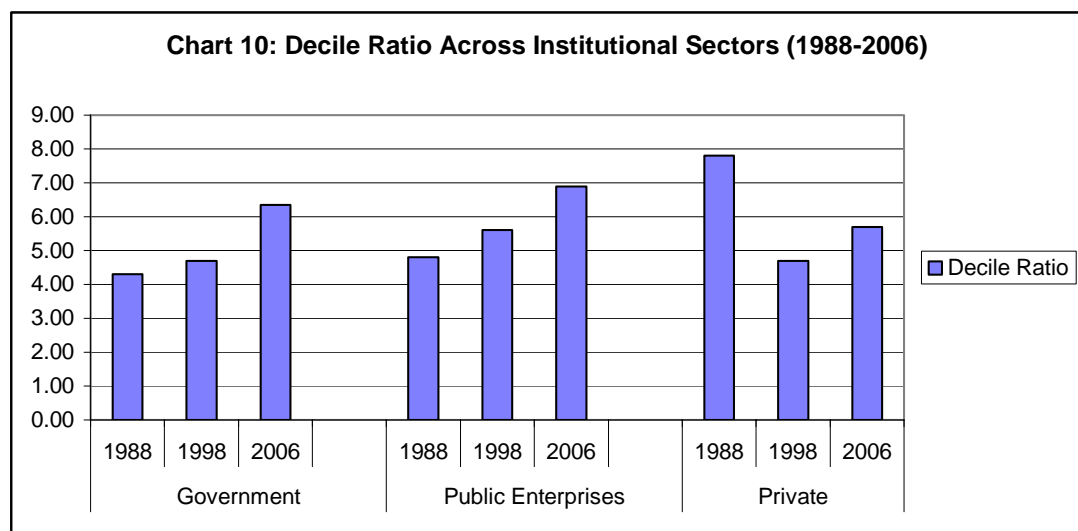
Chart 8: Crude and Corrected Gender Wage Differentials, 1988-2006



**Chart 9: Within and Between Group Inequality (1988-2006)**



**Chart 10: Decile Ratio Across Institutional Sectors (1988-2006)**



**Table 1: Distribution of Real Hourly Wages for Wage and Salaried Workers, 1988-2006**

	<b>Median real hourly wages by group</b>					<b>Gini coefficient for earnings by group</b>				
	<b>Level</b>			<b>Change</b>		<b>Level</b>			<b>Change</b>	
	1988	1998	2006	1988-98	1998-2006	1988	1998	2006	1988-98	1998-2006
	<i>(in 2006 L.E.)</i>			<i>(in percent)</i>						
<b>Total</b>	2.25	1.73	2.10	-23	21	0.39	0.37	0.55	-0.02	0.18
<b>Gender</b>										
Male	2.31	1.75	2.08	-24	19	0.39	0.36	0.48	-0.04	0.12
Female	1.90	1.65	2.24	-13	36	0.39	0.43	0.71	0.04	0.27
<b>Age group</b>										
15-24	1.78	1.23	1.46	-31	18	0.35	0.33	0.42	-0.02	0.09
25-34	2.25	1.63	1.97	-28	21	0.33	0.32	0.54	-0.01	0.22
35-49	2.92	2.00	2.50	-32	25	0.36	0.35	0.53	-0.01	0.18
50-64	2.95	2.54	3.21	-14	26	0.44	0.38	0.59	-0.06	0.21
<b>Region</b>										
Greater Cairo	2.82	2.14	2.49	-24	16	0.44	0.39	0.52	-0.05	0.13
Alexandria and Canal Cities	2.71	2.06	2.42	-24	18	0.38	0.42	0.47	0.04	0.05
Urban Lower Egypt	2.25	1.79	2.21	-21	24	0.38	0.34	0.51	-0.04	0.17
Rural Lower Egypt	2.27	1.78	2.50	-22	40	0.33	0.32	0.63	-0.01	0.31
Urban Upper Egypt	2.00	1.58	1.92	-21	22	0.35	0.36	0.54	0.01	0.18
Rural Upper Egypt	2.21	1.43	1.88	-36	31	0.28	0.32	0.50	0.04	0.18
<b>Education Level</b>										
illiterate	2.00	1.43	1.71	-29	20	0.32	0.33	0.40	0.01	0.08
Literate without Diploma	2.19	1.54	1.71	-30	11	0.35	0.35	0.45	0.01	0.10
elementary school	2.09	1.59	1.77	-24	11	0.37	0.33	0.49	-0.04	0.16
Middle School	2.17	1.78	2.00	-18	12	0.32	0.32	0.44	0.00	0.12
General High school	3.25	2.14	2.22	-34	4	0.38	0.45	0.51	0.07	0.06
Vocational high school	2.25	1.58	2.01	-30	27	0.38	0.32	0.61	-0.05	0.29
post-secondary institute	2.85	1.92	2.49	-33	30	0.38	0.34	0.60	-0.04	0.26
University&above	3.74	2.65	3.04	-29	15	0.41	0.38	0.52	-0.03	0.13
<b>Sector of Activity</b>										
Agriculture	2.00	1.43	1.67	-29	17	0.26	0.31	0.35	0.05	0.04
Industry	2.31	1.78	2.02	-23	14	0.39	0.37	0.53	-0.02	0.16
services	2.44	1.78	2.22	-27	24	0.41	0.37	0.57	-0.04	0.20
<b>Institutional sector</b>										
Government	2.38	1.77	2.47	-26	40	0.37	0.35	0.61	-0.02	0.26
Public Enterprises	2.92	2.32	2.82	-21	22	0.37	0.37	0.52	0.00	0.15
Private Sector	2.24	1.60	1.88	-29	17	0.40	0.38	0.45	-0.02	0.07

Source: Author's calculations from 1988 Labour Force Sample Survey, 1998 Egyptian Labour Sample Survey and 2006 Egypt labor Market Panel Survey.



**Table 2: Low Monthly Wage Earners, Wage and Salaried Workers, 1988-2006**

(in 2006 L.E.)

	Share of earners with low earnings by group					Group share among earners with low earnings				
	Level			Change		Level			Change	
	1988	1998	2006	1988-98	1998-2006	1988	1998	2006	1988-98	1998-2006
	(in percent)			(in percentage points)		(in percent)			(in percentage points)	
Total	0.24	0.39	0.27	67	-32	--	--	--	--	--
<b>Gender</b>										
Male	0.20	0.37	0.24	80	-33	0.66	0.73	0.73	10	1
Female	0.35	0.49	0.36	41	-26	0.34	0.27	0.27	-19	-3
<b>Age group</b>										
15-24	0.51	0.61	0.49	18	-20	0.37	0.26	0.36	-29	38
25-34	0.26	0.46	0.27	81	-42	0.42	0.33	0.35	-21	6
35-49	0.11	0.32	0.17	196	-46	0.17	0.33	0.21	91	-34
50-64	0.07	0.19	0.13	198	-31	0.04	0.08	0.07	109	-11
<b>Region</b>										
Greater Cairo	0.18	0.25	0.18	36	-29	0.29	0.16	0.11		
Alexandria and Canal Cities	0.18	0.29	0.22	56	-24	0.10	0.07	0.08	-28	11
Urban Lower Egypt	0.24	0.37	0.26	59	-29	0.10	0.12	0.11	18	-10
Rural Lower Egypt	0.33	0.50	0.31	49	-37	0.06	0.09	0.10	57	2
Urban Upper Egypt	0.26	0.41	0.18	59	-56	0.27	0.37	0.35	38	-6
Rural Upper Egypt	0.30	0.53	0.38	74	-29	0.18	0.19	0.26	5	40
<b>Education Level</b>										
illiterate	0.33	0.52	0.39	57	-24	0.27	0.17	0.22	-37	27
Literate without Diploma	0.21	0.47	0.35	121	-27	0.13	0.12	0.08	-11	-32
elementary school	0.28	0.45	0.33	59	-26	0.09	0.12	0.13	44	2
Middle School	0.24	0.34	0.26	45	-22	0.05	0.05	0.05	-8	6
General High school	0.12	0.20	0.22	65	9	0.01	0.01	0.01	-44	16
Vocational high school	0.30	0.47	0.29	59	-39	0.30	0.33	0.37	11	12
post-secondary institute	0.21	0.36	0.15	71	-57	0.07	0.09	0.04	35	-59
University	0.10	0.20	0.14	109	-33	0.08	0.12	0.11	38	-3
<b>Sector of Activity</b>										
Agriculture	0.38	0.42	0.52	10	23	0.06	0.05	0.18	-12	253
Industry	0.20	0.32	0.26	62	-21	0.23	0.18	0.18	-19	-4
services	0.24	0.41	0.24	69	-42	0.71	0.76	0.65	7	-16
<b>Institutional sector</b>										
Government	0.24	0.44	0.21	86	-52	0.48	0.58	0.30	23	-48
Public Enterprises	0.10	0.22	0.12	119	-46	0.09	0.06	0.03	-30	-48
Private Sector	0.33	0.38	0.33	14	-13	0.43	0.35	0.66	-19	88

Source: Author's calculations from 1988 Labour Force Sample Survey, 1998 Egyptian Labour Sample Survey and 2006 Egypt labor market survey

**Table 3 : Proportionate Returns to Vocational Secondary and University Education by Sector and Gender**

	Total								
	1988	1998	2006	1988	1998	2006	1988	1998	2006
Vocational Secondary Education	0.085	0.048	0.047						
Post Secondary Higher institute	0.037	-0.024	0.070						
University	0.105	0.063	0.085						
	Male								
	Government			Public Enterprise			Private		
	1988	1998	2006	1988	1998	2006	1988	1998	2006
Vocational Secondary Education	0.102	0.080	0.108	0.120	0.097	0.008	0.065	0.025	0.005
Post Secondary Higher institute	0.157	-0.019	-0.098	0.076	-0.032	0.277	-0.038	0.015	0.048
University	0.138	0.079	-0.005	0.108	0.047	0.191	0.103	0.093	0.131
	Female								
	Government			Public Enterprise			Private		
	1988	1998	2006	1988	1998	2006	1988	1998	2006
Vocational Secondary Education	0.121	0.042	0.165	-0.023	--	--	--	--	--
Post Secondary Higher institute	-0.004	-0.230	0.047	--	--	-0.377	--	--	--
University	0.082	-0.050	0.070	-0.039	--	-0.025	0.085	-0.012	0.164

Notes: The above calculations are based on the assumptions that obtaining a vocational secondary certificate requires three years of education compared to middle school, obtaining a post secondary higher institute degree requires two years after general secondary certificates, and university degrees are four years after general secondary certificates.

'--' denotes small sizes and/or insignificant estimates on underlying parameters.

Source: Author's calculations based on Log hourly wage OLS equation estimates (see appendix for full regression results)

**Table 4: Gender and Sector Wage Differentials, 1988-2006**

(in log hourly wages)

	1988		1998		2006	
	<i>crude</i>	<i>corrected</i>	<i>crude</i>	<i>corrected</i>	<i>crude</i>	<i>corrected</i>
<b><u>Sector Wage Differentials</u></b>						
<b>Males</b>						
Government-private	0.20	-0.19	0.11	-0.22	0.27	-0.01
Public enterprise-private	0.40	0.03	0.37	0.06	0.49	0.27
<b>Females</b>						
Government-private	-0.56	0.59	0.50	0.10	0.83	0.33
Public enterprise-private	-0.46	0.48	0.79	0.13	0.77	0.33
<b><u>Gender Wage Differentials (Female-Male)</u></b>						
Government	-0.07	0.02	0.02	0.00	0.21	0.03
Public enterprise	-0.24	-0.16	0.05	-0.20	-0.07	-0.23
Private Sector	-0.66	-0.43	-0.34	-0.39	-0.35	-0.21

Source: Calculated from log hourly wage regressions based on the 1988 Labour Force Sample Survey, 1998 Egyptian Labour Sample Survey and 2006 Egypt Panel Labor Market Survey (see appendix).

Note: Crude sector and gender wage differentials are simply differences in the means of log hourly wages. Corrected sector wage differentials are calculated as the difference between predicted log hourly wages for public sector sector employees using the public sector wage equation and their predicted log hourly wages using the private sector equation (expressed as a proportion of the former). Similarly, corrected Gender wage differentials are the difference between predicted female wages using the female equation and their predicted wages using the male equation.

**Table 5: Measures of Inequality of Hourly Wages: Within and Between Groups**

Variable		coefficient of Variation	Decile Ratio	Gini Coefficient	General Entropy Index						
					Total	Education		Occupation		Industry	
						<i>within</i>	<i>between</i>	<i>within</i>	<i>between</i>	<i>within</i>	<i>between</i>
Males	1988	1.13	5.40	0.39	0.64	0.58	0.06	0.53	0.11	0.60	0.03
	1998	0.82	4.82	0.36	0.33	0.30	0.04	0.29	0.04	0.32	0.01
	2006	2.05	5.00	0.48	2.59	2.54	0.05	2.50	0.08	2.53	0.05
Females	1988	0.83	6.54	0.39	0.35	0.28	0.07	0.27	0.08	0.30	0.05
	1998	1.74	6.53	0.43	1.51	1.43	0.07	1.46	0.05	1.08	0.44
	2006	4.54	13.42	0.71	10.25	10.18	0.07	10.18	0.09	10.17	0.10
Total	1988	1.09	5.75	0.39	0.60	0.54	0.05	0.51	0.09	0.57	0.03
	1998	1.08	4.99	0.37	0.58	0.53	0.04	0.53	0.04	0.51	0.07
	2006	3.68	5.79	0.55	6.76	6.79	0.04	6.67	0.10	6.70	0.07

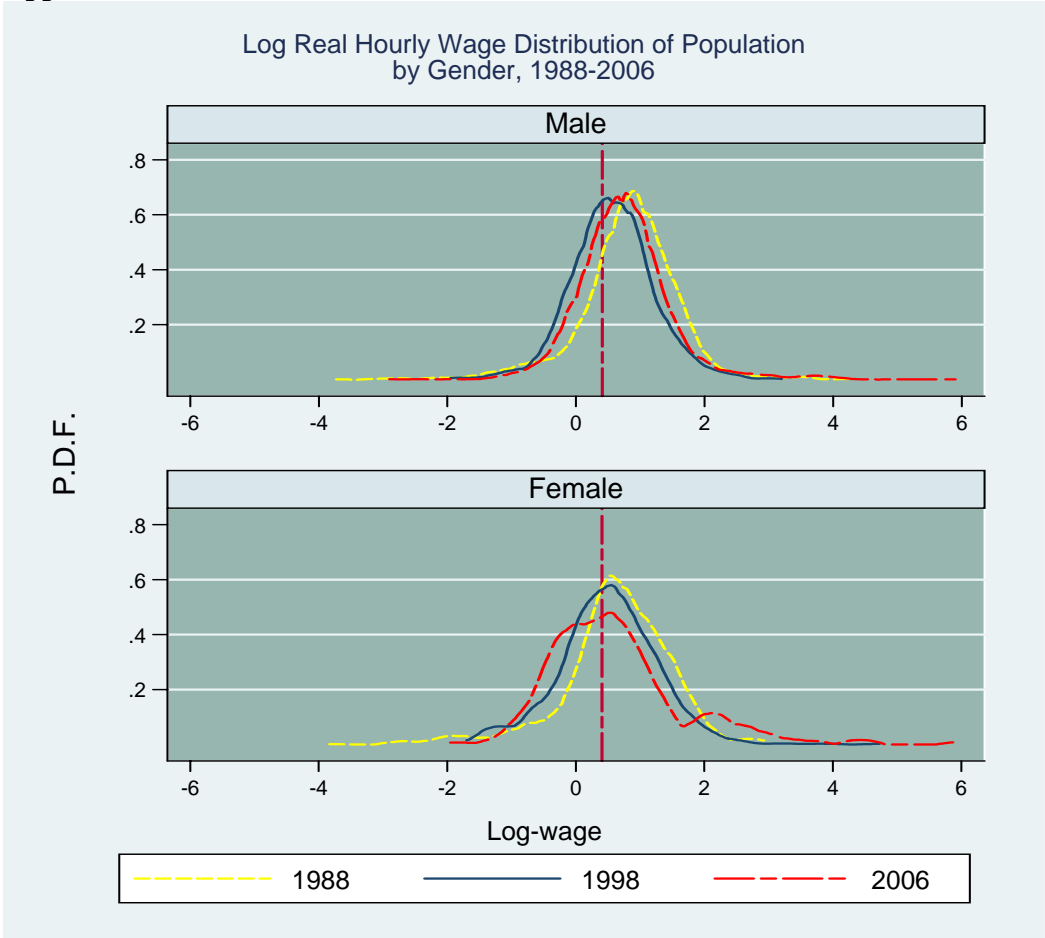
Source: 1988 Labour Force Sample Survey, 1998 Egyptian Labour Sample Survey and 2006 Egypt Labor market Panel Survey; own calculation.

Note: Coefficient of Variation=Standard of Deviation/ mean; Decile Ratio=90th percentile/10th percentile; Due to rounding off error, the within and between components of the Generalised Entropy Index might not add up exactly to the total.

Appendix Chart One



Appendix Chart Two



**Table A1: The Distribution of Real Average Hourly Wages and Monthly Earnings Across Sectors and Levels of Education, 1988-1998 (in 2006 L.E.)**

WAGE AND EARNINGS RATIOS												
1998/1988					Male/Female				Public/Private Hourly wage			
Sector/Educational Level	Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings		Male		Female	
	Male	Female	Male	Female	1988	1998	1988	1998	1988	1998	1988	1998
Government												
Illiterate	0.83	0.62	0.72	0.58	1.30	1.73	1.28	1.60	0.75	0.92	0.97	0.91
Literate without any diploma	0.67	0.81	0.65	0.60	1.67	1.38	1.62	1.74	0.84	0.71	1.17	1.54
Elementary school	0.54	0.95	0.62	1.09	3.17	1.79	2.93	1.67	1.52	0.89	0.82	0.79
Middle school	0.59	1.45	0.55	1.24	1.22	0.50	1.52	0.68	1.33	0.84	1.10	2.78
General high school	0.62	1.11	0.67	1.21	1.23	0.69	1.62	0.89	1.58	1.95	2.10	2.84
Vocational high school	0.70	0.74	0.74	0.80	1.12	1.06	1.22	1.13	0.94	0.98	1.53	1.74
Post-secondary institute	0.64	0.69	0.72	0.74	1.06	0.98	1.19	1.16	1.25	0.93	3.17	1.37
University & above	0.76	0.74	0.74	0.77	1.15	1.19	1.33	1.28				
Public Enterprise												
Illiterate	0.82	1.05	0.81	0.87	1.37	1.06	1.33	1.24	0.92	1.11	1.12	1.78
Literate without any diploma	0.65		0.68						1.19	0.97	3.64	0.00
Elementary school	0.86	1.03	0.76	1.03	1.99	1.66	2.00	1.48	1.43	1.33	1.24	1.29
Middle school	0.90	1.38	1.00	1.18	1.18		1.30		1.37	1.31	1.15	2.80
General high school	0.78	0.35	0.67	0.27	0.63	1.39	0.63	1.58	1.15	1.77	2.97	1.28
Vocational high school	0.74	0.91	0.66	0.88	1.27	1.03	1.39	1.05	1.32	1.46	1.89	2.65
Post-secondary institute	0.68	0.63	0.75	0.63	1.09	1.18	1.13	1.35	1.75	1.39	4.31	1.71
University & above	0.79	0.79	0.81	0.83	1.05	1.05	1.21	1.19	1.12	1.66	1.35	1.45
Private Sector												
Illiterate	0.68	0.66	0.90	0.82	1.67	1.71	1.75	1.92				
Literate without any diploma	0.79	0.61	0.76	0.70	2.31	3.00	2.41	2.60				
Elementary school	0.92	0.99	0.89	0.67	1.72	1.60	1.63	2.17				
Middle school	0.94	0.57	0.82	0.85	1.00	1.65	2.07	2.00				
General high school	0.51	0.82	0.66	0.41	1.64	1.01	1.57	2.54				
Vocational high school	0.67	0.65	0.81	0.91	1.83	1.87	2.44	2.17				
Post-secondary institute	0.86	1.58	0.76	2.05	2.68	1.45	4.05	1.50				
University & above	0.53	0.74	0.60	0.77	1.27	0.92	1.61	1.25				

Source: 1988 Labor Force Sample Survey and 1998 Egyptian Labor Sample Survey and IMF International Financial Statistics, for CPI; own calculation.

Notes: '-' denote small sample sizes (less than 30 observations).

All figures are averages of observations in the sample weighted by sample weights. 1988 figures are inflated to 1998 prices using the CPI (inflation factor from 1988 to 1998 is 2.45)

Table A1: cont (in 1998 L.E.)

Sector/Educational Level	Male				Female				1998/1988				Male/Female				Public/Private Hourly wage			
	Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings	
	1988	1998	1988	1998	1988	1998	1988	1998	Male	Female	Male	Female	1988	1998	1988	1998	1988	1998	1988	1998
<b>Government</b>																				
Illiterate	1.697172	1.401948	326.7238	235.3445	1.308805	0.8098211	255.3703	147.3874	0.83	0.62	0.72	0.58	1.30	1.73	1.28	1.60	0.75	0.92	0.97	0.91
Literate without any diploma	1.898357	1.268611	383.0554	249.6078	1.137467	0.9173618	236.5931	143.1085	0.67	0.81	0.65	0.60	1.67	1.38	1.62	1.74	0.84	0.71	1.17	1.54
Elementary school	2.744364	1.474332	461.9198	285.266	0.8666413	0.8228827	157.7287	171.1596	0.54	0.95	0.62	1.09	3.17	1.79	2.93	1.67	1.52	0.89	0.82	0.79
Middle school	2.407337	1.428616	548.295	302.8574	1.980894	2.864089	360.5228	446.7979	0.59	1.45	0.55	1.24	1.22	0.50	1.52	0.68	1.33	0.84	1.10	2.78
General high school	4.457012	2.777229	841.2198	560.9043	3.611005	4.022982	518.2515	627.5852	0.62	1.11	0.67	1.21	1.23	0.69	1.62	0.89	1.58	1.95	2.10	2.84
Vocational high school	2.238823	1.55662	375.5446	276.9458	1.993275	1.472046	307.9465	245.8042	0.70	0.74	0.74	0.80	1.12	1.06	1.22	1.13	0.94	0.98	1.53	1.74
Post-secondary institute	2.912878	1.849962	484.4525	347.5491	2.744364	1.880222	405.5881	299.5293	0.64	0.69	0.72	0.74	1.06	0.98	1.19	1.16	1.25	0.93	3.17	1.37
University & above	3.495453	2.664573	630.9149	466.5288	3.033244	2.234584	473.1861	365.4971	0.76	0.74	0.74	0.77	1.15	1.19	1.33	1.28				
<b>Public Enterprise</b>																				
Illiterate	2.071814	1.688624	420.6099	342.3192	1.516622	1.590907	315.4574	275.7571	0.82	1.05	0.81	0.87	1.37	1.06	1.33	1.24	0.92	1.11	1.12	1.78
Literate without any diploma	2.672144	1.737197	540.7841	369.0629	3.553229		615.8931		0.65		0.68						1.19	0.97	3.64	0.00
Elementary school	2.581869	2.217212	540.7842	411.7339	1.299962	1.337184	270.3921	278.1344	0.86	1.03	0.76	1.03	1.99	1.66	2.00	1.48	1.43	1.33	1.24	1.29
Middle school	2.465801	2.217212	491.9633	492.0839	2.084066	2.88009	379.3	449.294	0.90	1.38	1.00	1.18	1.18		1.30		1.37	1.31	1.15	2.80
General high school	3.231849	2.521384	672.2247	447.511	5.109572	1.810342	1062.791	282.4134	0.78	0.35	0.67	0.27	0.63	1.39	0.63	1.58	1.15	1.77	2.97	1.28
Vocational high school	3.126099	2.314358	668.4692	443.9452	2.455484	2.242356	480.697	423.7389	0.74	0.91	0.66	0.88	1.27	1.03	1.39	1.05	1.32	1.46	1.89	2.65
Post-secondary institute	4.062381	2.782127	769.8663	579.4466	3.734811	2.351094	679.7356	427.899	0.68	0.63	0.75	0.63	1.09	1.18	1.13	1.35	1.75	1.39	4.31	1.71
University & above	5.26175	4.165844	1055.28	855.798	5.026519	3.96747	871.2633	722.0796	0.79	0.79	0.81	0.83	1.05	1.05	1.21	1.19	1.12	1.66	1.35	1.45
<b>Private Sector</b>																				
Illiterate	2.253267	1.523857	394.3218	356.5825	1.35196	0.8914563	225.3267	185.4229	0.68	0.66	0.90	0.82	1.67	1.71	1.75	1.92				
Literate without any diploma	2.253267	1.782913	488.2079	370.8458	0.9749714	0.5943042	202.7941	142.633	0.79	0.61	0.76	0.70	2.31	3.00	2.41	2.60				
Elementary school	1.805503	1.664052	416.8544	370.8458	1.05235	1.040032	255.3703	171.1596	0.92	0.99	0.89	0.67	1.72	1.60	1.63	2.17				
Middle school	1.805503	1.698012	450.6534	370.8458	1.805503	1.028603	217.8158	185.4229	0.94	0.57	0.82	0.85	1.00	1.65	2.07	2.00				
General high school	2.816584	1.42633	702.2682	463.5573	1.718839	1.41433	446.898	182.7485	0.51	0.82	0.66	0.41	1.64	1.01	1.57	2.54				
Vocational high school	2.377073	1.584811	458.1643	370.8458	1.299962	0.8463937	187.7723	171.1596	0.67	0.65	0.81	0.91	1.83	1.87	2.44	2.17				
Post-secondary institute	2.321361	1.994867	563.3168	427.899	0.8666413	1.371471	138.9515	285.266	0.86	1.58	0.76		2.05	2.68	1.45	1.50				
University & above	4.704624	2.514364	953.8832	570.532	3.714177	2.742942	593.3604	456.4256	0.53	0.74	0.60	0.77	1.27	0.92	1.61	1.25				

Source: 1988 Labour Force Sample Survey and 1998 Egyptian Labour Sample Survey; own calculation.

Notes: All figures are averages of observations in the sample weighted by sample weights. 1988 figures are inflated to 1998 prices using the CPI. Hourly wages are in 1998 L.E./hour and quarterly earnings are the sum of wages from all primary and secondary jobs over the reference three months (in 1998 L.E./3 reference months).

**Table A2: The Distribution of Real Average Hourly Wages and Monthly Earnings Across Sectors and Levels of Education, 1998-2006**

WAGE AND EARNINGS RATIOS												
Sector/Educational Level	2006/1998				Male/Female				Public/Private Hourly wage			
	Real Hourly Wage		Real monthly Earnings		Real Hourly Wage		Real monthly Earnings		Male		Female	
	Male	Female	Male	Female	1998	2006	1998	2006	1998	2006	1998	2006
<b>Government</b>												
Illiterate	1.03	1.85	1.32	2.04	1.73	0.97	1.60	1.03	0.92	0.77	0.91	1.50
Literate without any diploma	1.20	1.12	1.32	1.50	1.38	1.48	1.74	1.54	0.71	0.76	1.54	1.43
Elementary school	1.14	3.28	1.18	1.52	1.79	0.62	1.67	1.30	0.89	0.90	0.79	3.04
Middle school	1.36	0.67	1.29	0.78	0.50	1.01	0.68	1.11	0.84	0.97	2.78	1.42
General high school	0.91	0.70	0.99	0.78	0.69	0.90	0.89	1.14	1.95	1.27	2.84	2.05
Vocational high school	1.47	1.79	1.47	1.61	1.06	0.87	1.13	1.03	0.98	1.30	1.74	3.05
Post-secondary institute	1.37	1.43	1.32	1.37	0.98	0.94	1.16	1.12	0.93	1.21	1.37	2.59
University & above	1.17	1.32	1.20	1.30	1.19	1.05	1.28	1.17				
<b>Public Enterprise</b>												
Illiterate	1.44	0.83	1.65	0.87	1.06	1.84	1.24	2.36	1.11	1.30	1.78	1.32
Literate without any diploma	1.52		1.56						0.97	1.32	0.00	0.00
Elementary school	0.81	1.76	1.14	1.54	1.66	0.76	1.48	1.10	1.33	0.96	1.29	2.64
Middle school	1.08	0.00	1.02	0.00	0.77		1.10		1.31	1.19	2.80	0.00
General high school	0.91	3.40	1.06	4.53	1.39	0.37	1.58	0.37	1.77	1.14	1.28	4.48
Vocational high school	1.11	0.98	1.26	1.14	1.03	1.17	1.05	1.15	1.46	1.46	2.65	2.54
Post-secondary institute	1.37	1.05	1.29	1.20	1.18	1.54	1.35	1.46	1.39	1.82	1.71	2.37
University & above	0.96	0.88	0.98	1.01	1.05	1.14	1.19	1.15	1.66	1.31	1.45	1.96
<b>Private Sector</b>												
Illiterate	1.23	1.12	0.99	1.08	1.71	1.88	1.92	1.77				
Literate without any diploma	1.12	1.21	1.08	1.05	3.00	2.77	2.60	2.67				
Elementary school	1.13	0.86	1.01	1.02	1.60	2.11	2.17	2.14				
Middle school	1.18	1.32	1.17	1.62	1.65	1.48	2.00	1.44				
General high school	1.40	0.97	0.91	1.82	1.01	1.46	2.54	1.26				
Vocational high school	1.11	1.02	1.01	1.17	1.87	2.03	2.17	1.88				
Post-secondary institute	1.04	0.76	1.17	0.88	1.45	2.01	1.50	2.00				
University & above	1.21	0.65	1.17	0.81	0.92	1.70	1.25	1.80				

Source: 1988 Labour Force Sample Survey and 1998 Egyptian Labour Sample Survey and 2006 Egypt labor Market Panel Survey; own calculation.

Notes: '--' denote small sample sizes (less than 30 observations).

All figures are averages of observations in the sample weighted by sample weights. 1998 figures are inflated to 2006 prices using the CPI (inflation factor from 1998 to 2006 is 1.43).



Table A2: cont (in 1998 L.E.)

Sector/Educational Level	Male				Female				2006/1998				Male/Female				Public/Private Hourly wage			
	Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings		Real Hourly Wage		Real Monthly Earnings		Male		Female	
	1998	2006	1998	2006	1998	2006	1998	2006	Male	Female	Male	Female	1998	2006	1998	2006	1998	2006	1998	2006
	1998	2006	1998	2006	1998	2006	1998	2006	Male	Female	Male	Female	1998	2006	1998	2006	1998	2006	1998	2006
<b>Government</b>																				
Illiterate	1.401948	1.448718	235.3445	310	0.8098211	1.5	147.3874	300	1.03	1.85	1.32	2.04	1.73	0.97	1.60	1.03	0.92	0.77	0.91	1.50
Illiterate without any diploma	1.268611	1.524038	249.6078	330	0.9173618	1.028846	143.1085	214	1.20	1.12	1.32	1.50	1.38	1.48	1.74	1.54	0.71	0.76	1.54	1.43
Elementary school	1.474332	1.682692	285.266	336.8333	0.8228827	2.70032	171.1596	260	1.14	3.28	1.18	1.52	1.79	0.62	1.67	1.30	0.89	0.90	0.79	3.04
Middle school	1.428616	1.942308	302.8574	390	2.864089	1.923077	446.7979	350	1.36	0.67	1.29	0.78	0.50	1.01	0.68	1.11	0.84	0.97	2.78	1.42
General high school	2.777229	2.532051	560.9043	557.5	4.022982	2.821154	627.5852	489	0.91	0.70	0.99	0.78	0.69	0.90	0.89	1.14	1.95	1.27	2.84	2.05
Vocational high school	1.55662	2.283654	276.9458	406	1.472046	2.637363	245.8042	395	1.47	1.79	1.47	1.61	1.06	0.87	1.13	1.03	0.98	1.30	1.74	3.05
Post-secondary institute	1.849962	2.527472	347.5491	460	1.880222	2.692308	299.5293	410	1.37	1.43	1.32	1.37	0.98	0.94	1.16	1.12	0.93	1.21	1.37	2.59
University & above	2.664573	3.115385	466.5288	558.3333	2.234584	2.959936	365.4971	476.6667	1.17	1.32	1.20	1.30	1.19	1.05	1.28	1.17				
<b>Public Enterprise</b>																				
Illiterate	1.688624	2.430556	342.3192	566.3333	1.590907	1.318681	275.7571	240	1.44	0.83	1.65	0.87	1.06	1.84	1.24	2.36	1.11	1.30	1.78	1.32
Literate without any diploma	1.737197	2.644231	369.0629	575					1.52		1.56						0.97	1.32	0.00	0.00
Elementary school	2.217212	1.794872	411.7339	470	1.337184	2.351648	278.1344	428	0.81	1.76	1.14	1.54	1.66	0.76	1.48	1.10	1.33	0.96	1.29	2.64
Middle school	2.217212	2.384615	492.0839	500	2.88009		449.294		1.08	0.00	1.02	0.00	0.77		1.10		1.31	1.19	2.80	0.00
General high school	2.521384	2.283654	447.511	475	1.810342	6.153846	282.4134	1280	0.91	3.40	1.06	4.53	1.39	0.37	1.58	0.37	1.77	1.14	1.28	4.48
Vocational high school	2.314358	2.569231	443.9452	560	2.242356	2.201923	423.7389	485	1.11	0.98	1.26	1.14	1.03	1.17	1.05	1.15	1.46	1.46	2.65	2.54
Post-secondary institute	2.782127	3.798077	579.4466	750	2.351094	2.465945	427.899	512.9167	1.37	1.05	1.29	1.20	1.18	1.54	1.35	1.46	1.39	1.82	1.71	2.37
University & above	4.165844	3.992308	855.798	841.6667	3.96747	3.509615	722.0796	730	0.96	0.88	0.98	1.01	1.05	1.14	1.19	1.15	1.66	1.31	1.45	1.96
<b>Private Sector</b>																				
Illiterate	1.523857	1.875	356.5825	354.6667	0.8914563	1	185.4229	200	1.23	1.12	0.99	1.08	1.71	1.88	1.92	1.77				
Literate without any diploma	1.782913	2	370.8458	400	0.5943042	0.7211539	142.633	150	1.12	1.21	1.08	1.05	3.00	2.77	2.60	2.67				
Elementary school	1.664052	1.875	370.8458	375	1.040032	0.8894231	171.1596	175	1.13	0.86	1.01	1.02	1.60	2.11	2.17	2.14				
Middle school	1.698012	2	370.8458	433.3333	1.028603	1.353276	185.4229	300	1.18	1.32	1.17	1.62	1.65	1.48	2.00	1.44				
General high school	1.42633	2	463.5573	420	1.41433	1.373626	182.7485	333.3333	1.40	0.97	0.91	1.82	1.01	1.46	2.54	1.26				
Vocational high school	1.584811	1.754808	370.8458	375	0.8463937	0.8653846	171.1596	200	1.11	1.02	1.01	1.17	1.87	2.03	2.17	1.88				
Post-secondary institute	1.994867	2.083333	427.899	500	1.371471	1.038462	285.266	250	1.04	0.76	1.17	0.88	1.45	2.01	1.50	2.00				
University & above	2.514364	3.043269	570.532	666.6667	2.742942	1.793269	456.4256	370	1.21	0.65	1.17	0.81	0.92	1.70	1.25	1.80				

Source: 1988 Labour Force Sample Survey and 1998 Egyptian Labour Sample Survey; own calculation.

Notes: All figures are averages of observations in the sample weighted by sample weights. 1988 figures are inflated to 1998 prices using the CPI. Hourly wages are in 1998 L.E./hour and quarterly earnings are the sum of wages from all primary and secondary jobs over the reference three months (in 1998 L.E./3 reference months).

**Table A3: The Distribution of Real Average Hourly Wages and Monthly Earnings By Sector of Economic Activity, 1988-1998 (2006/ L.E.)**

Sector of Economic Activity	1998/1988				Male/Female			
	Real Hourly Wage		Real monthly Earnings		Real Hourly Wage		Real monthly Earnings	
	Male	Female	Male	Female	1988	1998	1988	1998
Agriculture	0.63	0.57	0.97	0.77	1.54	1.71	1.52	1.92
Fishing	0.73	0.00	0.61	0.00	1.86	--	4.46	
Mining and Quarrying	0.86	0.00	0.86	0.00	0.31	--	0.39	1.47
Manufacturing	0.77	0.66	0.77	0.77	1.29	1.50	1.48	0.72
Electricity, Gas and Water	0.72	1.26	0.83	1.26	0.98	0.57	1.10	0.97
Construction	0.57	1.02	0.63	1.23	1.77	0.99	1.88	1.92
Wholesale and retail trade	0.72	0.59	0.66	0.54	1.36	1.67	1.57	0.87
Restaurants and Hotels	0.65	1.42	0.66	1.90	2.34	1.07	2.50	1.01
Transport Storage and Communication	0.78	0.92	0.74	0.83	0.92	0.78	1.14	1.14
Financial intermediation	0.66	1.07	0.62	1.09	1.61	1.00	1.99	1.00
Real Estate, renting and business activities	0.80	0.80	0.92	1.13	0.88	0.87	1.23	1.02
public administration and defense	0.70	0.77	0.73	0.78	0.99	0.90	1.09	1.11
Education	0.77	0.76	0.86	0.83	1.03	1.04	1.07	1.48
Health and social work	0.74	0.66	0.72	0.68	1.26	1.42	1.40	1.08
Other community, social and personal services	0.82	0.60	0.74	0.73	0.75	1.02	1.06	0.00
Private households with employed persons	0.00	1.46	0.00	1.14	0.06	0.00	0.08	0.60
International organizations and embassies	0.09	0.21	0.17	0.19	1.06	0.45	0.66	--
Sector of Economic Activity	2006/1998				Male/Female			
	Real Hourly Wage		Real monthly Earnings		Real Hourly Wage		Real monthly Earnings	
	Male	Female	Male	Female	1988.00	2006.00	1998.00	2006.00
Agriculture	1.17	1.37	0.82	0.76	1.71	1.46	1.92	2.06
Fishing	0.87	--	0.73	--	--	--	--	--
Mining and Quarrying	1.81	--	1.74	--	--	--	--	--
Manufacturing	1.15	0.88	1.13	0.92	1.50	1.97	1.47	1.81
Electricity, Gas and Water	1.29	1.69	1.27	1.04	0.57	0.43	0.72	0.87
Construction	1.30	1.99	0.91	1.74	0.99	0.64	0.97	0.51
Wholesale and retail trade	1.08	0.97	1.12	1.13	1.67	1.85	1.92	1.90
Restaurants and Hotels	1.14	0.89	1.23	0.74	1.07	1.37	0.87	1.44
Transport Storage and Communication	1.16	1.23	1.21	1.44	0.78	0.73	1.01	0.85
Financial intermediation	1.52	1.23	1.54	1.17	1.00	1.24	1.14	1.49
Real Estate, renting and business activities	0.84	0.55	0.95	0.60	0.87	1.35	1.00	1.58
public administration and defense	1.33	1.60	1.32	1.42	0.90	0.75	1.02	0.95
Education	1.34	1.40	1.37	1.42	1.04	1.00	1.11	1.08
Health and social work	1.33	1.72	1.44	1.63	1.42	1.09	1.48	1.31
Other community, social and personal services	1.13	2.38	1.21	2.09	1.02	0.48	1.08	0.62
Private households with employed persons		1.23		0.91	0.00	0.58	0.00	1.12
International organizations and embassies	6.49	0.00	9.74	0.00	0.45		0.60	

Source: 1988 Labour Force Sample Survey and 1998 Egyptian Labour Sample Survey and 2006 Egypt labor Market Panel Survey; own calculation.

Notes: '--' denote small sample sizes (less than 30 observations). All figures are averages of observations in the sample weighted by sample weights. 1998 figures are inflated to 2006 prices using the CPI (inflation factor from 1988 to 1998 is 2.45 and from 1998 to 2006 is 1.43).

**Table A4: Means and Standard Deviations of Variables by Sector and Gender, 1988**

Variable	Male						Female						Total	
	Government		Public Enterprise		Private		Government		Public Enterprise		Private			
	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.
Real Hourly Wage	3.21	3.48	3.63	3.07	2.67	3.08	2.80	1.91	3.40	3.07	1.72	1.48		
Real Monthly Earnings	554.36	483.87	708.74	484.16	588.82	739.05	418.49	230.67	596.17	493.28	316.16	373.80		
Log Real Hourly Wage	-0.60	0.69	-0.43	0.64	-0.84	0.84	-0.68	0.71	-0.65	0.95	-1.28	0.87	-4.48	4.69
Experience	19.45	11.86	20.60	11.28	18.01	16.46	10.17	8.48	11.94	8.76	14.95	13.57	15.15	12.40
Illiterate	0.13	0.33	0.19	0.39	0.33	0.47	0.04	0.19	0.07	0.25	0.60	0.49	1.35	2.13
Literate without Diploma	0.16	0.37	0.23	0.42	0.24	0.43	0.01	0.10	0.03	0.17	0.15	0.36	0.82	1.84
Elementary school	0.06	0.24	0.09	0.28	0.13	0.34	0.01	0.08	0.09	0.28	0.09	0.28	0.46	1.51
Middle School	0.05	0.21	0.10	0.30	0.12	0.33	0.02	0.12	0.06	0.23	0.07	0.25	0.40	1.44
General High school	0.04	0.20	0.04	0.20	0.06	0.23	0.02	0.14	0.07	0.25	0.03	0.16	0.26	1.19
Vocational high school	0.21	0.41	0.17	0.38	0.06	0.23	0.42	0.49	0.46	0.50	0.04	0.20	1.36	2.22
Post-secondary institute	0.09	0.29	0.03	0.17	0.01	0.12	0.18	0.39	0.03	0.17	0.01	0.09	0.35	1.22
University	0.26	0.44	0.15	0.36	0.04	0.19	0.31	0.46	0.20	0.40	0.02	0.14	0.99	2.00
Alexandria and Canal Cities	0.08	0.27	0.19	0.39	0.08	0.27	0.16	0.37	0.21	0.41	0.09	0.28	0.80	1.99
Urban Lower Egypt	0.14	0.35	0.13	0.34	0.13	0.34	0.20	0.40	0.14	0.35	0.13	0.33	0.88	2.11
Rural Lower Egypt	0.21	0.41	0.17	0.38	0.28	0.45	0.14	0.35	0.04	0.19	0.28	0.45	1.12	2.22
Urban Upper Egypt	0.18	0.38	0.05	0.21	0.09	0.29	0.16	0.37	0.02	0.14	0.10	0.30	0.60	1.69
Rural Upper Egypt	0.15	0.36	0.07	0.25	0.22	0.41	0.03	0.17	0.05	0.21	0.20	0.40	0.71	1.80
Greater Cairo	0.24	0.43	0.39	0.49	0.20	0.40	0.31	0.46	0.54	0.50	0.20	0.40	1.89	2.68
Sample Size	1135		589		1819		501		103		299		4541	

Note: With the exception of hourly wages, quarterly earnings and the experience variables, all variables in the above table are dummies, therefore the mean refers to the percentage of the relevant variable in the sample.

**Table A5: Means and Standard Deviations of Variables by Sector and Gender, 1998**

Variable	Male						Female						Total	
	Government		Public Enterprise		Private		Government		Public Enterprise		Private			
	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.
Real Hourly Wage	2.38	1.82	3.10	2.42	2.08	1.80	2.41	2.17	2.76	1.80	2.42	8.49		
Real Monthly Earnings	430.69	313.96	634.95	486.64	476.59	390.81	378.51	251.76	488.07	297.06	411.01	1283.52		
Log Real Hourly Wage	0.30	0.63	0.55	0.66	0.16	0.64	0.31	0.62	0.44	0.71	-0.19	0.92	1.57	4.18
Experience	21.06	11.98	23.25	12.12	24.02	19.10	14.43	9.74	17.16	10.66	15.65	14.62	17.42	12.80
Illiterate	0.07	0.26	0.09	0.29	0.19	0.40	0.02	0.13	0.04	0.19	0.39	0.49	0.80	1.75
Literate without Diploma	0.07	0.26	0.14	0.35	0.15	0.36	0.01	0.09	0.00	0.00	0.11	0.32	0.48	1.37
Elementary school	0.08	0.28	0.14	0.35	0.21	0.41	0.01	0.09	0.02	0.13	0.17	0.37	0.63	1.63
Middle School	0.05	0.21	0.08	0.28	0.16	0.36	0.02	0.12	0.09	0.29	0.12	0.33	0.51	1.59
General High school	0.02	0.13	0.03	0.17	0.06	0.24	0.01	0.09	0.04	0.19	0.05	0.21	0.20	1.03
Vocational high school	0.27	0.44	0.26	0.44	0.14	0.34	0.37	0.48	0.48	0.50	0.11	0.31	1.63	2.53
Post-secondary institute	0.12	0.32	0.07	0.26	0.03	0.16	0.19	0.39	0.07	0.26	0.02	0.14	0.50	1.54
University	0.32	0.47	0.18	0.39	0.06	0.24	0.38	0.49	0.27	0.45	0.03	0.17	1.24	2.19
Alexandria and Canal Cities	0.10	0.29	0.26	0.44	0.12	0.32	0.14	0.35	0.23	0.43	0.12	0.32	0.97	2.15
Urban Lower Egypt	0.17	0.38	0.13	0.33	0.15	0.36	0.21	0.41	0.13	0.33	0.15	0.36	0.94	2.17
Rural Lower Egypt	0.21	0.41	0.10	0.30	0.21	0.41	0.12	0.33	0.04	0.19	0.20	0.40	0.88	2.03
Urban Upper Egypt	0.24	0.43	0.13	0.34	0.18	0.38	0.28	0.45	0.05	0.23	0.17	0.38	1.05	2.20
Rural Upper Egypt	0.11	0.31	0.11	0.31	0.17	0.38	0.03	0.18	0.05	0.23	0.17	0.38	0.65	1.79
Greater Cairo	0.17	0.38	0.27	0.45	0.17	0.38	0.22	0.41	0.50	0.50	0.18	0.38	1.51	2.50
<b>Sample Size</b>	<b>1431</b>		<b>433</b>		<b>1924</b>		<b>762</b>		<b>56</b>		<b>215</b>		<b>4842</b>	

Note: With the exception of hourly wages, quarterly earnings and the experience variables, all variables in the above table are dummies, therefore the mean refers to the percentage of the relevant variable in the sample.

**Table A 6: Means and Standard Deviations of Variables by Sector and Gender, 2006**

Variable	Male						Female						Total	
	Government		Public Enterprise		Private		Government		Public Enterprise		Private			
	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.
Real Hourly Wage	4.33	13.06	5.28	10.81	2.70	4.84	6.36	25.85	4.72	6.26	3.05	11.51		
Real Monthly Earnings	815.23	2564.83	1076.27	2389.88	569.93	983.65	628.21	1902.35	744.05	809.27	380.72	648.00		
Log Real Hourly Wage	0.95	0.80	1.16	0.85	0.67	0.68	1.10	0.94	1.11	0.89	0.27	0.98	5.26	5.13
Experience	22.07	11.82	22.22	12.46	23.10	37.95	16.58	9.92	16.99	12.07	19.44	16.19	17.44	36.29
Illiterate	0.07	0.26	0.09	0.28	0.20	0.40	0.02	0.13	0.04	0.21	0.37	0.48	0.78	1.76
Literate without Diploma	0.05	0.22	0.08	0.27	0.14	0.34	0.01	0.09	0.00	0.00	0.10	0.30	0.37	1.22
Elementary school	0.07	0.26	0.11	0.31	0.16	0.37	0.00	0.06	0.03	0.17	0.12	0.32	0.49	1.49
Middle School	0.04	0.20	0.08	0.26	0.10	0.31	0.01	0.09	0.00	0.00	0.09	0.29	0.32	1.14
General High school	0.01	0.09	0.01	0.09	0.05	0.22	0.00	0.06	0.01	0.12	0.05	0.21	0.13	0.79
Vocational high school	0.32	0.47	0.35	0.48	0.24	0.43	0.40	0.49	0.57	0.50	0.19	0.40	2.09	2.76
Post-secondary institute	0.09	0.28	0.09	0.28	0.03	0.16	0.12	0.33	0.06	0.24	0.02	0.15	0.41	1.44
University	0.35	0.48	0.20	0.40	0.08	0.28	0.43	0.50	0.28	0.45	0.06	0.24	1.40	2.34
Alexandria and Canal Cities	0.08	0.27	0.25	0.43	0.10	0.30	0.14	0.34	0.33	0.47	0.10	0.30	0.99	2.11
Urban Lower Egypt	0.13	0.33	0.13	0.34	0.12	0.33	0.19	0.39	0.11	0.32	0.13	0.33	0.81	2.04
Rural Lower Egypt	0.27	0.44	0.18	0.38	0.26	0.44	0.18	0.39	0.11	0.32	0.25	0.44	1.25	2.41
Urban Upper Egypt	0.23	0.42	0.16	0.36	0.17	0.38	0.28	0.45	0.14	0.35	0.17	0.37	1.14	2.33
Rural Upper Egypt	0.16	0.37	0.07	0.26	0.23	0.42	0.06	0.23	0.01	0.12	0.23	0.42	0.77	1.82
Greater Cairo	0.13	0.34	0.21	0.41	0.12	0.33	0.16	0.37	0.29	0.46	0.13	0.33	1.04	2.23
<b>Sample Size</b>	<b>1950</b>		<b>491</b>		<b>3427</b>		<b>1023</b>		<b>68</b>		<b>416</b>		<b>7558</b>	

Note: With the exception of real hourly wages, log real hourly wages, monthly earnings and the experience variables, all variables in the above table are dummies, therefore the mean refers to the percentage of the relevant variable in the sample.

## Appendix : Regression Results

### Variable Definitions

lnhrwage | Log real hourly wages

-----+-----

exp | labor market experience in years

expsq | labor market experience squared

#### Levels of Education (omitted: illiterate)

level2 | Read and write

level3 | Primary

level4 | Preparatory

level5 | Blue collar secondary

level6 | White collar secondary

level7 | General secondary

level8 | Above intermediate

level8 | University

#### Regions (omitted: Greater Cairo)

alex | Alexandria

ulegypt | Urban lower Egypt

rlegyp | Rural lower Egypt

uuegypt | Urban upper Egypt

ruegypt | Rural upper Egypt

#### Sector of Ownership (omitted: private sector)

govern | Government

pub | Public Enterprise

female | Female

\_cons | constant term

-----

## 1. All Wage Workers

**round: 1988**

by round: reg lnhrwrg exp expsq level2-level8 alex ulegypt rlegypt ueegypt ruegypt govern pub  
female [aweight=expan]

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0714956	.002495	28.66	0.000	.066604	.0763871
expsq	-.0010881	.0000544	-20.00	0.000	-.0011948	-.0009814
level2	.040082	.0319371	1.26	0.210	-.0225306	.1026947
level3	.183867	.038829	4.74	0.000	.1077427	.2599913
level4	.2474196	.0450579	5.49	0.000	.1590836	.3357556
level5	.5508558	.0690968	7.97	0.000	.4153916	.68632
level6	.5041925	.0341365	14.77	0.000	.4372679	.5711171
level7	.6254162	.0496661	12.59	0.000	.5280459	.7227865
level8	.9703347	.0372667	26.04	0.000	.8972734	1.043396
alex	-.043505	.0337823	-1.29	0.198	-.1097351	.0227251
ulegypt	-.1322309	.0368734	-3.59	0.000	-.2045212	-.0599406
rlegypt	-.1618534	.0276867	-5.85	0.000	-.2161331	-.1075737
ueegypt	-.1016329	.0476927	-2.13	0.033	-.1951344	-.0081313
ruegypt	-.1103435	.0292542	-3.77	0.000	-.1676963	-.0529908
govern	-.2431876	.0267301	-9.10	0.000	-.295592	-.1907832
pub	-.0382871	.0311152	-1.23	0.219	-.0992884	.0227143
female	-.1283064	.0266149	-4.82	0.000	-.180485	-.0761279
_cons	-1.518152	.0350556	-43.31	0.000	-1.586879	-1.449426

**-> round = 1998**

(sum of wgt is 1.1339e+07)

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.051041	.0019756	25.84	0.000	.047168	.054914
expsq	-.0006775	.0000411	-16.49	0.000	-.000758	-.000597
level2	.066871	.0308375	2.17	0.030	.0064154	.1273266
level3	.1679957	.0304137	5.52	0.000	.1083708	.2276206
level4	.2673848	.0391678	6.83	0.000	.1905979	.3441717
level5	.6620626	.0686948	9.64	0.000	.5273894	.7967359
level6	.4105872	.0278122	14.76	0.000	.3560625	.4651118
level7	.6121585	.0372366	16.44	0.000	.5391577	.6851594
level8	.9143861	.0314763	29.05	0.000	.8526782	.976094
alex	-.0270429	.0312903	-0.86	0.387	-.0883863	.0343005
ulegypt	-.0769274	.0294183	-2.61	0.009	-.1346007	-.0192542
rlegypt	-.1281567	.0235552	-5.44	0.000	-.1743356	-.0819779
ueegypt	-.0999614	.0325488	-3.07	0.002	-.163772	-.0361509
ruegypt	-.1991993	.0265354	-7.51	0.000	-.2512208	-.1471779
govern	-.2747157	.0210101	-13.08	0.000	-.3159051	-.2335263
pub	.0093177	.0302928	0.31	0.758	-.05007	.0687055
female	-.0698645	.0221225	-3.16	0.002	-.1132349	-.0264942
_cons	-.52343	.0335419	-15.61	0.000	-.5891873	-.4576726

-> round = 2006

(sum of wgt is 1.3620e+07)

Source	SS	df	MS	Number of obs =	7375
-----+-----				F( 17, 7357) =	95.01
Model	882.491723	17	51.9112778	Prob > F	= 0.0000
Residual	4019.81395	7357	.546393089	R-squared	= 0.1800
-----+-----				Adj R-squared =	0.1781
Total	4902.30568	7374	.664809557	Root MSE	= .73918

lnhrwgt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
exp	.0213876	.0008774	24.38	0.000	.0196676	.0231075
expsq	-7.06e-06	3.21e-07	-21.98	0.000	-7.69e-06	-6.43e-06
level2	.0122509	.0413696	0.30	0.767	-.0688454	.0933473
level3	.1616849	.0358196	4.51	0.000	.0914682	.2319016
level4	.2596925	.0458219	5.67	0.000	.1698685	.3495165
level5	.451306	.0942069	4.79	0.000	.2666334	.6359786
level6	.3999064	.0298478	13.40	0.000	.3413961	.4584167
level7	.5913124	.0438837	13.47	0.000	.5052878	.6773371
level8	.7916247	.0344827	22.96	0.000	.7240287	.8592206
alex	-.0298659	.034681	-0.86	0.389	-.0978507	.0381189
ulegypt	-.1099655	.033887	-3.25	0.001	-.1763937	-.0435373
rlegypt	-.1093652	.0272338	-4.02	0.000	-.1627512	-.0559792
uuegypt	-.0029956	.0312577	-0.10	0.924	-.0642696	.0582783
ruegypt	-.1145286	.0301542	-3.80	0.000	-.1736394	-.0554177
govern	.0273605	.0222721	1.23	0.219	-.0162991	.0710201
pub	.2362273	.0351609	6.72	0.000	.1673019	.3051528
female	.0068827	.0235659	0.29	0.770	-.0393132	.0530786
_cons	.08948	.0382344	2.34	0.019	.0145296	.1644304
-----+-----						



## 2. All Government Workers

. by round: reg lnhrwg exp expsq level2-level8 alex ulegypt rlegypt ueegypt ruegypt female  
[aweight=expan] if govern==1

-> round = 1988

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
exp	.067771	.0038011	17.83	0.000	.0603154	.0752266
expsq	-.0008498	.0000887	-9.58	0.000	-.0010237	-.0006758
level2	.1296436	.0562288	2.31	0.021	.0193547	.2399325
level3	.3258554	.0700043	4.65	0.000	.1885468	.4631639
level4	.4118032	.0854013	4.82	0.000	.2442946	.5793118
level5	.5736635	.1024012	5.60	0.000	.3728108	.7745163
level6	.7395142	.0520984	14.19	0.000	.6373268	.8417017
level7	.8424017	.0588143	14.32	0.000	.7270415	.9577619
level8	1.123242	.052501	21.39	0.000	1.020265	1.226219
alex	-.0902557	.0466026	-1.94	0.053	-.1816635	.0011521
ulegypt	-.1592099	.0464407	-3.43	0.001	-.2503	-.0681198
rlegypt	-.3370368	.0378066	-8.91	0.000	-.4111919	-.2628818
ueegypt	-.1236106	.0512188	-2.41	0.016	-.2240727	-.0231485
ruegypt	-.3111808	.0419375	-7.42	0.000	-.3934382	-.2289234
female	-.0345359	.0330133	-1.05	0.296	-.0992891	.0302173
_cons	-1.899368	.0641915	-29.59	0.000	-2.025275	-1.773461
-----+-----						

-> round = 1998

(sum of wgt is 4.8017e+06)

Source	SS	df	MS	Number of obs =	2193
-----+-----				F( 15, 2177) =	110.30
Model	374.494536	15	24.9663024	Prob > F	= 0.0000
Residual	492.74707	2177	.226342246	R-squared	= 0.4318
-----+-----				Adj R-squared =	0.4279
Total	867.241606	2192	.395639419	Root MSE	= .47575

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
exp	.0493724	.0028807	17.14	0.000	.0437232	.0550217
expsq	-.0005135	.0000651	-7.88	0.000	-.0006412	-.0003858
level2	-.0011058	.0563309	-0.02	0.984	-.1115736	.1093621
level3	.2390275	.0555041	4.31	0.000	.1301809	.347874
level4	.3714009	.0682749	5.44	0.000	.2375101	.5052917
level5	.9550594	.1023933	9.33	0.000	.7542606	1.155858
level6	.6061601	.047518	12.76	0.000	.5129748	.6993454
level7	.7943493	.0517709	15.34	0.000	.6928239	.8958748
level8	1.082644	.0478204	22.64	0.000	.9888658	1.176422
alex	-.1002149	.0419507	-2.39	0.017	-.1824826	-.0179473
ulegypt	-.1185981	.0359334	-3.30	0.001	-.1890653	-.0481308
rlegypt	-.2049123	.0305373	-6.71	0.000	-.2647976	-.1450269
ueegypt	-.0914445	.0376176	-2.43	0.015	-.1652147	-.0176742
ruegypt	-.1769007	.03678	-4.81	0.000	-.2490282	-.1047732
female	.0283306	.0240619	1.18	0.239	-.0188561	.0755172
_cons	-.9917126	.0596426	-16.63	0.000	-1.108675	-.8747502
-----+-----						

-> round = 2006

(sum of wgt is 5.1745e+06)

Source	SS	df	MS	Number of obs = 2973
				F( 15, 2957) = 46.35
Model	430.327655	15	28.6885103	Prob > F = 0.0000
Residual	1830.28164	2957	.618965722	R-squared = 0.1904
				Adj R-squared = 0.1863
Total	2260.60929	2972	.760635698	Root MSE = .78674

lnrhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0513209	.0045449	11.29	0.000	.0424094	.0602324
expsq	-.0005342	.0001014	-5.27	0.000	-.0007331	-.0003353
level2	.0353106	.0937313	0.38	0.706	-.1484747	.2190959
level3	.3057962	.088914	3.44	0.001	.1314567	.4801358
level4	.4007234	.1036802	3.86	0.000	.1974306	.6040161
level5	1.115278	.1766843	6.31	0.000	.7688411	1.461714
level6	.7971101	.0721707	11.04	0.000	.6556002	.9386199
level7	.9568082	.0822411	11.63	0.000	.7955525	1.118064
level8	1.088587	.0735405	14.80	0.000	.9443912	1.232783
alex	-.1340326	.0631057	-2.12	0.034	-.2577682	-.010297
ulegypt	-.1568009	.0552263	-2.84	0.005	-.2650868	-.0485149
rlegypt	-.0880877	.045599	-1.93	0.053	-.1774967	.0013212
uuegypt	-.0675843	.0509737	-1.33	0.185	-.1675317	.0323632
ruegypt	-.1648299	.0528925	-3.12	0.002	-.2685398	-.06112
female	.197471	.0329065	6.00	0.000	.132949	.261993
_cons	-.5433117	.0900279	-6.03	0.000	-.7198355	-.366788

### 3. All Public-Enterprise Workers

. by round: reg lnhrwg exp expsq level2-level8 alex ulegypt rlegypt ueegypt ruegypt female  
[aweight=expan] if pub==1

-> round = 1988

(sum of wgt is 1.2215e+06)

Source	SS	df	MS	Number of obs =	692
				F( 15, 676) =	33.05
Model	144.737162	15	9.64914411	Prob > F	= 0.0000
Residual	197.385769	676	.291990782	R-squared	= 0.4231
				Adj R-squared =	0.4103
Total	342.122931	691	.495112779	Root MSE	= .54036

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0596018	.0064664	9.22	0.000	.0469052 .0722985
expsq	-.0006842	.0001479	-4.62	0.000	-.0009746 -.0003937
level2	.1532071	.0699265	2.19	0.029	.0159078 .2905064
level3	.1571612	.0865433	1.82	0.070	-.0127649 .3270872
level4	.3842561	.0920517	4.17	0.000	.2035144 .5649978
level5	.8437045	.1307431	6.45	0.000	.5869931 1.100416
level6	.7057155	.0731975	9.64	0.000	.5619938 .8494372
level7	.892291	.1273957	7.00	0.000	.6421522 1.14243
level8	1.136815	.0756087	15.04	0.000	.9883587 1.285271
alex	-.1561183	.0568753	-2.74	0.006	-.2677918 -.0444448
ulegypt	-.0968194	.0763831	-1.27	0.205	-.2467962 .0531573
rlegypt	-.2533972	.0621677	-4.08	0.000	-.3754622 -.1313322
ueegypt	-.1636668	.1495687	-1.09	0.274	-.4573418 .1300082
ruegypt	-.0808521	.07202	-1.12	0.262	-.222262 .0605578
female	-.1682507	.0611911	-2.75	0.006	-.2883982 -.0481031
_cons	-1.615357	.0922738	-17.51	0.000	-1.796535 -1.434179

-> round = 1998

(sum of wgt is 1.0445e+06)

Source	SS	df	MS	Number of obs =	489
				F( 15, 473) =	25.16
Model	91.6257054	15	6.10838036	Prob > F	= 0.0000
Residual	114.841619	473	.242794121	R-squared	= 0.4438
				Adj R-squared =	0.4261
Total	206.467325	488	.42308878	Root MSE	= .49274

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0456851	.0071938	6.35	0.000	.0315494 .0598209
expsq	-.0004722	.0001524	-3.10	0.002	-.0007716 -.0001728
level2	.1296658	.0997514	1.30	0.194	-.066345 .3256765
level3	.2755198	.1037857	2.65	0.008	.0715818 .4794578
level4	.3659281	.1152994	3.17	0.002	.1393657 .5924906

level5		.8633714	.1627835	5.30	0.000	.543503	1.18324
level6		.6179101	.0981464	6.30	0.000	.4250532	.810767
level7		.8556027	.1289723	6.63	0.000	.6021732	1.109032
level8		1.066176	.1047614	10.18	0.000	.8603206	1.272031
alex		-.0142555	.0650598	-0.22	0.827	-.1420975	.1135865
ulegypt		-.195248	.0817139	-2.39	0.017	-.3558151	-.0346809
rlegyp		-.2330647	.0741081	-3.14	0.002	-.3786866	-.0874429
uuegypt		-.0693827	.102718	-0.68	0.500	-.2712228	.1324574
ruegypt		-.2378914	.0752613	-3.16	0.002	-.3857793	-.0900036
female		-.1090147	.0718605	-1.52	0.130	-.25022	.0321907
_cons		-.6319577	.1257385	-5.03	0.000	-.8790328	-.3848826

---

**-> round = 2006**

(sum of wgt is 1.0098e+06)

Source		SS	df	MS	Number of obs =	559
					F( 15, 543) =	6.94
Model		62.8994504	15	4.19329669	Prob > F =	0.0000
Residual		328.089623	543	.604216617	R-squared =	0.1609
					Adj R-squared =	0.1377
Total		390.989073	558	.700697264	Root MSE =	.77731

---

lnhrwrg		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
<hr/>						
exp		.0401432	.0104499	3.84	0.000	.0196161 .0606704
expsq		-.0004538	.0002259	-2.01	0.045	-.0008977 -.9.99e-06
level2		.1491671	.1656185	0.90	0.368	-.1761644 .4744986
level3		-.0195624	.1598475	-0.12	0.903	-.3335576 .2944328
level4		.3179165	.1811483	1.76	0.080	-.0379209 .6737538
level5		.188783	.3736015	0.51	0.614	-.5450982 .9226641
level6		.354549	.1460562	2.43	0.016	.0676446 .6414534
level7		.6015023	.1836203	3.28	0.001	.2408091 .9621954
level8		.8367936	.1564186	5.35	0.000	.5295339 1.144053
alex		-.0678736	.1001164	-0.68	0.498	-.2645365 .1287893
ulegypt		-.1045202	.123025	-0.85	0.396	-.3461834 .1371431
rlegyp		-.1970301	.1037433	-1.90	0.058	-.4008174 .0067572
uuegypt		-.0428934	.1100951	-0.39	0.697	-.2591579 .1733711
ruegypt		-.2955645	.1374785	-2.15	0.032	-.5656194 -.0255097
female		-.099787	.1092066	-0.91	0.361	-.3143061 .1147322
_cons		.268876	.1828102	1.47	0.142	-.0902258 .6279777

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#### 4. All Private Sector Workers

.. by round: reg lnhrwg exp expsq level2-level8 alex ulegypt rlegypt uuegypt ruegypt female [aweight=expan]  
if priv==1

-> round = 1988

(sum of wgt is 3.9044e+06)

Source	SS	df	MS	Number of obs =	2118
				F( 15, 2102) =	45.20
Model	359.644489	15	23.9762993	Prob > F	= 0.0000
Residual	1114.96116	2102	.530428717	R-squared	= 0.2439
				Adj R-squared =	0.2385
Total	1474.60565	2117	.696554394	Root MSE	= .72831

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0697351	.0037533	18.58	0.000	.0623745 .0770956
expsq	-.0011447	.0000782	-14.64	0.000	-.001298 -.0009914
level2	.0087258	.0466941	0.19	0.852	-.0828457 .1002973
level3	.1388327	.0566999	2.45	0.014	.0276389 .2500264
level4	.1877355	.0654572	2.87	0.004	.0593678 .3161031
level5	.5117367	.1135881	4.51	0.000	.2889799 .7344935
level6	.3206187	.0581046	5.52	0.000	.2066702 .4345673
level7	.2656982	.1252819	2.12	0.034	.0200087 .5113877
level8	.9539998	.075326	12.66	0.000	.8062786 1.101721
alex	.0637594	.0606132	1.05	0.293	-.0551088 .1826275
ulegypt	-.1750742	.06501	-2.69	0.007	-.3025649 -.0475834
rlegypt	-.0204565	.0450924	-0.45	0.650	-.108887 .067974
uuegypt	-.168106	.0926357	-1.81	0.070	-.3497732 .0135612
ruegypt	.0072035	.0455652	0.16	0.874	-.0821542 .0965611
female	-.3175578	.0476556	-6.66	0.000	-.4110148 -.2241008
_cons	-1.474506	.0545431	-27.03	0.000	-1.58147 -1.367542

-> round = 1998

(sum of wgt is 5.4924e+06)

Source	SS	df	MS	Number of obs =	2139
				F( 15, 2123) =	45.47
Model	246.849082	15	16.4566055	Prob > F	= 0.0000
Residual	768.419353	2123	.361949766	R-squared	= 0.2431
				Adj R-squared =	0.2378
Total	1015.26844	2138	.474868305	Root MSE	= .60162

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.046404	.0029906	15.52	0.000	.0405393 .0522687
expsq	-.0006581	.0000595	-11.05	0.000	-.0007749 -.0005414
level2	.1138742	.04336	2.63	0.009	.0288417 .1989066
level3	.1237162	.0426514	2.90	0.004	.0400732 .2073591
level4	.213332	.0565656	3.77	0.000	.1024022 .3242617
level5	.442674	.1097679	4.03	0.000	.2274101 .6579379
level6	.2806063	.0417255	6.73	0.000	.1987793 .3624334
level7	.4346145	.0761963	5.70	0.000	.2851873 .5840416
level8	.8422397	.0573643	14.68	0.000	.7297435 .9547358
alex	-.0044797	.0549443	-0.08	0.935	-.11223 .1032706
ulegypt	-.0595259	.0525379	-1.13	0.257	-.1625569 .0435051

rlegypt		-.0634674	.0387872	-1.64	0.102	-.1395324	.0125975
uuegypt		-.185191	.0615626	-3.01	0.003	-.3059204	-.0644616
ruegypt		-.2103297	.0421517	-4.99	0.000	-.2929926	-.1276669
female		-.3016636	.0460024	-6.56	0.000	-.391878	-.2114492
_cons		-.4102624	.0520693	-7.88	0.000	-.5123746	-.3081502

-> round = 2006

(sum of wgt is 7.4354e+06)

Source		SS	df	MS	Number of obs =	3843
					F( 15, 3827) =	44.73
Model		297.829918	15	19.8553279	Prob > F =	0.0000
Residual		1698.82358	3827	.443904775	R-squared =	0.1492
					Adj R-squared =	0.1458
Total		1996.65349	3842	.519691175	Root MSE =	.66626

lnhrwgt		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp		.0161027	.0011026	14.60	0.000	.0139409 .0182645
expsq		-5.30e-06	3.87e-07	-13.71	0.000	-6.06e-06 -4.54e-06
level2		.0311561	.0456179	0.68	0.495	-.0582817 .1205939
level3		.1060995	.0381792	2.78	0.005	.0312459 .1809531
level4		.1769837	.0512752	3.45	0.001	.0764543 .2775131
level5		.1934441	.1112687	1.74	0.082	-.0247075 .4115957
level6		.1791696	.0330134	5.43	0.000	.114444 .2438952
level7		.2763309	.0628931	4.39	0.000	.1530237 .3996382
level8		.7252341	.0427004	16.98	0.000	.6415164 .8089518
alex		.0131988	.0435463	0.30	0.762	-.0721774 .0985751
ulegypt		-.1313322	.0440497	-2.98	0.003	-.2176953 -.0449691
rlegypt		-.1254593	.0343897	-3.65	0.000	-.1928833 -.0580353
uuegypt		.0262471	.0407605	0.64	0.520	-.0536672 .1061615
ruegypt		-.0762225	.0366611	-2.08	0.038	-.1480997 -.0043452
female		-.3387471	.0356344	-9.51	0.000	-.4086113 -.2688828
_cons		.2997476	.0452618	6.62	0.000	.211008 .3884873

## 5. Males 1988

### Government

. reg lnhrwrg exp expsq level2-level8 alex ulegypt rlegypt uegypt ruegypt [aweight=expan] if msector==1&round==1988  
(sum of wgt is 1.9080e+06)

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0587405	.0047263	12.43	0.000	.0494671 .0680139
expsq	-.000677	.0001029	-6.58	0.000	-.0008789 -.0004751
level2	.1300114	.0585073	2.22	0.026	.0152152 .2448075
level3	.3315268	.073108	4.53	0.000	.1880827 .4749708
level4	.4272711	.093419	4.57	0.000	.2439751 .610567
level5	.5352976	.109921	4.87	0.000	.3196234 .7509718
level6	.7332908	.0593207	12.36	0.000	.6168987 .849683
level7	.8450942	.0708949	11.92	0.000	.7059925 .984196
level8	1.089688	.0590277	18.46	0.000	.9738706 1.205505
alex	-.126931	.0625932	-2.03	0.043	-.2497442 -.0041179
ulegypt	-.2390909	.0599029	-3.99	0.000	-.3566254 -.1215564
rlegypt	-.3955494	.0456132	-8.67	0.000	-.4850462 -.3060525
uegypt	-.1902247	.0619166	-3.07	0.002	-.3117103 -.068739
ruegypt	-.3506862	.0470524	-7.45	0.000	-.443007 -.2583653
_cons	-1.764038	.0765479	-23.04	0.000	-1.914231 -1.613845

### Public enterprises

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0443333	.0067432	6.57	0.000	.031089 .0575775
expsq	-.0003971	.0001485	-2.67	0.008	-.0006887 -.0001055
level2	.151341	.0651606	2.32	0.021	.0233587 .2793233
level3	.1483609	.0833868	1.78	0.076	-.0154195 .3121414
level4	.3144047	.0883382	3.56	0.000	.1408991 .4879103
level5	.7115867	.1375992	5.17	0.000	.4413273 .981846
level6	.6737854	.0720272	9.35	0.000	.5323164 .8152544
level7	.8643864	.1261331	6.85	0.000	.6166477 1.112125
level8	1.145887	.0738584	15.51	0.000	1.000821 1.290952
alex	-.1722928	.0571971	-3.01	0.003	-.2846339 -.0599516
ulegypt	-.0980322	.0766855	-1.28	0.202	-.2486506 .0525862
rlegypt	-.2480018	.0592447	-4.19	0.000	-.3643647 -.131639
uegypt	-.1321096	.1416497	-0.93	0.351	-.4103245 .1461053
ruegypt	-.0476193	.0706903	-0.67	0.501	-.1864624 .0912238
_cons	-1.445337	.092845	-15.57	0.000	-1.627695 -1.26298

### Private sector

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0715666	.0040204	17.80	0.000	.0636816 .0794517
expsq	-.0011708	.0000827	-14.16	0.000	-.0013329 -.0010086
level2	.0076524	.0487026	0.16	0.875	-.087867 .1031717
level3	.1584286	.0594765	2.66	0.008	.0417786 .2750786
level4	.1857377	.0686398	2.71	0.007	.0511159 .3203595
level5	.4834624	.1215264	3.98	0.000	.2451152 .7218096
level6	.3825296	.0634648	6.03	0.000	.2580574 .5070017
level7	.4060848	.136321	2.98	0.003	.1387211 .6734485
level8	.8938463	.0869093	10.28	0.000	.7233928 1.0643
alex	.1115306	.0668192	1.67	0.095	-.0195206 .2425818
ulegypt	-.153427	.0690174	-2.22	0.026	-.2887895 -.0180645
rlegypt	.0003129	.0490427	0.01	0.995	-.0958736 .0964993
uegypt	-.1071661	.0958942	-1.12	0.264	-.2952415 .0809093
ruegypt	.0162877	.0482935	0.34	0.736	-.0784294 .1110048
_cons	-1.513506	.0582601	-25.98	0.000	-1.62777 -1.399242

## 6. Females 1988

### government

```
. reg lnhrwg exp expsq level2-level8 alex ulegypt rlegypt ueegypt ruegypt [aweight=expan] if fsector==1&round==1988
(sum of wgt is 8.0794e+05)
```

Source	SS	df	MS	Number of obs = 501	
				F( 14, 486) = 34.35	
Model	132.861227	14	9.49008762	Prob > F	= 0.0000
Residual	134.26751	486	.276270597	R-squared	= 0.4974
				Adj R-squared	= 0.4829
Total	267.128737	500	.534257473	Root MSE	= .52561

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0938091	.0086427	10.85	0.000	.0768273	.1107908
expsq	-.0015684	.0002834	-5.53	0.000	-.0021252	-.0010117
level2	.3254291	.2960554	1.10	0.272	-.2562775	.9071357
level3	.3182521	.2872295	1.11	0.268	-.2461129	.8826171
level4	.3757324	.2180428	1.72	0.085	-.0526905	.8041553
level5	.8294877	.2924512	2.84	0.005	.2548629	1.404113
level6	.7372752	.1308182	5.64	0.000	.4802362	.9943142
level7	.8213559	.1369536	6.00	0.000	.5522616	1.09045
level8	1.157431	.1328416	8.71	0.000	.8964163	1.418446
alex	-.0478401	.0690826	-0.69	0.489	-.1835775	.0878973
ulegypt	-.0458232	.0726616	-0.63	0.529	-.1885929	.0969465
rlegypt	-.2019381	.0681854	-2.96	0.003	-.3359127	-.0679634
ueegypt	.0129049	.091249	0.14	0.888	-.1663863	.1921962
ruegypt	-.3092396	.1168707	-2.65	0.008	-.5388738	-.0796054
_cons	-2.141639	.1373238	-15.60	0.000	-2.411461	-1.871818

### public enterprises

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.1131653	.0302913	3.74	0.000	.0529677	.1733629
expsq	-.0016594	.0010463	-1.59	0.116	-.0037387	.0004198
level2	.4204783	.5425387	0.78	0.440	-.6577033	1.49866
level3	.2648529	.4104125	0.65	0.520	-.5507557	1.080462
level4	.8687407	.4479783	1.94	0.056	-.021522	1.759003
level5	1.060589	.4322664	2.45	0.016	.2015506	1.919628
level6	.7998039	.337704	2.37	0.020	.1286882	1.47092
level7	.6138466	.5051773	1.22	0.228	-.3900872	1.61778
level8	.9019815	.3547432	2.54	0.013	.1970039	1.606959
alex	-.0226647	.1906551	-0.12	0.906	-.4015516	.3562223
ulegypt	-.0089745	.2568265	-0.03	0.972	-.5193633	.5014143
rlegypt	-.096937	.3419401	-0.28	0.777	-.776471	.582597
ueegypt	-.6261108	.7995138	-0.78	0.436	-2.214977	.9627548
ruegypt	-.2969735	.2956772	-1.00	0.318	-.8845698	.2906228
_cons	-2.269998	.3614604	-6.28	0.000	-2.988324	-1.551671

### Private sector

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0556848	.0112854	4.93	0.000	.0334711	.0778985
expsq	-.0008888	.0002673	-3.33	0.001	-.0014149	-.0003627
level2	-.0175524	.1710329	-0.10	0.918	-.3542053	.3191005
level3	-.0387247	.1915116	-0.20	0.840	-.415687	.3382375
level4	.2854876	.220899	1.29	0.197	-.1493193	.7202945
level5	.7456778	.3154084	2.36	0.019	.1248431	1.366513
level6	-.0144928	.1447287	-0.10	0.920	-.2993699	.2703843
level7	-.5578555	.3186749	-1.75	0.081	-1.18512	.0694089
level8	1.088025	.1537864	7.07	0.000	.7853198	1.390731
alex	-.2221029	.1464197	-1.52	0.130	-.5103084	.0661025
ulegypt	-.196478	.1970178	-1.00	0.319	-.5842784	.1913224
rlegypt	-.1404754	.1169769	-1.20	0.231	-.3707271	.0897764
ueegypt	-.8928602	.3645562	-2.45	0.015	-1.610435	-.1752852
ruegypt	-.0437484	.1406079	-0.31	0.756	-.3205142	.2330174
_cons	-1.57838	.1226689	-12.87	0.000	-1.819836	-1.336925



## 7. Males 1998

### Government

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.039249	.0037191	10.55	0.000	.0319536	.0465445
expsq	-.0003498	.000079	-4.43	0.000	-.0005047	-.0001948
level2	-.008774	.061248	-0.14	0.886	-.1289206	.1113727
level3	.2343015	.0605467	3.87	0.000	.1155307	.3530724
level4	.3239326	.0767515	4.22	0.000	.1733738	.4744914
level5	.7890233	.1254687	6.29	0.000	.5428989	1.035148
level6	.5813572	.0551573	10.54	0.000	.4731584	.6895559
level7	.74995	.0633969	11.83	0.000	.6255881	.874312
level8	1.074914	.0554088	19.40	0.000	.9662218	1.183606
alex	-.0345199	.0586982	-0.59	0.557	-.1496647	.0806249
ulegypt	-.1642972	.0480421	-3.42	0.001	-.2585385	-.0700559
rlegyp	-.2001164	.0387847	-5.16	0.000	-.276198	-.1240348
uuegypt	-.0869102	.0499398	-1.74	0.082	-.1848741	.0110538
ruegypt	-.1938535	.0447115	-4.34	0.000	-.2815614	-.1061455
_cons	-.8514981	.073017	-11.66	0.000	-.9947312	-.7082649

### Public enterprises

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.041168	.0078562	5.24	0.000	.0257253	.0566107
expsq	-.0004103	.0001637	-2.51	0.013	-.000732	-.0000886
level2	.1657966	.1018974	1.63	0.104	-.0344986	.3660917
level3	.3021709	.1066192	2.83	0.005	.0925943	.5117475
level4	.3652389	.1218322	3.00	0.003	.1257587	.604719
level5	.8971383	.1715453	5.23	0.000	.5599393	1.234337
level6	.6576317	.1032441	6.37	0.000	.4546894	.860574
level7	.8319097	.1365685	6.09	0.000	.563463	1.100356
level8	1.083363	.1099829	9.85	0.000	.8671749	1.299552
alex	.0454007	.0703615	0.65	0.519	-.0929057	.1837071
ulegypt	-.1639545	.0877664	-1.87	0.062	-.3364729	.0085639
rlegyp	-.2157858	.0772397	-2.79	0.005	-.3676125	-.0639591
uuegypt	-.0423565	.1062986	-0.40	0.690	-.2513029	.1665899
ruegypt	-.2243317	.0787518	-2.85	0.005	-.3791306	-.0695328
_cons	-.6152587	.1349488	-4.56	0.000	-.8805216	-.3499959

### Private sector

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0451218	.0030544	14.77	0.000	.0391316	.051112
expsq	-.0006356	.00006	-10.59	0.000	-.0007533	-.0005178
level2	.1374981	.0436036	3.15	0.002	.0519825	.2230138
level3	.1222564	.0430246	2.84	0.005	.0378762	.2066367
level4	.2230161	.0562159	3.97	0.000	.112765	.3332671
level5	.3937384	.1109556	3.55	0.000	.1761315	.6113454
level6	.2987071	.0431462	6.92	0.000	.2140885	.3833257
level7	.4399688	.0809651	5.43	0.000	.2811795	.5987581
level8	.7685202	.0617267	12.45	0.000	.6474613	.8895791
alex	.0060216	.0567167	0.11	0.915	-.1052117	.1172549
ulegypt	-.0277718	.0544741	-0.51	0.610	-.1346068	.0790631
rlegyp	-.0362189	.0400347	-0.90	0.366	-.1147352	.0422974
uuegypt	-.1450944	.0628814	-2.31	0.021	-.2684179	-.0217709
ruegypt	-.1740523	.0431265	-4.04	0.000	-.2586323	-.0894723
_cons	-.424954	.0535318	-7.94	0.000	-.5299411	-.319967

## 7. Females 1998

. reg lnhrwg exp expsq level2-level8 alex ulegypt rlegypt uegypt ruegypt [aweight=expan] if  
fsector==1 & round==1998  
(sum of wgt is 1.4793e+06)

### government

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0607155	.0053529	11.34	0.000	.050207 .0712241
expsq	-.0005902	.0001538	-3.84	0.000	-.0008921 -.0002884
level2	.2383169	.2059902	1.16	0.248	-.1660718 .6427055
level3	.2024409	.1948469	1.04	0.299	-.1800718 .5849537
level4	.4392592	.1751461	2.51	0.012	.0954221 .7830964
level5	1.22765	.189279	6.49	0.000	.856068 1.599232
level6	.5640068	.1132065	4.98	0.000	.3417661 .7862475
level7	.7616261	.1157205	6.58	0.000	.53445 .9888022
level8	1.019972	.113367	9.00	0.000	.7974161 1.242528
alex	-.1555914	.0558477	-2.79	0.005	-.2652286 -.0459542
ulegypt	-.0275361	.0508885	-0.54	0.589	-.1274375 .0723653
rlegypt	-.1758371	.0498431	-3.53	0.000	-.2736864 -.0779878
uegypt	-.093729	.0537983	-1.74	0.082	-.1993429 .0118848
ruegypt	-.0405421	.0713259	-0.57	0.570	-.1805651 .099481
_cons	-1.083634	.1200345	-9.03	0.000	-1.319279 -.8479886

### public enterprise

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0559588	.019621	2.85	0.007	.016362 .0955555
expsq	-.0003082	.0004854	-0.63	0.529	-.0012879 .0006714
level2	(dropped)				
level3	-.719492	.7368412	-0.98	0.334	-2.206498 .7675138
level4	-.5542572	.4180246	-1.33	0.192	-1.397865 .2893505
level5	-.1760525	.585154	-0.30	0.765	-1.356941 1.004836
level6	-.3433362	.3616424	-0.95	0.348	-1.07316 .3864876
level7	.1792571	.4390085	0.41	0.685	-.706698 1.065212
level8	.2261539	.3826591	0.59	0.558	-.5460834 .9983912
alex	-.3102168	.1740226	-1.78	0.082	-.6614087 .0409751
ulegypt	-.2929503	.238088	-1.23	0.225	-.7734313 .1875308
rlegypt	-.1689625	.5956679	-0.28	0.778	-1.371069 1.033144
uegypt	.0778551	.4086122	0.19	0.850	-.7467577 .9024679
ruegypt	-.2716785	.2842817	-0.96	0.345	-.8453822 .3020252
_cons	-.0834734	.3934473	-0.21	0.833	-.8774822 .7105355

### Private sector

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
exp	.0605802	.0130311	4.65	0.000	.0348842 .0862762
expsq	-.0010614	.0003227	-3.29	0.001	-.0016977 -.0004251
level2	-.4140318	.2141837	-1.93	0.055	-.8363797 .0083162
level3	.1234511	.2036683	0.61	0.545	-.2781617 .5250639
level4	-.1469346	.4092178	-0.36	0.720	-.9538696 .6600004
level5	1.006578	.4860861	2.07	0.040	.0480666 1.965089
level6	.0543275	.1477657	0.37	0.714	-.2370511 .3457061
level7	.2649007	.2328316	1.14	0.257	-.194219 .7240204
level8	.9609771	.169167	5.68	0.000	.6273974 1.294557
alex	-.0186001	.2039944	-0.09	0.927	-.420856 .3836557
ulegypt	-.2749955	.1837603	-1.50	0.136	-.6373518 .0873608
rlegypt	-.2943666	.145361	-2.03	0.044	-.5810034 -.0077298
uegypt	-.5506582	.2475129	-2.22	0.027	-1.038728 -.0625884
ruegypt	-.5963272	.1725043	-3.46	0.001	-.9364878 -.2561666
_cons	-.5344404	.1556667	-3.43	0.001	-.8413989 -.2274819

## 8. Males 2006

### Government

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0368497	.0051028	7.22	0.000	.0268422	.0468572
expsq	-.0002802	.0001072	-2.61	0.009	-.0004905	-.0000699
level2	.051774	.0874596	0.59	0.554	-.1197509	.2232989
level3	.2948697	.0828183	3.56	0.000	.1324472	.4572921
level4	.3648965	.0975439	3.74	0.000	.1735943	.5561987
level5	1.121934	.1714969	6.54	0.000	.7855955	1.458272
level6	.6887837	.0712019	9.67	0.000	.5491432	.8284242
level7	.9258488	.085423	10.84	0.000	.758318	1.09338
level8	1.099832	.0726563	15.14	0.000	.957339	1.242325
alex	-.0150029	.077092	-0.19	0.846	-.166195	.1361892
ulegypt	-.1834502	.0646786	-2.84	0.005	-.3102973	-.056603
rlegyp	-.3107843	.050479	-6.16	0.000	-.4097834	-.2117853
uuegypt	-.0824986	.0586359	-1.41	0.160	-.1974949	.0324977
ruegypt	-.2484452	.0556796	-4.46	0.000	-.3576436	-.1392469
_cons	-.2551034	.0938988	-2.72	0.007	-.4392569	-.07095

### Public enterprises

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0405175	.0113775	3.56	0.000	.0181611	.0628739
expsq	-.0004735	.0002423	-1.95	0.051	-.0009495	2.51e-06
level2	.1332886	.1702176	0.78	0.434	-.2011822	.4677594
level3	-.0442697	.1656057	-0.27	0.789	-.3696782	.2811389
level4	.293258	.1878052	1.56	0.119	-.0757718	.6622879
level5	.0305347	.4084532	0.07	0.940	-.7720596	.833129
level6	.3182507	.1558377	2.04	0.042	.0120358	.6244655
level7	.5840625	.1937307	3.01	0.003	.2033894	.9647355
level8	.7929427	.1665167	4.76	0.000	.465744	1.120141
alex	-.0210258	.109473	-0.19	0.848	-.2361358	.1940843
ulegypt	-.07361	.1324674	-0.56	0.579	-.3339032	.1866833
rlegyp	-.2429617	.1090098	-2.23	0.026	-.4571616	-.0287618
uuegypt	-.0612508	.1182995	-0.52	0.605	-.2937046	.1712029
ruegypt	-.2953809	.1424531	-2.07	0.039	-.5752954	-.0154663
_cons	.304433	.1950332	1.56	0.119	-.0787995	.6876655

### Private sector

lnhrwg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0152105	.0010754	14.14	0.000	.013102	.0173189
expsq	-5.00e-06	3.75e-07	-13.32	0.000	-5.74e-06	-4.27e-06
level2	.0757017	.0445591	1.70	0.089	-.0116634	.1630669
level3	.0991934	.0373335	2.66	0.008	.0259951	.1723916
level4	.182295	.0497104	3.67	0.000	.0848299	.2797601
level5	.2169153	.1125023	1.93	0.054	-.0036633	.437494
level6	.1972782	.0328389	6.01	0.000	.1328924	.2616641
level7	.3127129	.0630911	4.96	0.000	.1890128	.436413
level8	.7398893	.0436587	16.95	0.000	.6542894	.8254891
alex	.0400311	.0442989	0.90	0.366	-.0468239	.1268861
ulegypt	-.0739485	.0444955	-1.66	0.097	-.1611891	.013292
rlegyp	-.1153525	.0347388	-3.32	0.001	-.1834634	-.0472415
uuegypt	-.0069916	.0409781	-0.17	0.865	-.0873358	.0733525
ruegypt	-.0673104	.0362465	-1.86	0.063	-.1383773	.0037566
_cons	.2916086	.0448004	6.51	0.000	.2037703	.379447

## 8. Females 2006

### government

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0771364	.010572	7.30	0.000	.0563908	.0978821
expsq	-.0009657	.0002889	-3.34	0.001	-.0015325	-.0003989
level2	-.2522796	.3794443	-0.66	0.506	-.9968708	.4923115
level3	.6349779	.5035836	1.26	0.208	-.3532142	1.62317
level4	.342155	.4034033	0.85	0.397	-.4494515	1.133761
level5	.7320954	.5218591	1.40	0.161	-.2919593	1.75615
level6	.8395991	.2169912	3.87	0.000	.4137928	1.265405
level7	.8271684	.2262945	3.66	0.000	.383106	1.271231
level8	1.014009	.2185562	4.64	0.000	.5851314	1.442886
alex	-.1713958	.1041941	-1.64	0.100	-.375858	.0330664
ulegypt	-.0976385	.0957678	-1.02	0.308	-.2855655	.0902886
rlegyp	.4543512	.0897007	5.07	0.000	.2783297	.6303727
uegypt	-.0239902	.0905266	-0.27	0.791	-.2016323	.1536519
ruegypt	.0293903	.1251678	0.23	0.814	-.216229	.2750096
_cons	-.748756	.2396903	-3.12	0.002	-1.219105	-.2784068

### public enterprise

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0365027	.031209	1.17	0.247	-.0260415	.0990469
expsq	-.0002032	.0008053	-0.25	0.802	-.001817	.0014106
level2	(dropped)					
level3	1.301795	.7348339	1.77	0.082	-.1708447	2.774435
level4	(dropped)					
level5	1.901794	.9877759	1.93	0.059	-.0777531	3.881341
level6	1.158065	.4984774	2.32	0.024	.1590937	2.157036
level7	1.146261	.6723392	1.70	0.094	-.2011373	2.493658
level8	1.803361	.5412883	3.33	0.002	.718595	2.888127
alex	-.2957493	.2401972	-1.23	0.223	-.7771152	.1856166
ulegypt	-.378674	.3525664	-1.07	0.287	-1.085233	.3278849
rlegyp	.9061803	.3811256	2.38	0.021	.1423875	1.669973
uegypt	.1576672	.2974844	0.53	0.598	-.4385049	.7538394
ruegypt	-.2929019	.6258437	-0.47	0.642	-1.547121	.961317
_cons	-.7567908	.6113367	-1.24	0.221	-1.981937	.4683552

### Private Sector

lnhrwrg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
exp	.0463189	.0155688	2.98	0.003	.0157123	.0769255
expsq	-.000522	.0004438	-1.18	0.240	-.0013945	.0003504
level2	-.4740147	.2257043	-2.10	0.036	-.9177262	-.0303032
level3	.1803263	.1932266	0.93	0.351	-.1995375	.56019
level4	.2748246	.2842922	0.97	0.334	-.2840647	.8337138
level5	-.0042067	.4106983	-0.01	0.992	-.8115973	.803184
level6	.0569846	.1386313	0.41	0.681	-.2155504	.3295195
level7	.0384984	.2453707	0.16	0.875	-.4438753	.5208721
level8	.6519901	.1558318	4.18	0.000	.3456408	.9583395
alex	-.1194162	.1562828	-0.76	0.445	-.4266522	.1878198
ulegypt	-.4774538	.1654359	-2.89	0.004	-.8026839	-.1522237
rlegyp	-.1884963	.1326506	-1.42	0.156	-.4492738	.0722812
uegypt	.317532	.1637901	1.94	0.053	-.0044626	.6395265
ruegypt	-.0066538	.1923689	-0.03	0.972	-.3848314	.3715237
_cons	-.1006524	.1780757	-0.57	0.572	-.4507311	.2494262