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The Effects of Structural Adjustment on Youth Unemployment in Egypt

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Abstract

The persistence of high unemployment rates in recent years has become a major problem in many MENA countries, especially in Egypt. The aim of this paper is to examine the effects of economic reforms in Egypt on youth unemployment. The paper investigates the extent to which reforms in the early 1990s have led to higher unemployment among the youth in Egypt. The paper presents new evidence on the incidence of youth unemployment before and after the structural adjustment period, in 1988 and 1998. In addition, it examines the determinants of unemployment duration and the probability of exiting unemployment by estimating hazard functions for exits to public sector and private sector employment. The main findings of the paper show that the incidence of youth unemployment has increased during the 1990s. In addition, the empirical evidence suggests that youth unemployment is the result of not only queuing for public sector jobs, but also and more importantly the limited role played by the private sector in job creation and labor absorption.

1. Introduction

The persistence of high unemployment rates in recent years has become a major problem in many MENA countries, especially in Egypt. According to The World Bank Report (2003), Egypt has experienced a rise in unemployment rate from 5.8 percent in 1988 to 8.3 percent 1998. Although most age-groups have witnessed high unemployment over this period, young adults have faired worse than the rest. Youth unemployment in Egypt rose from 11 percent in 1988 to 18 percent in 1998. In addition, youth unemployment is concentrated among those with intermediate and higher levels of education.

According to the ILO, more recently, in 2004, youth unemployment was around 24 per cent in MENA, the highest in the world.[1] Unemployment rates among the 15-24 age groups are more than the national average in most countries of the region. It is not surprising, that this is a major concern. Youth unemployment is particularly costly because most of human capital investment takes place in early working years as suggested by the human capital theory. In addition, long periods of unemployment lead to discouraged workers, scarring effects, social alienation and other societal problems. Employers, on the other hand, might use employment and unemployment history as a signal to sort out those with shorter or no periods of unemployment, who are potentially more productive, than the unemployed. Thus, the persistence of unemployment in particular among the youth is an important social and economic issue.

The aim of this paper is to examine the effects of economic reforms in Egypt on youth unemployment. The paper will investigate the extent to which reforms, in early 1990s, have led to higher unemployment among the youth. The paper will present new evidence on the incidence of youth unemployment in Egypt before and after the structural adjustment period, in 1988 and 1998. In addition, it will examine the determinants of unemployment duration and the probability of exiting unemployment to public sector and private sector employment.

[1] ILO, Global Employment Trends 2005.

The paper aims to answer the following questions:

1) What are the characteristics of workers with the highest risk of unemployment? What are the characteristics of the unemployed youth (15-29 years old)?
2) Are the youth more likely to be unemployed after reforms i.e. in 1998 compared to 1988?
3) Are the youth more likely to be unemployed for longer durations after reforms? What is the effect of reforms on unemployment duration of the youth?
4) What is the hazard rate for exiting unemployment to different employment sectors among the youth?

The structure of the paper is as follows. Section 2 provides a background on the pattern and trends of unemployment in Egypt. Section 3 reviews the previous literature on unemployment, while section 4 examines to what extent unemployment has increased as a result of structural reforms by examining the probability of unemployment in 1998 compared to that of 1988. Section 5 extends the analysis by studying the determinants of unemployment duration by estimating the hazard rate of exiting unemployment to public and private sectors of employment. Section 6 concludes by summarizing the main findings of the paper and discussing policy implications.

2. The Trends and Patterns of Unemployment in Egypt

According to the ILO estimates, the MENA region has had one of the highest unemployment rates among the developing regions in the 1990s as seen in Figure 1. In addition, an important characteristic of unemployment in MENA has been its young face. In 2004, youth unemployment rate in MENA was around 24 per cent, the highest in the world- Figure 2.[2] Egypt in particular, being the most populated country in the region, has witnessed an increase in both unemployment rates and in the numbers of unemployed individuals. In 2003, unemployment rate was almost 11 percent.[3] However, unemployment rates are higher among women than men: male

[2] ILO, World Employment Report 2004-05.
[3] ILO estimate: LABSTA.

unemployment rate was around 7.5 percent while female unemployment rate was 23.3 percent in 2003.[4]

In the last two decades, Egypt continued to witness an increase in the size of its working population resulting from earlier high population growth rates. As a result, there was pressure on the labor market to absorb an increasing number of new entrants in the 1990s, as well as to adjust to economic reforms. At present, 35% of the working age population in Egypt is youth (15-24 years of age). Thus, high youth unemployment rates are a major concern for policy makers. For example, addressing parliament in January 2001, the Prime Minister of Egypt declared that the government's most important task is to "create the largest number of job opportunities possible for youth and to reduce the size of accumulated unemployment."[5] The government announced then a plan to create some 900,000 jobs in the fiscal year starting July 2001-2002. At the time, the labor force has been increasing by some 733,000 graduates entering the labor market each year for the first time. Thus, to absorb the new entrants and reduce unemployment by 100,000 a year, the economy would need to create 833,000 new jobs every year, which requires an increase in GDP by 6-7% annually![6]

Despite an unprecedented GDP growth rate in Egypt between 1975-1985, which reached over 8%, and despite the huge migration to Arab oil countries during that period, this growth did not create proportionate employment opportunities. Unemployment rate averaged around 4% at that time, according to 1976 census. One of the reasons behind unemployment growth was the fact that most of this growth was at the expense of reduced investment in labor intensive sectors, and adaptation of capital intensive technologies.[7] The slowdown of the economic growth in the 1980s was manifested in higher rates of unemployment that reached 11% according to 1986 population census. The latest census, 1996, reported 9% unemployment rate, although the most recent figures from the LFSS by CAPMAS is around 11 percent. Thus, the statistics show high persistence unemployment rates in Egypt.

[4] CAPMAS, Labor Force Sample Surveys 2003.
[5] ERF Report, No. 87, 2002.
[6] ERF Report, No. 87, 2002.
[7] Towards Decent work in North Africa, ILO, 2005.

Since early 1990s, Egypt has gone through considerable restructuring process. Through its transit to a market economy, downsizing the public sector, and privatizing public enterprises which had significant effects on the labor market.[8] In the following sections we examine to what extent those reforms contributed to unemployment particularly youth unemployment.

3. Review of the Literature

The analysis of unemployment in developing countries is quite limited in spite of the magnitude of this problem. Few studies have focused on whether unemployment in developing countries is a luxury by examining the characteristics of the unemployed. For example, Rama (1999) studies unemployment in Sri Lanka and finds that it is largely voluntary and not the result of a shortage of jobs but the artificial gap between good and bad jobs. He argues that substantial rents associated with jobs in the public sector and in the formal private sector activities that are protected by high tariffs or covered by job security regulations are responsible for the high unemployment rates. On the other hand, Kingdon and Knight (2001) find little evidence to support the luxury unemployment interpretation of joblessness in South Africa; i.e. they find that unemployment is not voluntary in South Africa.

Unemployment is a function of not only the number of the unemployed (the probability of unemployment) but also the length of unemployment. Some countries have low incidence of unemployment but a long duration, while others have high incidence of unemployment but short duration. The nature of unemployment and therefore the policies to deal with unemployment would be different in each case. This is why it is important to study both unemployment incidence and duration in order to fully understand the nature of unemployment.

Most of unemployment duration analysis has focused on developed countries, for example, France by van den Berg and van Ours (1999) and Portugal by Portugal and Addison (2003) and transition economies such as: Slovak by Lubyova and van Ours (1997) and Russia by Foley (1997), and Grogan and van den Berg (2001). Fewer

[8] See Assaad (2002) for a review of the transformation of the Egyptian labor market during reforms.

studies have focused on unemployment duration in developing countries, namely: Tunali and Assaad (1992), Tansel and Tasci (2005) and Serneels (2002).

Tunali and Assaad (1992) investigate the links between market structure and unemployment duration in the construction sector in Egypt. Tansel and Tasci (2005) study unemployment duration in Turkey using two definitions of unemployment: unemployment with search criterion and unemployment without search. Serneels (2002), on the other hand, is the only study we are aware of that examines youth unemployment duration in a developing country, namely Ethiopia. However, our paper is the first study that focuses on youth unemployment in Egypt and examines the effects of economic reforms on the incidence of youth unemployment.

One important issue which has been the focus of earlier studies is unemployment duration dependence. The empirical evidence on unemployment duration dependence of youth has been mixed, both across and within countries, although this literature refers only to developed countries. Heckman and Borjas (1980) find no duration dependence. Lynch (1989) finds negative duration dependence and Korpi (1995), and Russell and O'Connell (2001) find evidence of non-linear duration dependence. On the other hand, McVicar and Podivinsky (2001) find evidence of downward sloping hazard functions for young people in Northern Ireland, although they also find some evidence of a spike in the hazard function after 5-6 months of unemployment.

Previous studies on unemployment duration have examined the main determinants of unemployment though with mixed results. In what follows, we summarize the most important findings of this literature that are relevant to this study. First, fewer studies have looked at women unemployment because of lack of data and the difficulty of observing unemployed women. However, Grogan and van den Berg (2001) find that Russian women have significantly lower unemployment durations than men. On the other hand, Tansel and Tasci (2005) show that the probability of leaving unemployment for women is substantially lower than for men, which they argue may indicate that either women have a high shadow value of home production activities, and thus a high reservation wage, or may be an indication of discrimination against women in the labor market. Secondly, education has been an important determinant of unemployment duration. For example, Park (1997) finds that education reduces the

probability of long term unemployment in the USA. Kettunen (1997) using Finnish microeconomic data shows that unemployed persons who have about 13-14 years of education have the highest re-employment probability. Ham et al (1998), in the Czech Republic, find that education had no significant impact on the spell duration in 1994, though in 1995 - 1996 more educated people had more chances to leave the unemployment pool. Grogan and van den Berg (2000) find that workers with high education have significantly shorter unemployment spells in comparison with lower educated workers in Russia. This result is in contrast with the results concerning the effect of education obtained by Foley (1997). Thirdly, age plays an important role in unemployment duration. Abraham and Vodopivec (1993) examine major factors affecting the duration of unemployment spells in Slovenia. They find that older workers and least educated workers have the most troubles in finding a job. Lower hazard rate at older ages is also found by Serneels (2002) in Ethiopia. Narendranathan and Stewart (1993a) and Arulampalam and Stewart (1995) suggest that the probability of entering full-time work falls with age and voluntary separation from the previous job and increases with predicted earnings in employment. Dushi (1997) investigates unemployment in Albania and finds that age, gender, education, local unemployment rate, number of children have no statistically significant effects on the exit rate. Thus, the empirical findings suggest that determinants of unemployment are different across countries and that individual characteristics are not always significant determinants of unemployment duration.

4. Has Youth Unemployment Increased?

In this section we investigate to what extent unemployment has increased as a result of structural reforms in Egypt by examining the probability of unemployment in 1998 compared to that of 1988.

4.1 Data

The empirical analysis is based on the 1988 Egypt Labor Force Sample Surveys and 1998 Egypt Labor Marker Survey which are nationally representative household surveys covering 10,000 households in 1988 and 5,000 households in 1998. Both surveys use a similar sample and questionnaire design to ensure the comparability of

the surveys in order to assess major changes in the labor market conditions during 1988-1998. They include extensive data on employment characteristics such as status, economic activity, duration of unemployment, occupation …etc.

We follow the ILO definition of the unemployed as: those people ages 15-64 who are (1) without work, (2) available for work and (3) have been looking for work.[9] We acknowledge that our analysis does not correct for the discouraged unemployed or for the degree of underemployment for lack of data. We use the extended definition of employment that includes all those engaged in any subsistence production.[10] For our purpose, youth refers to those 15-29 years of age , although we distinguish between 15-19, 20-24 and 25-29 age groups.

4.2 Who are the Unemployed?

Based on the 1988 LFSS and the 1998 ELMS, unemployment rates have increased from 5.7 percent to 8 percent, (i.e. a 40% increase). However youth unemployment rates have increased from 11 percent to 18 percent, which is 64 percent increase over 10 years- Figure 3. Table 1 presents the characteristics of the total unemployed and the youth unemployed in 1998 and 1988. Examining the features of the unemployed in 1998 and 1988, it is clear that an important feature of unemployment in Egypt is its feminine face. Female unemployment rates are higher than that of males, although the proportion of males among the unemployed has also increased in the 90s.

It seems that during the 90s, marriage among the youth has declined, probably reflecting a tendency to marry at an older age, but also reflecting a potential impact from unemployment. In 1998, only 26% of the youth labor force was married compared to 40% in 1988. The unemployed youth who were married were lower in 1998 than in 1988 (15% and 23% respectively). See Figure 4.

Table 1 shows that the youth comprised around 37% of the labor force in Egypt in the 90s and almost 42% in the 80s. Yet, in both decades over 80% of the unemployed

[9]During the early 1980s, the ILO relaxed the search criterion when defining unemployment in case of developing countries.
[10] This is the definition used in the 1988 LFSS.

were young. However, Figure 5 shows that the age composition of the unemployed youth has changed in favor of the older cohort which is not surprising given that the 15-19 had tended to stay longer in education in the 90s.

Table 1 also points to a shift in the labor force from rural to urban regions. For example, total labor force increased in urban areas from 50% to over 61% within this decade. The hardest hit was experienced by lower rural areas who witnessed a drop in their labor force by over 24%. This is because of the decline in agriculture witnessed recently. However, the youth labor force are no longer concentrated in Greater Cairo, the world's 15th most populous cities, but has increased their presence in Lower and Upper Urban regions, with heavier concentration in the latter.

Both Cairo and lower regions (urban and rural) had over 65% of total unemployment in 1988, with very close percentages (35% and 30% respectively). However, Cairo noticed a drop in its unemployed workers by 49% (from 35% to 18%) and Lower regions witnessed an increase of unemployment by over 42%. The share of the unemployed youth living in Lower Rural increased by 50%, while those in Lower Urban by 22% over the 90s.[11] One potential reason for this regional change in the pattern of unemployment is the tight housing market in Greater Cairo which has resulted in very low migration rates – thus workers are no longer moving to Greater Cairo to find jobs. In addition, agriculture is not absorbing new workers in Rural areas.

Looking at the human capital of the labor force, it is evident that the labor force now is becoming more educated. For example, in 1988 a mere 60% of the labor force barely knew how to read and write, with almost half the total labor force illiterate (45%). But in 1998, only 26% of the labor force was illiterate, with primary and intermediate education comprising over 40% of the labor force. The youth labor force was more educated with intermediate and secondary certificates than before, with an increase of 60% at both levels since 1988. The university educated youth as a proportion of youth labor also increased by the equivalent of 40% by 1998.

[11] This is consistent with Assaad (2002)'s findings. See Assaad (2002) chapter 1, p. 26.

Examining the distribution of the unemployed by educational level, Table 1, it is clear that the composition of the unemployed has changed reflecting in part the higher educational level of the labor force. The largest group of unemployed tends to be those with intermediate degree in both years though that has increased in the 90s from 44% in 1988 to 54% in 1998.[12] In addition, there has been a fall in the proportion of those unemployed with low levels of education among the unemployed and an increase in the share of those with more education among the unemployed. Similar educational patterns are observed for the total unemployed and the youth unemployed which is not surprising since the majority of the unemployed are youth.

Finally, the literature points to some household characteristics that might affect the labor supply decision, such as the level of education of the parents. In this paper, we look at the literacy or illiteracy rates of the parents. The general observation is that fewer workers and unemployed have illiterate parents in 1998 compared to 1988. However, the evidence indicates that particularly for the unemployed, they are less likely to have illiterate parents in the 90s compared to the 80s suggesting that the unemployed do not come from the poorest households because they probably can not afford to.

In sum, within ten years, there has been an increase in unemployment. The youth in particular have experienced an increase in unemployment, which is reflected in higher youth unemployment rates. Most of the increase occurred at the intermediate and secondary levels of education. Lower Urban Egypt witnessed the highest increase in youth unemployment. Finally, the majority of the unemployed are more likely than the rest of the labor force to come from households with literate parents.

4.3 Methodology

To examine the extent to which unemployment has increased as a result of structural reforms, we estimate the probability of unemployment in 1998 compared to that of

[12] However, it is worthwhile remembering that the uneducated tend to enter the labor market earlier than those with education.

1988. We focus on the youth, but also provide estimates for the total sample of the labor force (15-64 years of age). We use a probit regression model. We investigate the influence of exogenous individual characteristics on unemployment (age, gender, and education), parents' characteristics (father and mother being illiterates) and regional dummies to control for labor market conditions.

4.4 Empirical Findings

Tables 2 and 3 present the marginal effects of the probability of unemployment in Egypt for the total unemployed sample and for the youth unemployed. The last column (Column 5) points out whether the difference in the marginal effect in 1998 is statistically different from that of 1988 at the 5 percent level. Table 2 shows the determinants of unemployment for the total sample, while Table 3 shows the determinants of unemployment for the youth (15-29 years).

Examining the total sample in Table 2 and comparing columns 1 and 3, we find that men are less likely than women to be unemployed. However, this probability is lower in the 90s, compared to the 80s confirming the descriptive statistics in Table 1 suggesting that reforms have affected both genders. Another important finding is that the probability of unemployment declines with age in both years. Yet the effect of age is different before and after reforms as follows. It seems those aged 20-24 years of age had the highest probability of unemployment in the 90s and the 80s, though this probability has increased in the 90s. Yet, the probability of unemployment has increased for all the age groups. In addition, education plays an important role in unemployment. Those with no education are the least likely to be unemployed probably because they can not afford to. Although those with intermediate education (less than secondary) had the highest probability in the 80s and 90s, those with secondary education became just as likely to be unemployed in the 90s. Overall, it is those with intermediate education or higher who were affected by reforms in the 90s and had higher risk of unemployment. Finally parents' education does not seem to be significant.

As far as the youth are concerned, Table 3 shows that among the youth, females are more likely to be unemployed than males though that effect was slightly weaker in the

1990s. The probability of unemployment was highest among those aged 15-19 in the 1980s while in the 1990s both the 15-19 and 20-24 years old were as likely to be unemployed. Also, the probability of unemployment among those who were 25-29 years was relatively less than among 20-24 years old, the age group most hit by unemployment. Finally, among the young, the educated are more likely to be unemployed relative to the uneducated. This trend has increased in the 90s after reforms.

Figure 6 shows the predicted probability of unemployment by educational level in 1998 and 1988 for a reference person (a 25 year old male living in Greater Cairo). As is clear from the figure, unemployment rates have increased for all educational levels in the 90s, except for those with less than intermediate education.

Thus, to sum up, although unemployment has increased in the 90s, the impact on the youth, in particular the 20-24 age group and the educated, was greater. In the next section, we extend this analysis by studying the determinants of the unemployment duration in the 90s using the 1998 ELMS.

5. Duration Analysis

5.1 Econometric Framework

The empirical analysis of unemployment duration is based on the job search approach where the duration of unemployment is modeled by specifying the conditional probability of leaving unemployment, referred to as the hazard function, see Lancaster (1990). The hazard function is the product of two probabilities: the probability of receiving a job offer and the probability of accepting job offer. We estimate a reduced form model where the total effects of the variables on exiting unemployment is estimated rather than their separate effects on the two probabilities.[13]

The slope of the hazard function reflects the nature of duration dependence. For example, downward sloping hazard functions relate to negative duration dependence and upward sloping hazard functions to positive duration dependence. Horizontal hazard functions correspond to no duration dependence. Non-linear duration

[13] Jenkins (2004).

dependence (e.g. some combination of positive and negative duration dependence) is also possible, and this would correspond to a non-linear hazard function (e.g. an inverted U-shape).

Given the nature of our data, unemployment durations are grouped into discrete time intervals (months). So, we estimate the probability of exiting unemployment in a discrete time independent competing risks framework with flexible baseline hazard rates. In addition, we take account of unobserved heterogeneity. Although few authors have criticized the inclusion of an error term which is independent of both observed heterogeneity and time, for example, Narendranathan and Stewart (1993a) and Boheim and Taylor (2002), other studies like Tansel and Tasci (2005) have argued that omission of unobserved factors result in inconsistent estimates. We report the estimates with and without unobserved heterogeneity.

Based on Jenkins (2004), we estimate a maximum likelihood two discrete time (grouped duration data) proportional hazards regression models: (1) the Prentice-Gloeckler (1978) model; and (2) the Prentice-Gloeckler (1978) model incorporating a gamma mixture distribution to summarize unobserved individual heterogeneity, as proposed by Meyer (1990). We chose a parametric specification for duration dependence log (t) to capture the duration dependence.[14] For further details of the models, see Jenkins (2004).

In model 1, the discrete time hazard rate for person *i* in the time interval *j* to leave unemployment to a certain state can be written as:

$$h_j\left(X_{ij}\right) = 1 - \exp\left\{\exp\left[X_{ij}'\beta + \theta(t)\right]\right\}$$

where X_{ij} is a set of covariates, β are the coefficients to be estimated, and $\theta(t)$ is the functional form of how the duration of the spell affects the hazard rate assumed to be exp(t). The covariates used include individual characteristics such as gender, level of

[14] We have also experimented with other specifications such as piece wise constant duration intervals, and duration dummies. However, neither of those specifications suited the data.

education, and age at start of unemployment. To capture local labor market conditions[15] we use regional dummies and the year unemployment started.

Model 2 incorporates a Gamma distributed random variable to describe unobserved (or omitted) heterogeneity between individuals. The discrete-time hazard function is:

$$h_j\left(X_{ij}\right) = 1 - \exp\left\{-\exp\left[X_{ij}'\beta + \gamma_j + \log\left(\varepsilon_i\right)\right]\right\}$$

where ε_i is a Gamma distributed random variable with unit mean and variance $\sigma^2 \equiv \nu$.

We distinguish between two different exit destinations from unemployment namely – to public sector employment, and to private sector employment. These are referred to as two independent competing risks, where the log likelihood can be split into the sum of its risk-specific hazards (Lancaster, 1990). In such a model observations which exit to a different destination are treated as censored.

5.2 Data

For this part of the empirical analysis we use the 1998 ELMS only since the 1988 LFSS lacks information on the duration of unemployment for those with complete spells. The 1998 ELMS provides data on unemployment duration for those with incomplete spells i.e. those currently unemployed which we used in the previous section. In addition, the labor mobility module provides information on complete spells i.e. previous unemployment spells (date started unemployment, and date of exit from unemployment). Given the data, we only have full information on the *last* spell of unemployment per individual.

For this analysis we focus on the youth (15-29 years of age) who comprise the majority of the unemployed.[16] There are 1045 young individuals: 532 males and 513 females. Almost half of the observations (596) are right censored i.e. individuals are observed whilst still unemployed. Exits to public sector employment account for 26 %

[15] Time series data on local unemployment rates by governorate/province/region in Egypt are not available.
[16] We refer to age at the start of the unemployment spell.

of the unemployed sample (275 individuals) while 19% of the sample exit to private sector employment (176 individuals). Figure 7 provides the distribution of unemployment duration of the youth by gender. This suggests that females have longer unemployment spells than males. Unfortunately, we are unable to estimate separately the hazard rates for males and females in the analysis below because insufficient exits prevent us from splitting the sample by gender. Also, it should be noted here that there are insufficient exits from unemployment to private sector to distinguish between formal and informal private sector.

Before estimating the duration models, we expand the data by unemployment duration, so that each spell of unemployment corresponds to one or more rows in the data file depending on the spell length (see Jenkins 2004). Limiting our analysis to the youth, we have 1045 individuals (15-29 years old) and 45234 unemployment spells (measured in months). The median duration of unemployment spells is 30 months – Table 4. The survivor function (Figure 8) shows the proportion of the unemployed who survive unemployment as time elapses.

5.3 Estimation Results

Results of the two discrete time hazard models are presented in Table 5. The figures reported are the estimated coefficients.[17] First comparing Model 1 and Model 2, the variance of the gamma mixture distribution is barely significant at 10% in the case of exits to public sector employment and significant at 5% for exits to the private sector. In other words, in both cases there is evidence of unobserved heterogeneity (frailty) although this is more significant for the private sector exits. In addition, the duration dependence parameter is larger in Models 2 because not accounting for unobserved heterogeneity induces an under-estimate of the extent to which the hazard rate increases with duration. Moreover the coefficients in Models 2 are slightly larger in absolute value than those in Models 1 which is expected because frailty weakens the magnitude of the impact of covariates on the hazard rate.

Now, examining the effect of the covariates on leaving unemployment to public sector employment, we find evidence of positive duration dependence which is unsurprising in the case of Egypt given the queuing for public sector jobs. This is also

[17]Note that the proportionate impact of each variable on the state-specific hazard rate can be calculated by taking the exponent of the coefficient.

echoed in the time trend used to capture the year of unemployment. If the unemployment spell started recently the hazard rate is lower. Being male increases the hazard rate of leaving unemployment. Exits to public sector employment seems to be positively affected by age: those in the 20-24 years age bracket have higher probability compared to the younger youth 15-19 or the older ones: 25-29 years old. The most important determinant of exits to public sector from unemployment seems to be education. Thus, the more educated are more likely to exit unemployment to the public sector. In a way this reflects the hiring system in the public sector in Egypt.

Examining exits from unemployment to private sector employment, we also find evidence of positive duration dependence. However, the time trend used to capture the year of unemployment is positive and significant suggesting that the more recent the unemployment spell started, the higher is the hazard rate to exit to private sector employment. Men are more likely than women to enter private sector. Age doesn't seem to affect the exit rate into the private sector among the youth. There seems to be negative relationship between education and exit to the private sector. Those with no education have the highest hazard rate, but those with intermediate and secondary education are the least likely to exit unemployment for private sector employment. Individuals living in Greater Cairo, and Alexandria and Canal Cities seem to have higher hazard rates than other regions.

Figures 9a, 9b and 10 illustrate the predicted baseline hazard rates out of unemployment for our two destinations by gender and two educational levels: no education and university education.[18] Figure 9a plots the estimated baseline hazard rates from unemployment to public sector employment for men and women but only for 60 months to provide a clear picture of the shape of the predicted hazard rate for the educated. For men with university qualifications the predicted hazard rate of exiting unemployment to public sector is around 24 months while for women it takes longer where it is around almost 48 months. As shown in Figures 9a and 9b the estimated hazard for those with no education is much lower than for those with university degrees both for men and women. However, for the uneducated, the hazard

[18] These figures are for a reference person who is between 25 and 29 years of age and lives in Greater Cairo.

rate for exits to the public sector never increases beyond 0.4 for men and 0.2 for women even after many years of unemployment as shown in Figure 9b.

Figure 10 shows the estimated baseline hazard rates from unemployment to private sector employment for men and women. This reflects a totally different scenario from the public sector employment where both education and gender matter. So, men are more likely to exit to private sector than women regardless of their educational level. However, uneducated men have the highest predicted hazard rate followed by men with university education. It is important to note that for all groups the hazard rate of exiting to private employment is quite low.

Thus to sum up, it does seem that youth unemployment among educated women in particular is predominantly driven by the public sector. Overall, the evidence suggests that youth unemployment in Egypt is not only the result of queuing for public employment but also to the dismal role played by the private sector in job creation and in absorbing the unemployed.

6. Conclusion and Policy Recommendations

The results obtained from this study are of great concern to policy makers because of the negative effects of unemployment on the loss of output, on the society and on the psychological well being of the unemployed and immediate family members. In order to formulate policies to curb the rising problem of unemployment in Egypt, it is important not only to understand the effect of reforms on the incidence of unemployment among the youth, but also on the duration of unemployment and, on the probability of exiting unemployment and how it differs with demographic and economic characteristics.

The evidence suggests that unemployment rates have increased after reforms in the 90s. In addition, youth unemployment has increased by more than 50 percent over this period. Also unemployment seems to mostly affect the educated youth.

Examining unemployment duration, we find evidence to suggest that youth unemployment is driven by the public sector hiring practices. The youth in Egypt still expects the government to provide them with jobs and queue for public sector jobs, in

particular women. In addition, the private sector has been very slow in absorbing new workers which has exacerbated the problem.

These findings have significant policy implications. The challenge of youth employment has been at the center of the United Nations Millennium Development Goals[19]. The four interconnected priorities identified by the UN Secretary General's High Level Panel on Youth Employment offer the starting point: employment creation, employability, entrepreneurship, and equal opportunities for women and men. Combining these four goals can achieve more and better quality employment for young people. Youth unemployment in MENA generally and Egypt in particular should not be viewed as a problem in itself, but rather as an untapped resource, only if it is directed to the right path. In response to this challenge a number of policies are suggested below to tackle the youth unemployment problem in Egypt:

1. It is vital for the government to change the perception and the expectations about the role of the State as the main generator of employment in the economy. The private sector should be seen as the engine of growth in the economy. But more importantly, the private sector should be encouraged to create more jobs.
2. Youth unemployment is normally a result of low demand, lack of investment and lack of development policies aimed at these types of workers. Besides, stabilization adjustments results in further cuts in public spending. One highly popular policy recommendation in international meetings is helping the private sector by making it easier to start up a new business and grow it. This may take the form of improving access to credits, facilitating innovation, and fostering inter-enterprise linkages.
3. Reducing the ever increasing youth labor supply by lowering birth rates. Although Egypt has had great strides in that direction, there is still more room for reduction. High birth rates are related normally to the absence of social security and old age benefits. One of the immediate policy actions is improving such social benefits. Higher levels of education, particularly for women, are another approach to

[19] A framework of eight goals, 18 targets and 48 indicators to measure progress towards the Millennium Development Goals was adopted by a consensus of experts from the United Nations Secretariat and the ILO, the IMF, the OECD and the World Bank. For more details on the United Nations Millennium Development Goals, see website: http://www.un.org/millenniumgoals/index.html

lower birth rates and ensuring lower drop-out rates is necessary for this policy to work.

4. The number of jobs available is not only the end goal of any successful policy, the quality also is of great concern. Minimum wage policies have proved a valuable safety net tool in many developed countries, and the effect on reduced employment is still debatable. Minimum wage laws provide the protection against unfair wages, income redistribution and alleviation of poverty. The fact that the current minimum wage is already low, therefore does not perform the economic and social function, is a problem to be solved first.

5. Sectoral policies are at the core of ILO recommendation for employment generation. Targeting sectors that are capable of creating employment opportunities, for example, sectors in which the growth is employment-intensive, or sectors that feeds into other employment generating sectors, sectors that attract a large number of youth, such as information technology sectors. Example of sectoral policies range from agriculture subsidies (as in the US and EU); development banks that mobilize capital (specially FDI) by extending long-term loans with favorable interest rates to specific projects which help to execute development goals and have a high social rate of return, (as in South Korea); to textiles and garments, medical equipment and supplies, and agricultural commodities (as in Pakistan) where the country has good export potentials , as well as the housing sector which is also labor intensive.

6. Promoting employment-intensive investment as in public works programs by subcontracting public works to private small and medium-size enterprises, to use surplus labor for the improvement of infrastructure, irrigation systems, forestation, urban sanitation, schools or health centers. These programs also double as poverty reduction, human resource skills development and community upgrading.

7. Vocational and labor market information is another route towards assisting the youth. One successful example is Germany where on the job training is combined with attendance at vocational education, giving the young the assurance that their training/education will pay off, and the employers the chance to train and guarantee a skilled labor for higher productivity. Employers are also rewarded for the education/training they provide by the low wages trainees accept for the period of training.

Governmental intervention policies such as education, health, poverty reduction and employment generation aimed at youth, despite its relative importance, are not enough in themselves to make a structural impact. These policies should be integrated with micro approaches, at the local level, linking issues of employment with education, health and other social problems.

References:

Assaad, R. (2002), "The transformation of the Egyptian labor market: 1988-1998" in Assaad, R. (ed) *The Egyptian labor market in an Era of Reform*, Chapter 1, Cairo: ERF & American University Press.

Böheim, R. (1999), "Austrian unemployment durations", *Working Papers of the ESRC Research Centre on Micro-social Change*, No. 99-14, University of Essex.

Böheim, R. and Taylor, M. P. (2000), "Unemployment Duration and Exit States in Britain", Discussion Paper No. 2000-1, Institute for Social and Economic Research, University of Essex.

ERF Annual Report, (2002), No. 87. Cairo: Economic Research Forum.

Foley, Mark C. (1997), "Labor Market Dynamics in Russia", *Economic Growth Center:* Center Discussion Paper no. 780, New Haven: Yale University.

Grogan, L. and van den Berg, G.J. (2001), "The Duration of Unemployment in Russia," *Journal of Population Economics,* 14 (3), 549-568

Han, A. and Hausman, J. (1990), "Flexible Parametric Estimation of Duration and Competing Risks Models", *Journal of Applied Econometrics*, 5, pp1-28.

Heckman, J. and Borjas, G. (1980), "Does unemployment cause future unemployment? Definitions, questions and answers from a continuous time model of heterogeneity and state dependence". *Economica*, 47, 247-283.

Jenkins, Stephen (2004), *Survival Analysis*. University of Essex, mimeo.

Kingdon, Geeta Gandhi and Knight, John (2001), "Unemployment in South Africa: the nature of the beast" Centre for the Study of African Economies WPS/2001-15, University of Oxford.

Korpi, T. (1995), "Effects of manpower policies on duration dependence in reemployment rates: the example of Sweden", *Economica*, 62, 353-371.

Lynch, L. (1989), "The youth labor market in the eighties: determinants of reemployment probabilities for young men and women", *Review of Economics and Statistics*, 71, 37-45.

Lubyova, M. and. van Ours, J.C (1997), "Unemployment Dynamics and the Restructuring of the Slovak Unemployment Benefit System", *European Economic Review*, 41, 925-934.

McVicar, D. and Podivinsky, J. M. (2001), "Duration dependence and routes out of joblessness for young people", NIERC Working Paper No. 66, Belfast.

Meyer, B.D. (1990), "Unemployment insurance and unemployment spells", *Econometrica*, 58 (4), pp757-782.

Narendranathan, W. and M. Stewart (1993), "Modelling the probability of leaving unemployment: Competing risks models with flexible baseline hazards", *Journal of the Royal Statistical Society*, Series C, Applied Statistics, 42(1), 63-83.

Portugal, P. and Addison, J. T. (2003), "Six Ways to Leaving Unemployment", *IZA Discussion Paper* No. 954, Bonn.

Rama, Martin, (1999), "The Sri Lankan Unemployment Problem Revisited "*World Bank Policy Research Working Paper No. 2227* , Washington, DC.: The World Bank.

Ridder, G. (1987), "The sensitivity of duration models to mis-specified unobserved heterogeneity and duration dependence", University of Amsterdam, mimeo.

Russel, H. and O'Connell, P. (2001), "Getting a job in Europe: The transition from unemployment to employment among young people in nine European countries.' *Work, Employment and Society*, 15, 1-24.

Serneels, Pieter (2002), "Unemployment Duration in Urban Ethiopia", *Discussion Paper*: *Center for the Study of African Economies*, Oxford University.

Tansel, A and Tasci, M (2005), "Determinants of Unemployment Duration for Men and Women in Turkey". ERF Discussion Paper 0332, ERF.

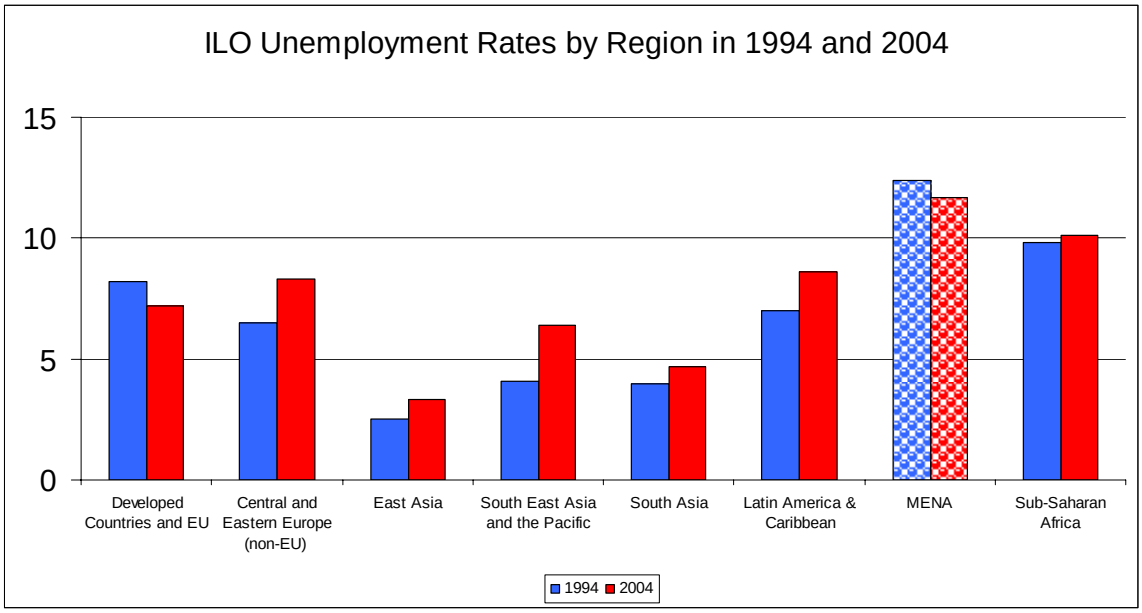
Towards Decent work in North Africa, (2005). Geneva, ILO.

The World Bank (2003), "MENA Employment Challenges in the 21st century, From Labor Force Growth to Job Creation", Washington DC: The World Bank.

Tunalı, I. and R. Assaad (1992), "Market Structure and Spells of Employment and Unemployment: Evidence from the Construction Sector in Egypt", *Journal of Applied Econometrics*, 7, 339-367

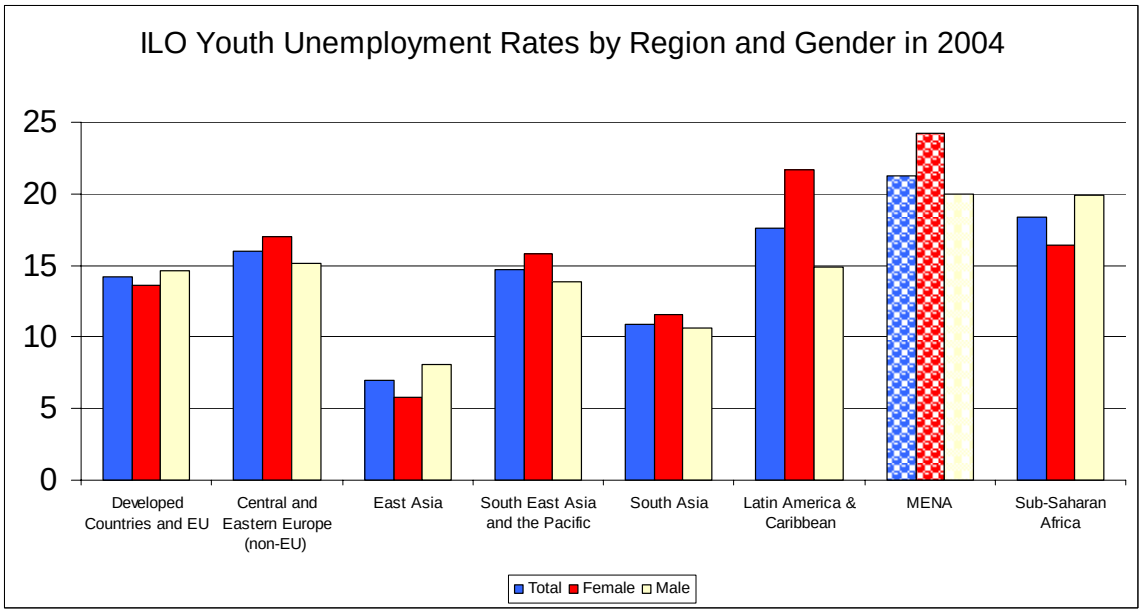
van den Berg G. J. and van Ours, J.C. (1999), "Duration Dependence and Heterogeneity in French Youth Unemployment Durations", *Journal of Population Economics,*12(2), 273-285.

Figure 1:



Source: ILO, Global Employment Trends 2005.

Figure 2:



Source: ILO, Global Employment Trends 2005.

Table 1 : Descriptive Statistics

Variables	Total Labor Force Sample		Youth Labor Force Sample		Total Unemployed		Youth Unemployed	
	1998	1988	1998	1988	1998	1988	1998	1988
Individual Characteristics								
Male	63.76	64.33	60.34	59.26	53.41	46.70	52.25	42.53
Head of Household	39.88	40.72	7.37	11.05	11.08	15.25	3.81	4.14
Married	64.07	68.57	25.98	39.67	25.14	33.90	14.53	22.53
Mean Age in years	35.36	34.28	22.50	22.41	25.04	25.38	22.23	21.80
Age groups (%)								
15-19	10.12	12.54	27.33	29.76	19.74	24.67	24.05	30.11
20-24	13.57	13.74	36.66	32.60	40.77	38.98	49.65	47.59
25-29	13.33	15.86	36.01	37.64	21.59	18.27	26.30	22.30
30-39	25.75	24.72	---	---	12.64	9.42	---	---
40-49	20.85	16.96	---	---	2.56	5.27	---	---
50-59	13.32	12.36	---	---	2.56	1.51	---	---
60-64	3.06	3.81			0.14	1.88		
Region								
Greater Cairo	16.38	20.20	14.65	19.26	18.47	35.03	17.99	33.10
Alex. &Suez Canal	10.24	8.18	8.53	7.73	14.77	11.68	13.67	10.57
Lower Urban	16.33	12.68	15.62	12.38	22.30	16.95	21.63	17.70
Upper Urban	18.22	9.01	17.68	8.34	14.63	13.37	14.88	15.17
Lower Rural	23.05	30.53	25.36	32.91	22.59	14.69	24.05	16.09
Upper Rural	15.77	19.40	18.18	19.39	7.24	8.29	7.79	7.36
Educational level (%)								
Illiterate	26.95	45.51	18.61	39.57	7.39	14.50	3.81	7.59
Read & write	8.60	13.50	5.04	9.12	3.55	8.47	2.25	4.83
Primary	16.15	11.17	19.86	15.04	9.23	12.43	8.13	11.95
Intermediate	26.57	16.25	38.25	23.89	54.69	44.44	58.82	53.10
Secondary	6.63	3.44	6.80	4.24	10.23	6.40	10.73	7.59
University+	15.11	10.13	11.43	8.13	14.91	13.75	16.26	14.94
Parents' Characteristics								
Mother's illiterate	78.78	88.97	74.35	87.96	65.67	80.39	62.55	77.32
Father's illiterate	48.47	63.52	43.31	59.95	35.36	45.10	32.37	40.71
Unemployment Characteristics								
Unemployment Duration in months	----	---	----	----	40.02	7.36	34.32	6.76
% Unemployed	8.14	5.67	18.05	11.05				
Sample Size	8649	9336	3202	3935	704	531	578	435

Source: Authors' calculations from LFSS 1988 and ELMS 1998

Figure 3:

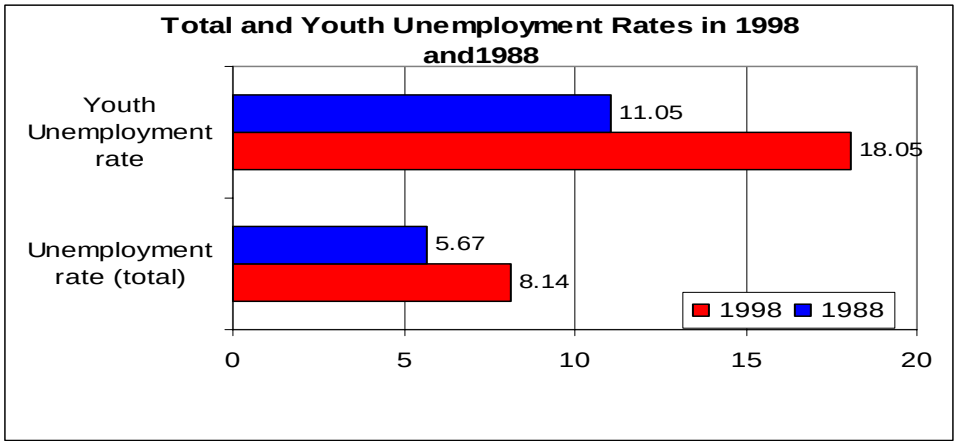


Figure 4:

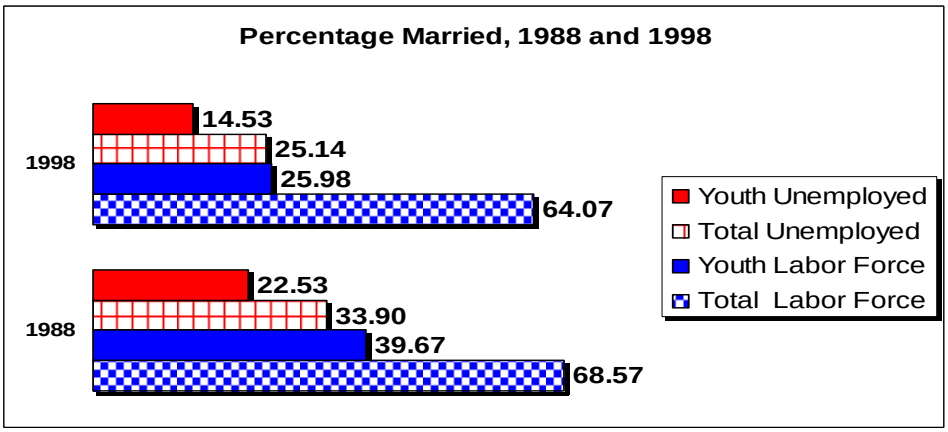


Figure 5:

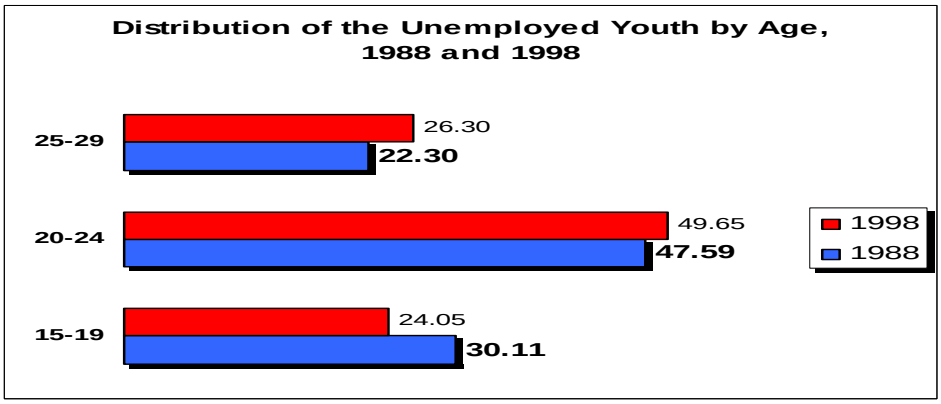


Table 2: Probability of Unemployment in 1998 & 1988: Marginal Effects: Total Sample: 15-64 years of age

	1		2		3		4		5
	1998		1998[1]		1988		1988[1]		Equality of 1998 & 1988[2]
Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**	**Coeff**	**t-stat**	**Coeff**	**t-stat**	
Male	-0.015	**-3.71**	-0.011	**-2.63**	-0.026	**-7.24**	-0.023	**-6.07**	*
Age groups (ref: 20-24*)*									
15-19	-0.010	**-1.97**	-0.010	**-1.87**	-0.001	-0.16	-0.005	-1.19	
25-29	-0.026	**-6.21**	-0.022	**-5.09**	-0.023	**-7.39**	-0.023	**-6.99**	
30-39	-0.062	**-15.34**	-0.056	**-13.80**	-0.041	**-12.11**	-0.041	**-11.68**	*
40-49	-0.075	**-15.08**	-0.070	**-14.00**	-0.036	**-10.24**	-0.036	**-10.01**	*
50-59	-0.055	**-12.07**	-0.050	**-11.45**	-0.037	**-8.93**	-0.037	**-8.94**	*
60-64	-0.044	**-5.00**	-0.040	**-4.92**	-0.021	**-3.59**	-0.021	**-3.64**	*
Region (ref. Greater Cairo)									
Alex. & Suez Canal	0.022	**2.69**	0.024	**2.77**	-0.004	-0.82	-0.008	**-1.69**	
Lower Urban	0.008	1.19	0.007	0.93	-0.010	**-2.39**	-0.012	**-2.92**	*
Upper Urban	-0.019	**-3.40**	-0.015	**-2.39**	-0.007	-1.48	-0.010	**-2.17**	
Lower Rural	-0.008	-1.38	-0.005	-0.80	-0.033	**-8.40**	-0.037	**-9.12**	*
Upper Rural	-0.032	**-5.44**	-0.028	**-4.53**	-0.026	**-6.14**	-0.028	**-6.46**	*
Educational level (ref. Illiterate)									
Read & write	0.024	**1.87**	0.010	0.84	0.032	**4.07**	0.030	**3.59**	*
Primary	0.005	0.58	-0.001	-0.10	0.031	**4.17**	0.029	**3.65**	*
Intermediate	0.082	**9.23**	0.070	**7.68**	0.078	**10.65**	0.072	**8.92**	*
Secondary	0.087	**6.38**	0.067	**4.95**	0.057	**4.90**	0.055	**4.42**	*
University+	0.052	**5.04**	0.028	**2.70**	0.056	**6.22**	0.054	**5.16**	*
Parents' Characteristics									
Mother's illiterate			-0.008	-1.70			0.006	1.34	
Father's illiterate			0.002	0.39			0.002	0.58	
Base	0.040		0.035		0.027		0.027		
Sample Size	8631		7313		9336		8432		
Log Likelihood	-1909.792		-1503.957		-1610.061		-1422.594		

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

Notes: Robust standard errors are used.

[1] Includes mother and father illiterate dummies (smaller sample).

[2] Column 5: * refers to the difference in the marginal effect between 1998 and 1988 being statistically significant at the 5% level or better; i.e. the marginal effect in 1998 is not equal to that of 1988. Based on columns 1 and 3.

Table 3: Probability of Youth Unemployment in 1998 & 1988: Marginal Effects
15-29 years of age

	1		2		3		4		5
	1998		1998[1]		1988		1988[1]		Equality of 1998 & 1988[2]
Variables	**Coeff**	**t-stat**	**Coeff**	**t-stat**	**Coeff**	**t-stat**	**Coeff**	**t-stat**	
Male	-0.044	**-3.38**	-0.039	**-2.74**	-0.059	**-7.01**	-0.052	**-5.92**	*
Age groups (ref. 20-24)									
15-19	-0.004	-0.27	-0.002	-0.09	0.019	**1.88**	0.010	0.99	*
25-29	-0.089	**-6.36**	-0.081	**-5.18**	-0.063	**-7.04**	-0.061	**-6.58**	*
Region (ref. Greater Cairo)									
Alex. &Suez Canal	0.074	**2.64**	0.107	**3.27**	-0.003	-0.18	-0.016	-1.21	
Lower Urban	0.032	1.45	0.015	0.61	-0.007	-0.65	-0.012	-1.03	
Upper Urban	-0.046	**-2.28**	-0.028	-1.17	0.009	0.71	0.002	0.14	
Lower Rural	0.001	0.05	0.016	0.67	-0.056	**-5.57**	-0.065	**-6.18**	*
Upper Rural	-0.079	**-3.67**	-0.077	**-3.12**	-0.049	**-4.39**	-0.051	**-4.44**	*
Educational level (ref. Illiterate)									
Read & write	0.095	**2.03**	0.048	0.90	0.090	**3.79**	0.084	**3.26**	*
Primary	0.073	**2.36**	0.065	**1.87**	0.113	**5.62**	0.109	**5.11**	*
Intermediate	0.295	**10.70**	0.296	**9.38**	0.254	**12.75**	0.248	**11.15**	*
Secondary	0.406	**8.92**	0.393	**7.39**	0.272	**7.65**	0.273	**7.06**	*
University+	0.364	**8.95**	0.333	**6.80**	0.322	**9.85**	0.324	**8.41**	*
Parents' Characteristics									
Mother's illiterate			-0.015	-0.83			0.010	0.85	
Father's illiterate			-0.012	-0.73			0.004	0.45	
Base	0.142		0.137		0.063		0.061		
Sample Size	3192		2465		3935		3436		
Log Likelihood	-1309.678		-994.789		-1085.224		-925.374		

Source: Authors' calculations from LFSS 1988 and ELMS 1998

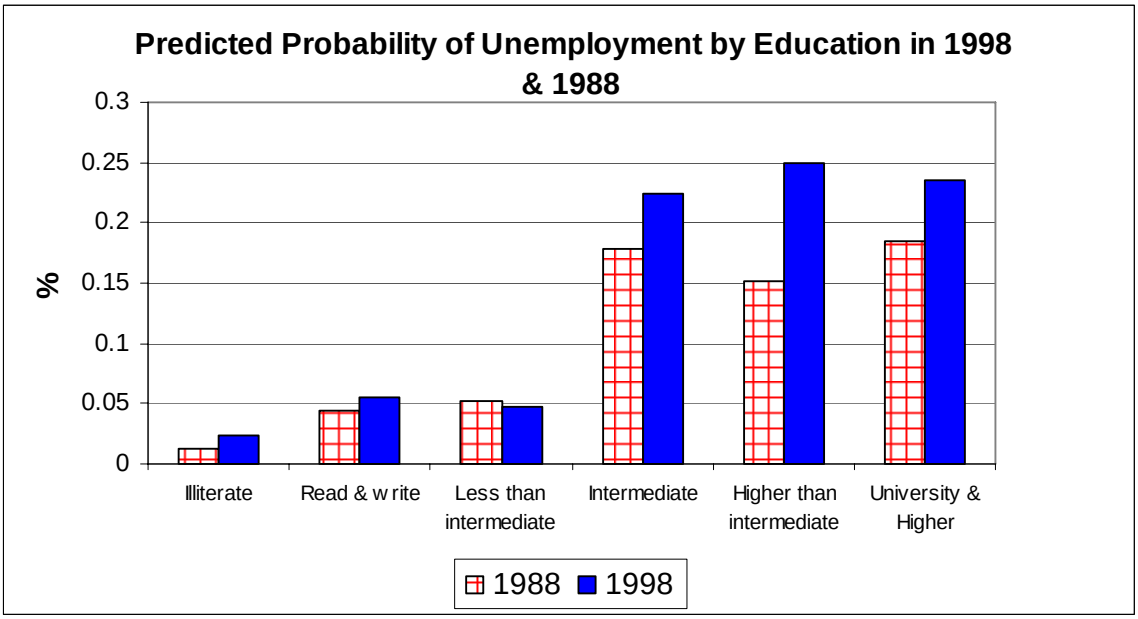
Notes:

Robust standard errors are used.

[1] Includes mother and father illiterate dummies (smaller sample)

[2] Column 5: * refers to the difference in the marginal effect between 1998 and 1988 being statistically significant at the 5% level or better; i.e. the marginal effect in 1998 is not equal to that of 1988. Based on columns 1 and 3.

Figure 6:



Note: The predicted probability is for a male, 25 years of age living in Greater Cairo.

Source: Authors' calculations from LFSS 1988 and ELMS 1998

Figure 7:

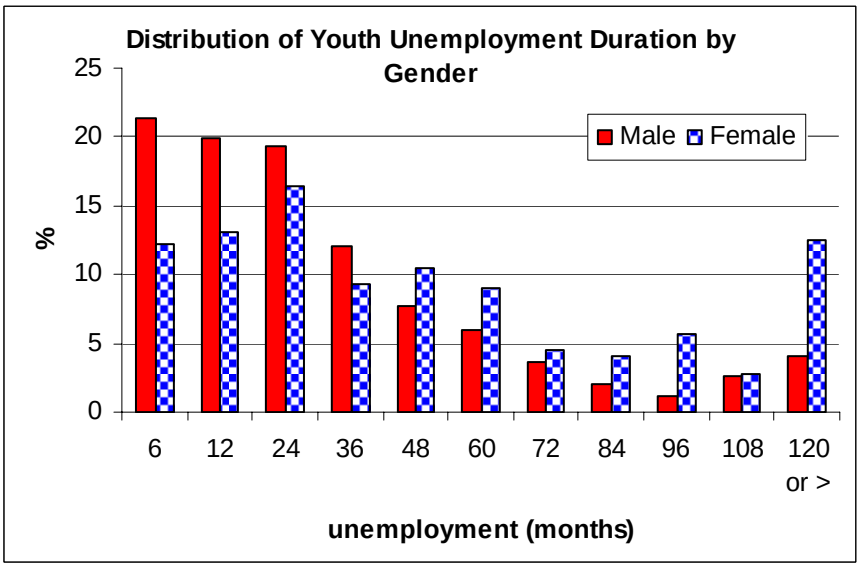


Table 4: Number and Duration of Youth Unemployment Spells by Gender

	Male	Female	Total
Number of spells	18048	27186	45234
Mean duration (months)	33.57	45.73	40.88
Standard Deviation	31.64	38.24	36.25
Median duration (months)	23	35	30

Figure 8:

Table 5: Discrete Time Proportional Hazard for Unemployment Duration

Variables	Exit to Public Sector Employment				Exit to Private Sector Employment			
	Model 1		Model 2		Model 1		Model 2	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Individual Characteristics								
Male	0.354	**2.51**	0.485	**2.72**	1.817	**8.95**	2.170	**7.59**
Age at start of Unemployment: ref: 15-19 years of age								
20-24	0.570	**3.56**	0.709	**3.48**	0.135	0.74	0.181	0.75
25-29	0.179	0.63	0.367	1.05	-0.162	-0.49	0.011	0.03
Educational level: (ref. Illiterate)								
Read & write	1.611	1.60	1.669	1.55	-0.107	-0.25	-0.071	-0.11
Primary	2.575	**3.33**	2.813	**3.35**	0.047	0.15	0.134	0.29
Intermediate	3.383	**4.58**	3.785	**4.59**	-0.800	**-2.85**	-1.173	**-2.62**
Secondary	3.448	**4.51**	3.834	**4.50**	-0.141	**-3.28**	-2.000	**-3.20**
University+	4.033	**5.37**	4.543	**5.31**	-0.263	-0.77	-0.548	-1.10
Region of Residence: (ref. Greater Cairo)								
Alex & Canal Cities	0.300	1.44	0.197	0.79	-0.159	-0.66	-0.059	-0.19
Lower Urban	0.033	0.17	-0.077	-0.32	-0.892	**-3.57**	-1.027	**-3.20**
Upper Urban	0.013	0.07	-0.077	-0.32	-0.697	**-2.76**	-0.768	**-2.38**
Lower Rural	-0.555	**-2.01**	-0.767	**-2.35**	-1.176	**-4.24**	-1.436	**-3.89**
Upper Rural	0.330	1.17	0.303	0.90	-0.433	-1.43	-0.606	-1.50
Log of Unemployment Duration	0.491	**7.15**	0.679	**5.09**	0.637	**6.83**	0.997	**5.00**
Year entered unemployment	-0.078	**-10.17**	-0.086	**-8.65**	0.067	**4.86**	0.084	**4.72**
Gamma Variance			0.384	1.59			1.160	**1.98**
Number of obs (person months)	45198		45198		45198		45198	
Log Likelihood	-1552.14		-1550.43		-1036.514		-1033.145	

Source: Authors' calculations from LFSS 1988 and ELMS 1998

Figure 9a

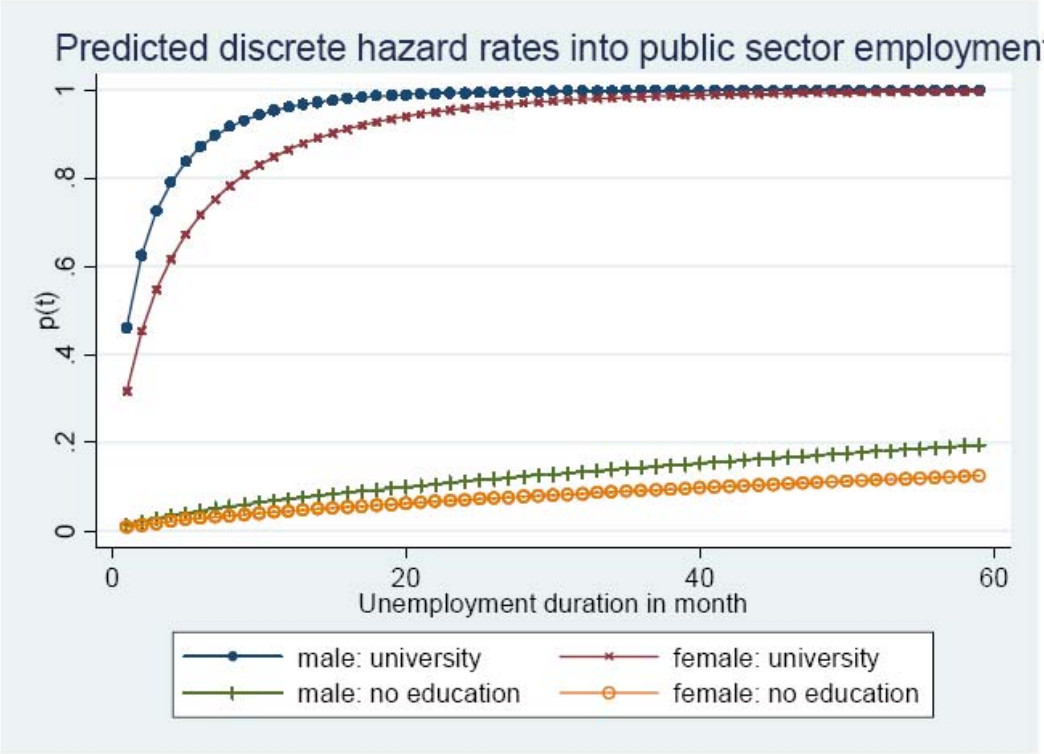


Figure 9b

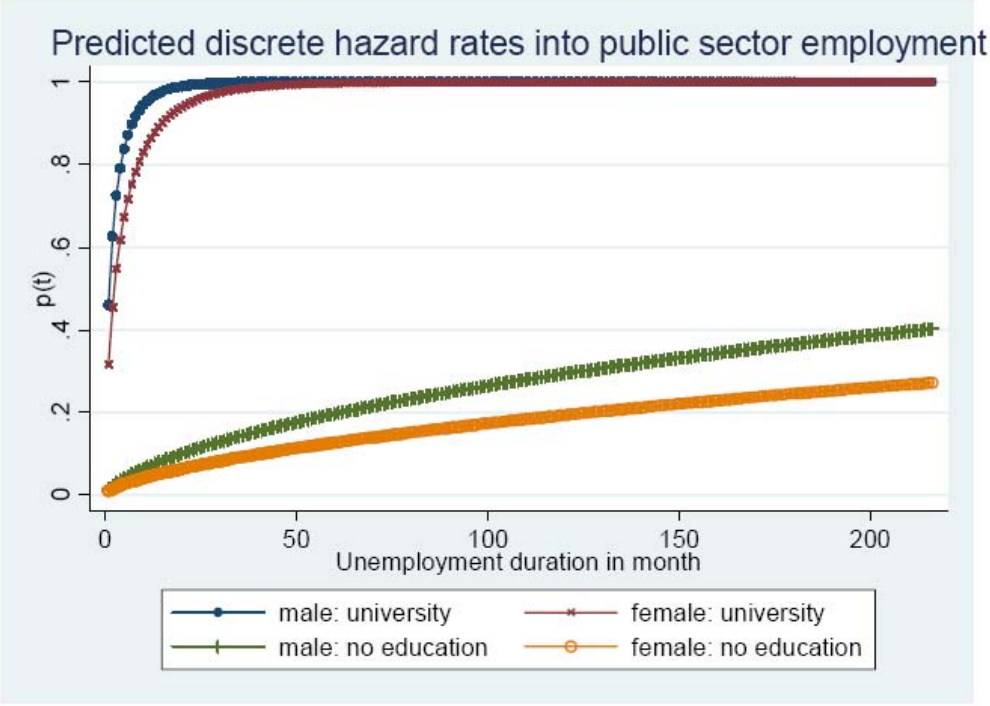
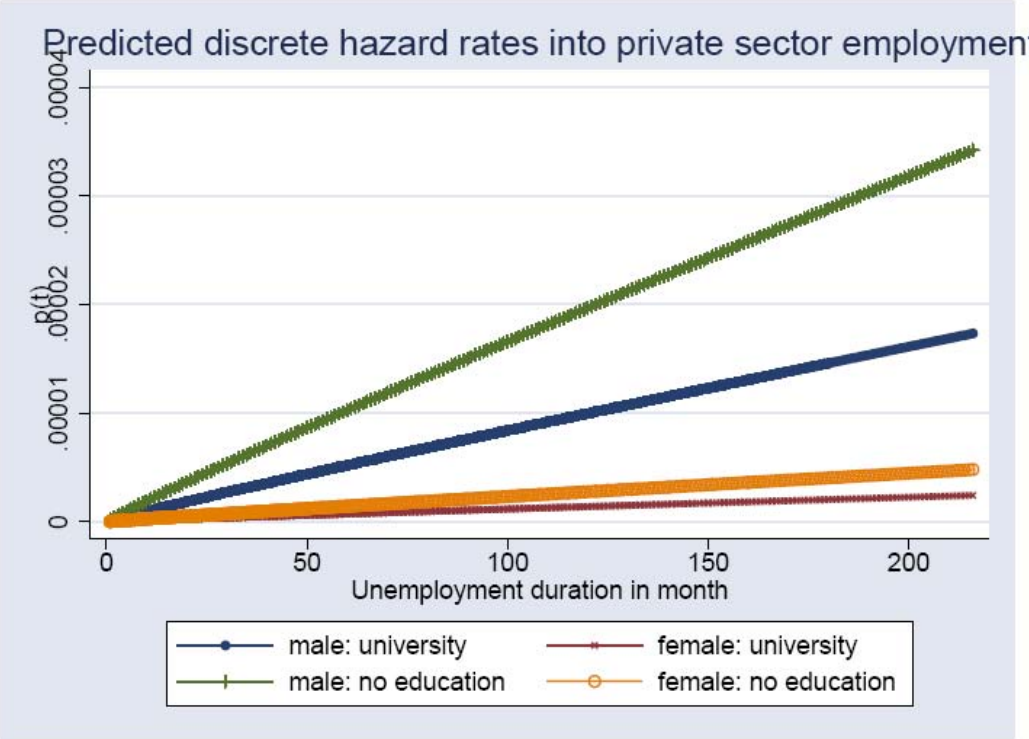


Figure 10


Predicted discrete hazard rates into private sector employment
h(t)
0
.00001
.00002
.00003
.00004
0
50
100
150
200
Unemployment duration in month
male: university
female: university
male: no education
female: no education