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Transitions to Employment and Marriage among Young Men in Egypt

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THE MIDDLE EAST YOUTH INITIATIVE WORKING PAPER

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ABSTRACT

We examine in this paper the transition from school to work and the transition to marriage among young men with at least a secondary education in Egypt, with particular attention to how the first transition affects the second. In examining the transition from school to work, we analyze the determinants of the duration of transition to first employment after school completion, as well as the type and quality of job obtained in such employment. We then move to an examination of the determinants of further mobility to a second job. In examining the transition to marriage, we investigate the effect of time to the first job and the time to the first good job, if any, on the timing of marriage, controlling for cohort of birth, education, family background and community-level variables.

We find that the duration of transition to first employment has fallen over time primarily because of the reduced availability of formal employment, especially public employment, making it less worthwhile for young men to remain jobless while searching for such employment.

Having access to work in a family enterprise reduces significantly the duration of transition from school to work as does the need to be the main breadwinner of the family. While education beyond the secondary level has no significant effect on the duration of the transition, it does significantly affect the probability of getting a good job and a formal job, as a first job. The hazard of transition to a second job is negatively associated with the time it takes to get a first job, but that is primarily because it is negatively associated with the quality of the first job and the fact that it takes longer to get good first jobs.

Our findings relating to the transition to marriage confirm both the importance of early entry into the job market and of obtaining good jobs for early transition into marriage. However, if delayed entry (due to search) raises the hazard of getting a good job, it may actually be a worthwhile strategy, from the point of view of curbing the delay in marriage, for an individual to spend more time in job search.

1. INTRODUCTION

The transition of young people to adulthood in much of the Middle East has become, by most accounts, an increasingly protracted and anxious process in recent years for both the young people themselves and their families. The period between completing school, finding a job that meets one's expectations, and accumulating the necessary resources for marriage has not only lengthened, but is also increasingly accompanied by uncertainty, anxiety and frustration, as well-established patterns of employment and family formation are gradually disrupted. Some have dubbed this prolonged period of anxious waiting for the different elements of life that mark a completed transition to adulthood to come together as "wait adulthood" or "waithood" for short (Dhillon and Yousef 2007, Singerman 2007). As education levels rise, the expectations about job quality and standards of living within marriage also rise at the same time that young people's ability to obtain good jobs appears to be declining relatively quickly in the context of a more competitive and informalized labor market. In this paper, we examine two important transitions in the life of young men, namely, the transition from school to work and the transition to marriage, with particular attention to how the first transition affects the second.

Although the "waithood" phenomenon affects both young men and young women in Egypt, we focus on young men in this paper for several reasons. According to prevailing social norms in Egypt, it is young men who are expected to be the primary breadwinners after marriage and it is they and their families who assume the bulk of the cost of marriage.[1] Young women's transition to marriage, the main marker of adulthood in Egypt, has also been prolonged in recent years, but this is often because they must wait for their prospective spouse to become "ready" for marriage by obtaining a good-enough job and accumulating the necessary resources to acquire housing and the other necessities of setting up a new household. With respect to the transition from school to work, only about a third of young women ever make the transition to employment and most of those who do leave their jobs at or

before marriage, unless they happen to get one of the increasingly coveted and hard-to-get public sector jobs (see Assaad and El-Hamidi 2009). Thus in the case of young men, it is fairly safe to assume that the direction of causality runs from labor market trajectory to the timing of marriage, but that is highly unlikely to be the case for young women.

We further restrict our attention in this paper to males with at least an upper secondary education since it is only for that group that the sequencing of the transition is clearly defined as being from school to work rather than from early entry into work followed by dropout from school. Males with less than secondary education often interrupt their schooling in order to go to work, putting into question the exogeneity of schooling level to the decision to go to work. However, the vast majority of those with secondary degrees and above hold terminal degrees for whom the decision to continue schooling is typically not an option. Among secondary school graduates, fewer than three percent have a general secondary degree that gives them the option to continue onto university. The rest have either three-year or five-year technical secondary degrees, which are for the most part terminal degrees in Egypt.[2] Similarly, two-year post-secondary degrees and university degrees in Egypt are mainly terminal degrees. It should also be noted that with the increasing educational attainment in Egypt, those with secondary school certificates and above are now the majority of labor market entrants. According to the Egypt Labor Market Panel Survey of 2006 (ELMPS 06), our main source of data, these graduates constitute over 70 percent of all males who entered the job market in the ten years previous to the survey.

The remainder of this paper is divided into six sections. Section 2 provides a review of the literature on the transition from school to work and the links between employment experience and marriage. Section 3 provides the conceptual framework we use to derive testable hypotheses on both sets of transitions. Section 4 presents the data sources and econometric methodologies we use. Section 5 presents our findings on the transition from school to work, including the

findings related to duration to first employment, type and quality of first jobs, and duration to a second job. Section 6 presents our findings related to the transition to marriage and Section 7 concludes.

2. LITERATURE REVIEW

Although they represent two essential aspects of the transition to adulthood, the literatures on the transition from school to work and on the transition to marriage have developed relatively independently. This paper and the recent paper on Iran by Egel and Salehi-Isfahani (2010) are among some of the first attempts to analyze the two transitions within a unified conceptual framework. Accordingly, we begin by reviewing the literature on the school-to-work transition, then move to the literature on transition to marriage, and finally draw on both to develop hypotheses relating to both the transition to employment and marriage.

The transition from school to work has received a great deal of attention in recent years because of its link to the quality and quantity of the labor force and to the quality of jobs an economy generates (Russell and O'Connell 2001). In a review of the international literature on the topic, Bradley and Nguyen (2004) classify existing studies according to type of data used, available covariates, and methods of data analysis. They note that most studies of the school-to-work transition analyze cross-sectional data (Andrews and Bradley 1997, Andrews, Bradley and Stott 2002), with some using pooled cross-section time-series data (Lenton 2003, Betts et al. 2000, Lassibille et al. 2001). Few studies use longitudinal data.

The most important covariates included in the analysis are personal characteristics, mainly education and school-related variables, as well as skills training. These variables are important determinants of the duration of the transition and are also relevant for examining the mismatch between the level and type of education and the type and work obtained (Andrews et al. 2002 and Lassibille et al. 2001). Family background has been used in the literature as well, measured by parental education, occupation, family income, and family structure and size (Bradley and Nguyen 2004). Finally, local labor market conditions are also included in these studies, in particular the local unemployment rate (ibid.).

The models used in modeling the transition from school to work include logit, multinomial logit (Lenton 2003), ordered logit or probit (Lassibille et al. 2001 and Dustman et al. 1998), and Cox proportional hazard models. In order to study the link between search duration, accepted wage, and job duration, a Norwegian study used a system of simultaneous equations estimated by maximum likelihood methods (Bratberg and Nilson 1998). Singer and Willett (1993) called for the use of discrete-time survival models instead of either categorical variable or continuous time duration models to take into account the time-dependent nature of the transition and the fact that duration data are often only observed in discrete units of one year or in calendar years that group together a range of durations. Nguyen and Taylor (2003) and Verdu et al. (2008) heed this advice and use discrete-time hazard models to analyze school-to-work transition data. The latter paper uses the STATA module developed by Jenkins (2005) that we use in this paper.

Although there are a number of studies that examine the education-employment match, few studies discuss the quality of jobs resulting from the transition from school to work. Verdu et al. (2008) define what they call "significant and non significant" jobs, where significant is defined as a regular job of at least 20 hours per week and a duration of at least 6 months.

The literature on the transition from school to work in Egypt documents well the high unemployment rates and long unemployment durations experienced by secondary school and university graduates as they make their way to first employment (see El-Hamidi and Wahba 2005, Assaad 2008, Amer 2009, and Assaad and Mohie 2008). It is now well established that the vast majority of the unemployed are young, first-time new entrants with at least a secondary education. After a sharp increase in youth unemployment from 1988 to 1998, there was a decline from 1998 to 2006, but

the decline did not extend to university graduates, especially those living in urban areas. In line with the decline in youth unemployment rates, the duration of transition from school to work has actually declined for young men in Egypt from 1998 to 2006. El-Hamidi and Wahba (2005) and Assaad (2008) speculate that it is because the prospects for public sector employment have declined and those of getting formal private sector work are still low, making it less worthwhile to delay entry into employment in order to search for formal employment. Young men are increasingly taking whatever jobs they can get, with the hope that they can upgrade their employment at a later date.

The literature on the economic determinants of the transition to marriage for young men is not voluminous. On the theoretical side, Keeley (1977) develops a model that incorporates search costs into Becker's (1973, 1974) theory of marriage. Becker (1973, 1974) uses household production theory to explain the benefits from marriage, such as love and child care, and to explain spouses' specialization in market or domestic work depending on their relative wages. Costs associated with searching for a spouse, for instance, are neglected. In contrast, according to Keeley's (1977) theory, an individual enters the marriage market only if his/her expected benefits of search are equal to or exceed the expected costs. With regard to men's and women's employment status, Keeley's (1977) model predicts that "higher-wage men and lower-wage women have greater gains from marriage and thus tend to enter the marriage market earlier" (ibid.) provided that men earn more than women. Using data from the 1967 Survey of Economic Opportunity in the United States, he finds empirical evidence in support of his theoretical model. Bergstrom and Schoeni (1996) develop a theoretical model of the marriage market that predicts a positive correlation between income and age at first marriage for men. They use the 1980 United States census and regress family income and annual earnings on the age at marriage (not vice versa!). They restrict their analysis to men aged 40 and above who are currently married and married only once. Estimation results confirm their theoretical model but also show a negative correlation

for those in the sample who married after age 30. Similarly, Danziger and Neuman's (1999) estimation results support Keeley's (1977) hypothesis. However, they also find evidence for Bergstrom and Bagnoli's (1993) hypothesis that in traditional societies, men's age at marriage *increases* with their wage rate. Bergstrom and Bagnoli (1993) argue that it takes time until a man can show his ability to earn a high wage. Hence, men who are confident in their career path will postpone marriage in order to marry a more desirable woman. Consequently, more desirable women will marry older men. Danziger and Neuman (1999) rely on data from the 1983 Israeli Census of Population and Housing and run separate regressions for Muslim and Jewish married couples. In addition, they run regressions for the following cases: non-working wife, working wife, wife's wage exceeding the husband's wage and vice versa.

Few studies go beyond wages to measure job status or career. One exception is the study by Gutiérrez-Domènech (2008), which confirms earlier findings from Ahn and Mira (2001) that unemployment spells (non-employment spells in Ahn and Mira (2001)) and temporary contracts delay men's timing of marriage and first child bearing in Spain. Ahn and Mira (2001) also control for the likely endogeneity of education to the marriage and childbearing decision by running the models separately for each educational category. Employment status is classified into four categories: full-time continuous work, part-time or temporal work, no work and military duty. De la Rica and Iza (2005), again on Spain, exclusively focus on the role of fixed-term contracts. They show that men working under such insecure conditions, or even not working at all, delay their marriage compared to those holding an indefinite contract. Women's decision to marry remains, in contrast, unaffected by their contractual status. Finally, Oppenheimer et al. (1997) consider career transition as a process and therefore look at both current career and long-term labor market status as determinants for marriage timing. More specifically, they use information on job type at the previous interview (non-employed, "stopgap" jobs, career (entry) positions,

or military service) and work experience during the previous year expressed in categories based on hours worked and earnings. Using data from the National Longitudinal Survey of Youth from 1979 to 1990 and applying duration analysis, they find a strong impact of the career-entry process on men's age at marriage.

The importance of economic factors is also confirmed by studies on marriage timing in developing countries although these studies often focus on women's age at marriage. The study by Anderson et al. (1987) shows, for instance, that the wife's and husband's occupations, age and – similar to Oppenheimer et al. (1997) – ethnicity have a high influence on women's age at marriage in Malaysia. Bates et al. (2007) show that other factors, such as mother's education, also matter for rural Bangladesh. Of those who (also) analyze men's marriage decisions, Caltabiano and Castiglioni (2008) focus on the interrelatedness between first sexual intercourse, marriage, and cohabitation given that, in Nepal, cohabitation may be delayed up to several years after marriage. Using data from the 2001 Nepal Demographic and Health Survey (DHS), they do not, however, control for variables related to employment or job status. Admittedly, economic factors may be less important in their context as men's average age at marriage has remained relatively stable across cohorts. Furthermore, they limit their estimation to married men and women in order to include variables related to the husband's or wife's characteristics. Another study on Nepal, conducted by Ghimire et al. (2006), looks at changes in spouse choice and its association with age at marriage. They estimate hazard models for a pooled sample of men and women, treating spouse choice and arranged marriage as competing risks. Employment status, however, is not taken into consideration.

To sum up, there are still relatively few studies linking the labor market and the marriage market. Historically, most economic studies on marriage timing covered industrialized societies, especially the United States and more recently Europe. However, with the role of marriage and the forms of family formation changing, these studies have become more interested in related topics, such as cohabitation versus marriage and the timing of births and less on the age at marriage itself (e.g., Kreyenfeld 2000). Put differently, the role of marriage as a marker of adulthood has declined in Western societies, as have social and economic constraints on the marriage decision. With regard to marriage timing in developing countries, attention has primarily been paid to the determinants of women's delay in marriage. This corresponds to the general trend in most developing regions as described earlier, namely, the increase in female age at first marriage over time and a relatively unchanged pattern for male age at first marriage. The main contribution of this paper is to build a better understanding of the determinants of men's timing of marriage, and in particular the role of their employment status, in a developing country context. More specifically, using data from the ELMPS 06 allows us to study the impact of young men's labor market trajectories on their transitions to marriage in Egypt.

3. CONCEPTUAL FRAMEWORK

If we adopt a search framework for both the transition to first employment and marriage, we can develop a set of testable hypotheses about the determinants of these transitions. The length of the transition in either case will depend on the expectation one forms about the kind of job or spouse one is able to get, the ability to afford to remain jobless or celibate, and the rate at which acceptable job offers or potential spouses become available. In the case of transition to first employment, young men form certain expectations about what sort of job they can get based on their level of education, their family background, and the labor market conditions prevailing at the time they are undertaking their search. They also weigh the cost of searching, which is essentially the income they forego by not working while they search, and their ability to afford this cost, which depends on their families' ability to support them while they search.

A search framework can also be applied to duration to first marriage as suggested by Keeley (1977). Young

men and their families form expectations about what kind of spouse they wish to marry based on their preferences for child quality versus quantity, their social class, their level of education, etc. Their ability to fulfill these expectations will in turn depend on their economic eligibility for marriage, which includes whether or not they are employed, the kind of job they have and their level of earnings, as well as, of course, their social eligibility as described by education and social class. In the case of marriage, the cost of search is more psychological and social, including the inability to have one's own family and have socially sanctioned sexual relations.

Using these insights, we start by deriving testable hypotheses on the determinants of duration to first employment. As we show in the empirical analysis that follows, education significantly increases the likelihood that young men will obtain formal jobs. We therefore hypothesize that a higher expectation of getting a formal job will lead more educated young men to spend more time searching for their first jobs. This hypothesized negative relationship between own education and the hazard of obtaining first employment implies an implicit assumption that education raises the reservation job quality more than it raises the arrival rate of acceptable job offers. We also assume that informal or lower quality jobs are readily available and do not require significant amounts of search.

With fewer formal jobs over time because of the curtailment of public sector employment without a commensurate increase in formal private sector employment, younger cohorts of new entrants are likely to spend less time searching for these increasingly scarce jobs and will enter the labor market faster than their older counterparts, everything else being equal. Similarly, individuals living in regions in which the supply of formal jobs is more limited, like non-metropolitan or rural regions, will spend less time in job search. Variations in local labor market conditions facing individuals at the time of entry will also influence their time to first employment. A greater availability of public sector and private sector paid jobs should shorten the duration to first employment and an increase in the local unemployment rate should lengthen it.

The effect of family background on the duration to first employment is more ambiguous. Social class, as measured by parental education, can act to raise a young man's expectations of the sort of job he could obtain and thus lengthen search duration, but it can also increase access to good jobs through familial networks and connections, thus shortening transition time. However, correcting for his education, the nature of the father's employment can have somewhat predictable effects. A self-employed father or one who owns his own business will likely employ his son, thus providing a smooth transition into the labor market. A father who is not working because of disability or age will often mean that a young man must support his family, leading to a high opportunity cost of searching and a quick transition to employment.

The transition to a second job can also be analyzed using a similar cost-benefit approach. Because of a long history of highly protective labor laws, formal jobs in Egypt rarely end in involuntary layoff or dismissal. Thus we would expect that individuals who get formal first jobs are less likely to move on to a second job than those who get informal ones. Older cohorts who had a better chance of getting formal employment than younger ones may therefore be less likely to move. However, it is not clear what the cohort effect would be once quality of first job is accounted for. Similarly, it is not clear a priori what the impact of own education or family social background would be on the hazard of moving to a second job.

Applying the search framework to the marriage market, we can derive the following hypotheses. The impact of a young man's education on the timing of marriage is likely to be ambiguous. On the one hand, education potentially raises his earnings and could thus speed up his entry into marriage. However, as Bergstrom and Bagnoli (1993) suggest in the case of traditional societies, it may take a while for men to demonstrate their earning potential. Thus, men who are confident in their career path may postpone marriage in order to marry a more desirable woman. This essentially means that education could raise men's expectations about quality of spouse sufficiently to encourage them to search longer. However, correcting for education,

and therefore expectations, men with jobs are likely to marry faster than men without jobs, and men with good jobs are likely to marry faster than men with poor jobs. Social class, as proxied by parent's education, is likely to have the same ambiguous effect on the timing of marriage as on the timing of first employment because it affects both the expectations about spouse quality and the ability to obtain such a spouse.

4. DATA & METHODOLOGY

We rely on data from the Egypt Labor Market Panel Survey of 2006 (ERF 2006). The survey was administered to a nationally representative sample of 8,349 households of which 3,684 were among the original 4,816 households interviewed in the Egypt Labor Market Survey of 1998 (ELMS 98). An additional 2,167 new households emerged from these 3,684 households as a result of splits, and a refresher sample of 2,498 households was added in 2006. The full sample in 2006 includes 37,140 individuals. In the analysis of the school to work transition, we restrict the analysis to men aged 15 to 34 and our working sample consists of 3,110 individuals, each of whom is observed over a number of spells. In the analysis of transition to marriage, we consider all men 18 to 40, of which there are 3,995 in the ELMPS 06 sample.

The data from ELMPS 06 provide retrospective information about the employment history of each individual including the characteristics of their first job, as well as the current job and the two previous jobs or labor market states that precede it, if any. For virtually all the individuals in our sample, these jobs or other labor market states constitute a full job history. Although we do not have earnings at each point in an individual's career, we have enough information on the jobs they occupied, including employment status, sector of ownership, occupation, economic activity, job stability and formality of employment, to predict job quality over the life cycle with a fair degree of accuracy, as described below. The ELMPS 06 also has detailed data on marriage that not only describes an individual's age at marriage, but also the living arrangements just after marriage and the full cost of marriage including who bore these costs.[3]

4.1 ANALYZING TRANSITION DURATIONS IN THE PRESENCE OF DISCRETE-TIME DATA

A time-to-event analysis is adopted in the paper wherein A time-to-event analysis is adopted in the paper wherein time is a discrete variable measured in years. In the case of duration to first job, time is measured from the calendar year of school completion to the calendar year of getting the first job (the event), or to the year of survey if the person had not yet obtained a job by the time of the survey. The latter constitute censored observations. Those who started work before age 15 while they were still in school were dropped from the study since at the time of their first job they did not satisfy the inclusion criteria of the analysis either in terms of age or in terms of education level. Young people who started their first job after age 15 while still studying were included but their time to event was set to zero. In the transition to the second job, the analysis is restricted to those who obtained a first job and the time to event is the duration since obtaining the first to the second job (the event) or to the time of the interview if the duration is censored. In the transition to marriage, the duration is measured as the age of the individual at first marriage if he ever married and his current age if he is still unmarried, with individuals currently 18 to 40 being observed from the age of 14 to 39.

Discrete-time models are more appropriate than continuous time hazard models when the durations are measured as intervals between two calendar years and can thus represent multiple durations in continuous time. We therefore have "grouped" or "banded" duration data that are best dealt with using discrete-time models (Steele 2005, Jenkins 1997). The discrete-time hazard for interval t is the probability of an event occurring during interval t, given that no event has occurred prior to that interval. This requires dividing the time into intervals where the event occurs only once and expanding each individual observation into a number of records equivalent to the number of years until the event occurs or until the year of the survey. A censoring indicator then marks whether or not an event has occurred (Singer and Willet 1993)

Let y_{ti} be a binary response for every time interval t_i based on the event/censoring time y_i, and let δ_i be a censoring indicator:

$$y_{ti} = \begin{cases} 0 & t < y_i \\ 0 & t = y_i, \delta_i = 1 \\ 1 & t = y_i, \delta_i = 0 \end{cases}$$

Hence the discrete–time hazard for the interval t is as follows:

$$h_{ti} = \Pr(y_{ti} = 1 \mid y_{si} = 0, s < t)$$

The functional form of the hazard can be logistic or complementary log-log, which is the specification used in this paper, since it is a direct extension of the continuous Cox model (Jenkins 2005). Following Jenkins (2005), we assume a parametric Gamma distribution of the disturbances. This is a common assumption since it is a continuous distribution with a support of zero and above, a mean of one and finite variance which provides a closed form expression for the survival function with frailty (Jenkins 2005). Consequently, the discrete-time hazard function at interval j now includes a normally distributed random variable ε_i and is given by:

$$h_{ti}(X_{ti}) = 1 - \exp\{-\exp[X_{ti}'\beta + \gamma_t + \log(\varepsilon_i)]\}$$

where X_{ti} is a vector of time-varying and time-invariant covariates with observed characteristics for person i and interval t, β is a vector of parameters to be estimated, and γ_t is the logarithm of the integral of the baseline hazard over interval j (Jenkins 1997, 2005). We use the STATA program *pgmhaz8* written by Jenkins to undertake the estimation.

Time dependence must be explicitly specified in the previous model; otherwise, a flat hazard probability over time is assumed. In our model, we estimate a flexible non-parametric form of time dependence, where each spell except for the reference is represented by a dummy variable. In the case of the duration to first and second jobs, the reference time period is year zero, and in the case of the transition to marriage the reference age is age 32.

4.2 MEASURING JOB QUALITY

Due to the recent interest in the concept of "decent work" or "good quality jobs," there have been an increasing number of studies about job quality. Assaad, Roushdy and Rashed (2009) propose a method of measuring and explaining job quality for both wage and non-wage workers in Egypt in an attempt to operationalize the International Labor Organization's "decent work" concept at the level on an individual job. Using factor analysis, they estimate a normalized job quality index on pooled data from the ELMS 98 and ELMPS 06 (with mean zero and units equal to one standard deviation) that incorporates earnings, the formality of the job (as measured by the presence of a formal contract, social insurance coverage, paid vacations and paid sick leave), job stability, over and underemployment, and type of workplace. The index is developed to describe a worker's current job for which all the information required to form the index is available.

Because the estimation of the job quality index depends on having earnings information and such information is only available for an individual's current job, as observed in ELMS 98 and ELMPS 06, the job quality index is not available at every point in an individual's employment trajectory. We do, however, have information on a number of job characteristics at every point in the trajectory and can therefore use this information to predict job quality throughout the trajectory. We first calculate the index from current data in 1998 and 2006 and then regress this index on the job-related variables available both in the current data and in the retrospective data about previous jobs. These variables include (2-digit) occupation, (2-digit) economic activity, contractual status, social insurance coverage, sector of ownership, and regularity of employment. Separate regressions are estimated for males and females and for wage and nonwage workers. Job quality is then predicted for the worker's first, second and third jobs (if any) on the basis of these regressions. The main limitation of such a method is that the predicted index is not able to capture variations in job quality that occur in the course of a single job (such as those resulting from rising wages on the job). However, any changes in

Table 1: Time to First Job by Birth Cohort (25th, 50th and 75th percentiles), Men 15-34 with Secondary School Certificates or Higher

Cohort	Percentile		
	25%	50%	75%
1971-1975	1.5	2.5	4.4
1976-1980	1.4	2.0	4.4
1981-1985	1.4	1.9	4.4
1986-1990	1.2	1.7	3.8

Source: ELMPS 06
Note: Estimates include all males 15-34 irrespective of whether or not they obtained a first job.

employer, occupation, economic activity, job stability, contractual status, or social insurance coverage are considered a change of job in the data and would be reflected in job quality.

5. THE TRANSITION FROM SCHOOL TO WORK

Our analysis of the transition from school to work consists of three parts: (i) the duration to the first job and its determinants; (ii) the determinants of the type and quality of the first job; and, (iii) the duration to the second job, if any, and its determinants.

5.1 THE DURATION TO FIRST EMPLOYMENT

Contrary to conventional wisdom and popular perceptions, time to first job for young male new entrants in Egypt with at least a secondary education has been falling in recent years. As shown in Table 1, the median time from school exit to the first job has dropped from 2.5 years for those born from 1971 to 1975 to 1.7 years for those born from 1986 to 1990. These estimates are based on Kaplan-Meier statistics and therefore take into account that a smaller fraction of the younger cohort has actually entered into employment. Although the decline in time to first job from the oldest cohort to the youngest cohort under consideration can be detected throughout the distribution, it is more pronounced in the middle of the distribution than at the two ends. Median time has dropped by 34 percent compared to 19 percent at the 25th percentile and 14 percent at the 75th percentile.

As stated in our conceptual framework, the primary explanation for the decline in the duration of the transition from school to work across cohorts is the restructuring of the Egyptian labor market away from public sector employment, which led to a lower probability of such employment for younger cohorts and therefore a lesser incentive to queue for it. As shown in Figure 1, younger cohorts are much more likely to have an informal job as a first job, as the proportion of public sector jobs for educated new entrants dropped precipitously in the 1980s. While the share of formal private sector employment has increased somewhat, it is not nearly enough to make up for the reduction in public sector employment. As a result, the share of formal wage and salary employment in total first-time employment of educated new entrants has dropped from nearly 80 percent for those entering the labor market in the mid-1970s to only 30 percent for those entering in the mid-2000s. With such a reduction in the chances of obtaining a formal job, it is no surprise that younger cohorts are searching for these jobs for a shorter period of time.

Table 2 confirms that, among young men who actually obtained jobs, those who ended up in public sector jobs and in formal private sector jobs had longer transitions from school to work, reflecting the greater search effort and possible queuing that accompanies these formal jobs. It is noteworthy that the next longest durations of transition can be found among those who ended up being employers or self-employed, reflecting the time it takes to set up one's own enterprise. It is no surprise that the shortest durations are experienced by unpaid family workers who simply join an existing family business.

Figure 1: Distribution of New Entrants with Secondary Education and Higher, by Type of First Job and Year of Entry into First Employment (percent)

(Four-year Moving Average)
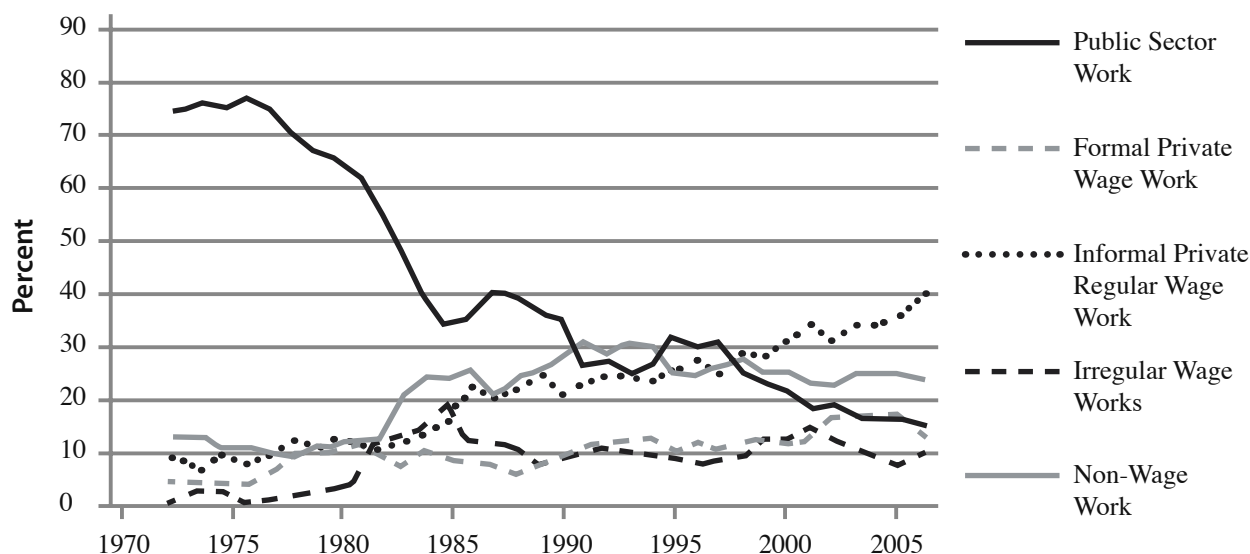
Source: ELMPS 06

Some of the observed differences in the bivariate relationship between time to first job and type of first job may simply reflect differences in educational attainment. As suggested in Section 3 above, individuals with higher levels of education are more likely to seek formal jobs and are therefore more likely to search longer for such jobs. As shown in Table 3, there is a positive relationship between educational attainment and duration of transition from school to work. Median durations increase substantially for those with two-

year post-secondary degrees and university degrees. These are precisely the educational levels that are more likely to seek and obtain formal jobs. This finding conforms to the higher unemployment rates among educated workers, especially post-secondary institute and university graduates, since the vast majority of the unemployed in Egypt are first-time job seekers (Assaad 2008). This also agrees with the finding for Iran, where unemployment has a positive relationship with education (Egel and Salehi-Isfahani 2010).

Table 2: Time to First Job for those who Already Obtained such Jobs by Type of First Job (25th, 50th and 75th percentiles), Men 15-34 with Secondary School Certificates or Higher

Type of First Job	Percentile		
	25%	50%	75%
Public	1.5	2.3	4.2
Private formal wage work	1.6	1.9	4.2
Private regular informal wage work	1.3	1.7	3.4
Private irregular wage work	1.2	1.6	2.7
Unpaid family work	1.2	1.5	1.9
Employer/self -employed	1.4	1.9	3.9

Source: ELMPS 06

Table 3: Time to First Job by Educational Attainment Cohort (25th, 50th and 75th percentiles), Men 15-34 with Secondary School Certificates or Higher

Educational Attainment	Percentile		
	25%	50%	75%
General secondary	1.4	1.8	3.7
Technical secondary 3yr	1.4	1.9	4.4
Technical secondary 5yr	1.3	1.9	4.2
Post-secondary 2yr	1.5	2.6	4.6
University and higher	1.5	2.5	4.3

Source: ELMPS 06

Since the location of the individual at the time of entry into the labor market can vary with time and is a decision variable that could be endogenous to the timing of first employment, we use the individual's region of birth rather than the region of current residence to abstract from migration decisions. In the bivariate associations, the metropolitan regions of Greater Cairo and Alexandrian and the Suez Canal cities have the longest durations of transition, followed by urban Lower Egypt (Table 4). This pattern is consistent with the notion that youth living in regions with a greater probability of formal employment are more likely to search for such employment and therefore take longer to accept their first job.

As mentioned in the methodology section above, we analyze the determinants of duration to first job using a discrete-time hazard model with non-parametric time dependence. The working sample includes 3,110 young men ages 15 to 34 who completed at least an upper secondary education. However, since the data for this model is made up of individual spells rather than individuals, the total number of spells observed for these individuals as they transition from school to work is 10,243. We present in Table 5 the exponentiated coefficients. Assuming that a proportional hazard model applies to the underlying continuous time data, the exponentiated coefficients can be interpreted as hazard ratios relative to the baseline hazard; so, for example, a coefficient of 1.5 means that the variable in question raises the hazard of marriage by 50 percent. Incorporating time-varying covariates into the model relaxes the proportionality though (see Rabe-Hesketh and Skrondal 2008).

We estimate four models, with each subsequent model adding additional regressors or interaction terms to the previous model. Model 1, the simplest, includes dummies for five-year birth cohorts and dummies for own educational attainment, in addition to the spell

Table 4: Time to First Job by Region of Birth (25th, 50th and 75th percentiles), Men 15-34 with Secondary School Certificates or Higher

Region of Birth	Percentile		
	25%	50%	75%
Greater Cairo	1.5	2.6	4.7
Alexandria & Suez Canal	1.5	2.7	4.7
Upper Lower Egypt	1.5	2.5	4.6
Upper Urban Egypt	1.4	2.0	4.8
Rural Lower Egypt	1.4	1.9	4.0
Rural Upper Egypt	1.3	1.7	3.4

Source: ELMPS 06

dummies that describe the shape of the baseline hazard. The reference category for cohorts is the 1971-75 birth cohort and the reference category for own education is a three-year technical secondary degree. Model 2 adds to this basic model parental education, the father's type of employment when the youth was 15, and the presence of a farm or a non-farm enterprise in the household. Model 3 adds time-varying labor market conditions in the young man's governorate of birth. These indicators include the local unemployment rate and the ratios of private sector wage workers and public sector workers among all workers in the governorate. The year of the indicator is matched to the calendar year that corresponds to the individual spell under consideration. Finally, Model 4 adds to the previously included regressors dummies indicating the young man's region of birth.

As shown in Table 5, results from Models 1 through 3 show that more recent cohorts have been transitioning to the labor market more rapidly than their predecessors. With only own education included as a control, young men born in 1981-85 and 1986-90 have a 41 percent and a 104 percent higher hazard of transitioning to a first job respectively, compared to those born in 1971 to 1975, the reference category. Once parental education, father's employment, and the presence of household enterprises are included, as in Model 2, the difference between the 1981-85 and 1971-75 cohort disappears and the difference in hazard between the 1986-90 cohort and the 1971-75 cohort is now smaller. This suggests that the more rapid entry of more recent cohorts may have something to do with the greater incidence of household enterprises in Egypt in recent years leading to opportunities to work as unpaid family workers. The difference between the 1986-90 and 1971-75 cohorts disappears completely when we include the regional dummies in Model 4. Thus, the strong observed differences in the duration of transition to first employment across cohorts can be accounted for by differences in the labor market conditions these cohorts faced rather than differences in preferences or other unobservable cohort-specific factors.

Unlike what Egel and Salehi-Isfahani (2010) find for Iran, there is not a strong relationship in Egypt between higher levels of educational attainment and longer transitions to first employment, at least once secondary education has been achieved. Though longer durations are observed for post-secondary and university graduates in Model 1, the differences are not statistically significant at conventional levels. Moreover, even these statistically insignificant differences disappear completely when other regressors are included. Thus, any observed bivariate associations between education and speed of entry into employment must be due to differences among workers with different education levels that are captured by the other regressors like parental education and father's employment, keeping in mind that we are only dealing here with workers who are educated to at least the secondary level. These workers, as a group, have much longer transition times to employment than less educated workers who simply do not search for formal jobs because their chances of obtaining them are minimal. It is interesting to note that differences in transition times between secondary school and university graduates in Iran persisted even when parental education was controlled for (Egel and Salehi-Isfahani 2010).

The results relating to the impact of parental education on the duration of transition from school to work are somewhat ambiguous. Having parents with secondary education leads to a slower transition to employment than parents with less than secondary education, but having parents with university education or higher has no significant effect.[4] This U-shaped effect of parental education could be the result of the tradeoff between the additional resources educated parents bring to bear to help their sons find work and the rising expectations for formal employment that come with higher social class. Parents with secondary education have similar expectations for formal employment for their sons as parents with university education, but they are less able to translate these expectations into jobs. Egel and Salehi-Isfahani (2010) find no relationship between father's education and transition time to first jobs in Iran, a result that they interpret as inconsistent with a higher reservation wage for youth from more privileged backgrounds. In fact, youth from higher social backgrounds could have higher reservation wages, but these higher expectations could be matched by greater resources to find jobs.

The results on father's type of employment and presence of farm and non-farm enterprises are in the expected direction. Those whose fathers are either self-employed, unpaid workers or not working transition quickly into the labor market compared to those whose fathers are in regular employment either in the government or the private sectors. The transition time is longest for those whose fathers have regular jobs outside government. These results suggest that a lengthy period of transition and job search are a luxury that only those with regular and stable household incomes are able to afford. Those in households with more irregular or limited income from labor must enter into work right away to support their households. Having a self-employed father or a household enterprise speeds up the transition by making available a ready source of work for the youth as an unpaid family worker. Our results further indicate that having access to a non-farm enterprise in the household results in a more rapid transition to first employment than having a farm.

Contrary to expectations, the time-varying local labor market conditions included in Model 3 do not have a significant impact on the duration of transition to first employment. Being in a governorate with higher than average unemployment rates somewhat slows the rate of transition to first employment, but the effect is only significant at the 7 percent level. The other two local labor market variables have no discernible effect. Adding the regional dummies in Model 4 does not add much additional explanatory power. Only rural Upper Egypt seems to have a higher hazard of transition to first employment than the reference category Greater Cairo and the difference is only significant at the 5 percent level.

The shape of the hazard or the time dependence of the model is described by the spell dummies from year 1 to year 11+, with the latter including all transitions longer than 11 years.[5] The reference category is year zero (i.e., a transition to employment in the same year of, or prior to, graduation from school). With the exception of Model 1, which seems to contain significant remaining unobserved heterogeneity (or frailty), the shape of the baseline hazard is consistent across models. For simplicity, we only show the baseline hazard and cumulative probability of employment for the reference individual from Model 2. As shown in Figure 2a, the hazard increases sharply from year 0 to year 1, drops significantly in year 2, rises again in year 3 and remains at a fairly constant level until year 7, after which it drops significantly and remains low. As shown in Figure 2b, by year 2, the reference individual has more than a 50 percent probability of getting a first job, and, by year 6, more than a 90 percent probability.

Figure 2a

The Hazard of Getting a First Job
by Year Since Leaving School for the Reference Individual
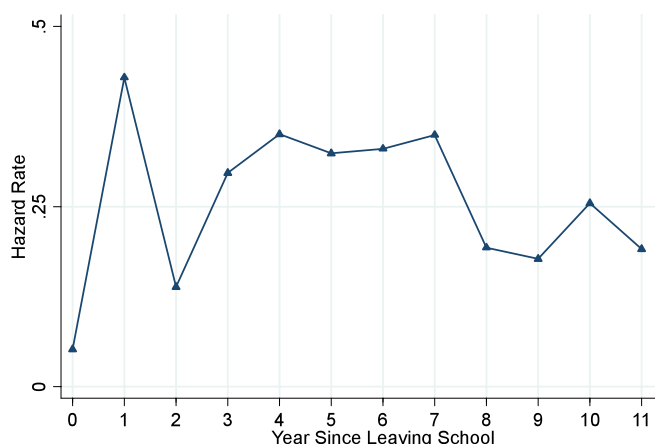
Figure 2b

The Cumulative Probability of Getting a First Job
by Year Since Leaving School for the Reference Individual
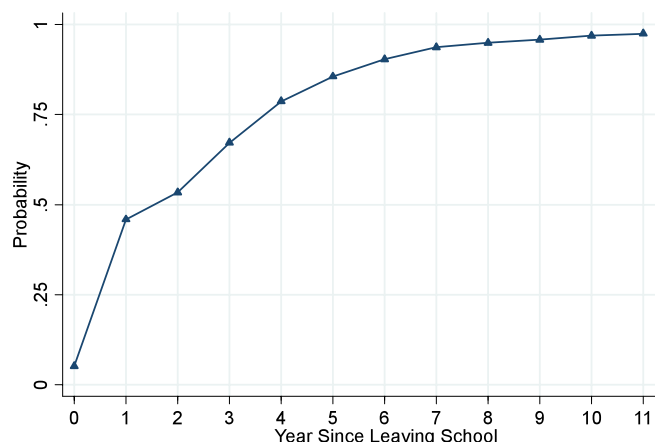
Table 5: Discrete-Time Proportional Hazard Model for Hazard of First Job with Non-Parametric Time Dependence and a Gamma Mixture Distribution for Unobserved Individual Heterogeneity, Men 15-34 with Secondary Schooling and Higher, Egypt, 2006[1]

Covariates	Model 1[2]	Model 2[3]	Model 3[4]	Model 4[5]
Birth Cohort (Ref: 1971-75)				
1976-1980	1.171	0.950	0.944	0.950
	(0.135)	(0.048)	(0.048)	(0.049)
1981-1985	1.415**	0.994	0.985	0.807
	(0.182)	(0.058)	(0.058)	(0.121)
1986-1990	2.041***	1.466***	1.446***	1.101
	(0.398)	(0.137)	(0.135)	(0.179)
Local Labor Market Conditions (Time Varying)[6]				
Local unemployment rates			0.993	0.993
			(0.004)	(0.004)
Ratio of local private wage workers			1.003	1.003
			(0.003)	(0.003)
Ratio of local public workers			0.999	0.999
			(0.002)	(0.003)
Own Educational Attainment (Ref: Technical Secondary)				
General secondary	1.285	1.105	1.108	1.097
	(0.418)	(0.172)	(0.173)	(0.172)
Technical secondary 5yrs	1.257	1.304	1.289	1.304
	(0.422)	(0.188)	(0.186)	(0.189)
Above intermediate	0.820	1.080	1.072	1.074
	(0.140)	(0.087)	(0.086)	(0.086)
University and higher	0.836	1.076	1.067	1.072
	(0.085)	(0.055)	(0.055)	(0.055)
Parents' Educational Attainment (Ref: Below Secondary)				
Father: secondary		0.837**	0.831**	0.830**
		(0.057)	(0.057)	(0.057)
Father: post secondary		0.683**	0.683**	0.689**
		(0.091)	(0.091)	(0.092)
Father: university and higher		0.923	0.922	0.934
		(0.082)	(0.082)	(0.084)
Mother: secondary		0.745***	0.744***	0.754**
		(0.065)	(0.065)	(0.067)
Mother: post secondary		1.443**	1.447**	1.461**
		(0.199)	(0.200)	(0.202)
Mother: university and higher		0.970	0.969	0.971
		(0.152)	(0.152)	(0.153)
Father's employment when youth was 15 (Ref: Public Employee)				
Irregular job		1.345	1.351	1.295
		(0.489)	(0.492)	(0.472)
Self-employed or employer		1.322***	1.321***	1.313***
		(0.089)	(0.089)	(0.089)
Regular employee (non-government)		0.607***	0.608***	0.606***
		(0.038)	(0.038)	(0.038)
Unpaid job or jobless		1.703***	1.707***	1.661***
		(0.104)	(0.104)	(0.102)
Presence of Household Enterprise (Ref: No HH Enterprise)				
HH has a farm		1.136*	1.141*	1.066
		(0.060)	(0.061)	(0.061)
HH has a non-agricultural enterprise		1.226***	1.226***	1.241***
		(0.057)	(0.057)	(0.058)

Region of Birth (Ref: Greater Cairo)				
Alexandria & Suez Canal				1.018
				(0.082)
Urban Lower Egypt				0.957
				(0.080)
Urban Upper Egypt				0.945
				(0.075)
Rural Lower Egypt				1.050
				(0.081)
Rural Upper Egypt				1.220*
				(0.102)
Spell Dummies	included	included	included	included
Constant	0.060***	0.053***	0.054***	0.057***
	(0.007)	(0.005)	(0.008)	(0.011)
Gamma variance	1.827*	0.000	0.000	0.000
	(0.531)	(0.000)	(0.001)	(0.001)
Log-likelihood	-5039.37	-4781.69	-4779.00	-4771.27
Number of Individual Spells	10,243	10,243	10,243	10,243
Number of Individuals	3,110	3,110	3,110	3,110

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Notes:

1. *Exponentiated regression coefficients indicating hazard ratios. Standard errors in parentheses can be used to test the statistical significance of the deviation of the exponentiated coefficients from 1.*

2. *Model 1 includes cohort and own education dummies only as regressors in addition to the non-parametric time dependence.*

3. *Model 2 adds parental education, father's employment and the presense of farm and non-farm enterprises in the HH to the regressors included in Model 1.*

4. *Model 3 adds labor market conditions in the governorate of birth to the regressors included in Model 2.*

5. *Model 4 adds dummies for region of birth to the regressors in Model 3.*

6. *Time-varying labor market conditions in governorate of birth.*

5.2. THE TYPE AND QUALITY OF THE FIRST JOB

As we have seen in Figure 1 above, the chances of getting a formal job have dwindled significantly for educated new entrants in Egypt since the mid-1970s as the decreased likelihood of public sector employment has been only partially compensated by the small increase in the likelihood of obtaining formal private employment (Assaad 2008). In this section, we examine the characteristics of the first job young men are able to get across cohort, controlling for some of the same covariates we used to explain the duration of the transition to first employment. We examine the characteristics of the first job along three different dimensions: (i) public vs. private, (i) formal vs. informal, and (iii) by job quality as measured by the job quality index discussed in the methodology section above.

Although we could use the continuous normalized job quality index to ease interpretation, we classify jobs into good, fair, and poor. A good job is defined as a job with an index of 0.5 or higher, meaning that its job quality is more than half a standard deviation above the mean job quality. A fair job is a job with an index between -0.5 and 0.5 and a poor job has an index of -0.5 or less.[6] A job is defined as formal if it benefits from either a formal contract or social insurance coverage. Finally, public includes both the civil service and the public enterprises and private includes all the rest.

The three dimensions are overlapping to some extent, but are not entirely equivalent to each other. There is a significant degree of overlap between informality and sector of employment. As Table 6 shows, 83 percent of private first jobs are informal and 91 percent of public

Table 6: Sector of Employment, Formality and Job Quality in First Job, Row Percentages, Men 15-34 with Secondary Education and Higher

	Private	Public	Informal	Formal	Poor	Fair	Good
Private			83	17	12	72	15
Public			9	91	0	12	88
Informal	98	2			15	81	4
Formal	47	53			0	17	83
Poor	100	0	100	0			
Fair	97	3	92	8			
Good	45	55	11	89			
All	83	17	70	30	10	62	28

Source: ELMPS 06

first jobs are formal. While nearly all informal first jobs are in the private sector, formal first jobs are divided nearly equally between the private and public sectors. Job quality is also closely related to formality and sector of employment. All poor jobs are in the private sector and all are informal. However, only 12 percent of first jobs in the private sector and 15 percent of informal jobs are poor jobs, compared to 0 percent of public and formal jobs. The bulk of private and informal first jobs are classified as fair jobs according to our job quality index. Whereas only 15 percent of first jobs in the private sector are classified as "good jobs," nearly 88 percent of first jobs in the public sector are classified as good. Similarly, only 4 percent of informal jobs are classified as good, while 83 percent of formal jobs are classified as good. Thus while most public sector jobs are good, the public sector only provides just over half of all good first jobs in the economy. The vast majority of good jobs are also formal jobs (89 percent).

To investigate the determinants of the first job along these three dimensions, we estimate an ordered probit model on the job quality dimension and probit models for the formal/informal and public/private dimensions. The covariates are similar to the ones we used to explain the time to first job. We present in Table 7 the marginal effects for these models computed for a reference individual who is born between 1971 and 1975, has a technical secondary education, whose

parents have less than secondary education, whose father is a government employee, and who lives in Greater Cairo. This reference individual has a 2.4 percent probability of getting a poor job, a 59 percent probability of getting a fair job and a 38 percent probability of getting a good job in his first job. He has a 45 percent probability of getting a formal job and a 24 percent probability of getting a public sector job. As an indication of the severe deterioration in the labor market conditions facing young people in Egypt, an individual born between 1981 and 1985 has more than double the probability of getting a poor job as his first job and a 12 percentage point reduction in the probability of getting a good job compared to a similar individual born from 1971 to 1975. He also has a 20 percentage point reduction in the probability of getting a formal first job and a 15 percentage point reduction in the probability of getting a public sector job. Thus, although younger cohorts are getting jobs faster than their older counterparts, the quality of these jobs is deteriorating significantly.

Local labor market conditions affect the type of first job a young man is able to get. In particular, a 10 percent increase in the proportion of public sector jobs in the local labor market raises the probability of a good job by 3 percentage points, although it has no discernible effect on the probability of a public sector job. Similarly, a 10 percentage point increase in the local

unemployment rate is associated with a 4 percentage point higher probability of obtaining a formal job. This is probably because the greater local availability of formal jobs induces more intensive search for such jobs, thus raising the local unemployment rate.

As expected, higher levels of own educational attainment are associated with a lower probability of poor and fair jobs and a higher probability of good jobs. Similarly, they are associated with a higher probability of formal and public jobs. A two-year post-secondary degree increases the probability of a good job by 24 percentage points and a university degree increases it by 35 percentage points, almost doubling it, compared to a three-year technical secondary degree. Similarly, a university degree raises the probability of a formal job by 30 percentage points and of a public job by 32 percentage points (from 24 to 56 percent) for the reference individual.

Although the education of one's father has a positive impact on acquiring a good job in the first job controlling for own education, mother's education does not have a discernible impact. The probability of a good job increases by 12 and 17 percentage points for young men whose fathers have a secondary and university and higher degrees, respectively, compared to those whose fathers have less than secondary education. However, the effect of father's education does not extend to obtaining either formal or public employment. Mother's education, on the other hand, seems to increase the probability of formal employment.

Father's employment has an additional significant impact on both job quality and the probability of obtaining a formal or a public job, correcting for own and parents' education. Relative to someone whose father is a government employee, a young man whose father is an employer or is self-employed has an 8 percentage point lower probability of getting a good job, a 9.5 percent lower probability of getting a formal job and a 10 percentage point lower probability of getting a public job. Roughly similar results obtain for someone whose father is a regular employee outside government. If the father is irregularly employed, jobless or an unpaid family worker, there is a 9.5 percent reduction in the

probability of a good job, an 8 percent reduction in the probability of a formal job and a 5.4 percent reduction in the probability of a public job compared to someone whose father is a public employee. It therefore turns out that the best parental background to have to succeed in the labor market is to have a university educated father who works for the government.

The presence of a farm enterprise in the household has no effect on job quality, but reduces the chance of formal employment by nearly 14 percentage points and of public employment by over 7 percentage points. The presence of a non-farm enterprise significantly reduces the change of a good job, a formal job and a public job. This may be due to the fact that it raises the probability that a young man will be an unpaid family worker in the beginning of his career, an employment state that precludes searching for either a formal or public sector job.[7]

Region of residence has the expected effect on the type and quality of the first job. Residence in Greater Cairo provides the greatest opportunity for good jobs and formal jobs and residence in rural Upper Egypt the lowest chance of both. It is noteworthy, however, that region of residence has no significant impact on the probability of obtaining public employment.

We now turn to the question whether better job quality in the first job is associated with a longer transition from school to work. While we cannot address the question whether a longer job search necessarily results in higher job quality because of the endogeneity of the two decisions, it is interesting to note whether there is an association between the two. We begin investigating this by looking at the bivariate association between the type and quality of the first job and the duration of transition to the first job for those who obtained such jobs. The results shown in Table 8 suggest that higher job quality is associated with a longer duration of transition; higher job quality is also associated with formal jobs and public jobs. This suggests that individuals who seek higher quality jobs, formal jobs or public sector jobs tend to spend more time searching for these jobs. Those that perceive themselves as having a lower chance of getting such jobs end their job search early and take up any job.

Table 7: Marginal Effects from Ordered Probit Regression on Job Quality in First Job and Probit Regressions on the Probability of Formal and Public Employment in the First Job, Men 15-34 with Secondary Education and Higher Who Have Obtained a First Job

	Ordered Probit			Probit	Probit
	Pr(poor)	Pr(fair)	Pr(good)	Pr(Formal)	Pr(Public)
Base Probability for Reference Individual	0.024	0.591	0.384	0.451	0.244
Change due to one unit change in:					
Birth Cohort (Ref: 1971-75)					
1976-1980 (d)	0.018**	0.073***	-0.092***	-0.104***	-0.100***
	(0.006)	(0.019)	(0.023)	(0.026)	(0.022)
1981-1985 (d)	0.027***	0.094***	-0.121***	-0.201***	-0.147***
	(0.008)	(0.021)	(0.026)	(0.030)	(0.026)
1986-1990 (d)	0.022*	0.082**	-0.103**	-0.263***	-0.130***
	(0.010)	(0.029)	(0.038)	(0.047)	(0.038)
Local Labor Market Variables					
Local unemployment rate (%)	0.000	0.000	0.000	0.004*	0.001
	(0.000)	(0.001)	(0.002)	(0.002)	(0.002)
Local prop. of private wage workers (%)	0.000	-0.002	0.002	0.002	0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Local proportion of public workers (%)	-0.000*	-0.003*	0.003**	0.002	-0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Own Educational Attainment (Ref: Technical Secondary 3yrs)					
General secondary (d)	-0.002	-0.011	0.013	-0.066	0.015
	(0.010)	(0.061)	(0.071)	(0.094)	(0.089)
Technical secondary 5yrs (d)	-0.016**	-0.149*	0.165*	0.154*	0.235**
	(0.005)	(0.063)	(0.067)	(0.073)	(0.081)
Post-secondary 2yrs (d)	-0.019***	-0.218***	0.238***	0.230***	0.281***
	(0.005)	(0.035)	(0.037)	(0.038)	(0.043)
University & higher (d)	-0.022***	-0.333***	0.355***	0.304***	0.317***
	(0.005)	(0.022)	(0.024)	(0.026)	(0.029)
Parents' Educational Attainment (Ref: Below Secondary)					
Father: secondary (d)	-0.013**	-0.107***	0.120***	0.079*	-0.008
	(0.004)	(0.031)	(0.033)	(0.037)	(0.032)
Father: post-secondary (d)	-0.016**	-0.152*	0.168*	-0.043	-0.101*
	(0.005)	(0.065)	(0.069)	(0.069)	(0.045)
Father: university & higher (d)	-0.016***	-0.157***	0.173***	0.071	-0.015
	(0.005)	(0.044)	(0.047)	(0.050)	(0.041)
Mother: secondary (d)	-0.007	-0.048	0.055	0.06	-0.007
	(0.005)	(0.039)	(0.044)	(0.048)	(0.040)
Mother: post-secondary (d)	-0.012	-0.094	0.106	0.143*	0.098
	(0.007)	(0.068)	(0.074)	(0.072)	(0.067)
Mother: university & higher (d)	-0.007	-0.047	0.054	0.195*	0.026
	(0.009)	(0.073)	(0.081)	(0.079)	(0.072)
Father's Employment (Ref: Government Employee)					
Father self-employed (d)	0.016*	0.066**	-0.081**	-0.095**	-0.101***
	(0.007)	(0.025)	(0.030)	(0.036)	(0.028)
Father regular employee (non-gov.) (d)	0.017**	0.068**	-0.085**	-0.088**	-0.097***
	(0.006)	(0.024)	(0.028)	(0.033)	(0.027)
Father irregular, unpaid or jobless (d)	0.019**	0.076***	-0.095***	-0.080*	-0.054*
	(0.007)	(0.023)	(0.028)	(0.034)	(0.027)

Presence of Household Enterprise					
HH has farm enterprise (d)	-0.004	-0.025	0.029	-0.137***	-0.074**
	(0.003)	(0.023)	(0.026)	(0.032)	(0.027)
HH has non-farm enterprise (d)	0.023***	0.086***	-0.110***	-0.153***	-0.137***
	(0.007)	(0.016)	(0.019)	(0.025)	(0.022)
Region of Residence (Ref: Greater Cairo)					
Alexandria & Suez Canal (d)	0.010	0.046	-0.055	-0.051	0.027
	(0.007)	(0.030)	(0.036)	(0.042)	(0.039)
Urban Lower Egypt (d)	0.017*	0.070*	-0.087*	-0.054	0.047
	(0.008)	(0.030)	(0.036)	(0.043)	(0.041)
Urban Upper Egypt (d)	0.041***	0.118***	-0.160***	-0.095*	0.029
	(0.010)	(0.028)	(0.034)	(0.042)	(0.039)
Rural Lower Egypt (d)	0.028***	0.097***	-0.126***	-0.069	0.024
	(0.008)	(0.027)	(0.033)	(0.040)	(0.037)
Rural Upper Egypt (d)	0.104***	0.152***	-0.255***	-0.153***	-0.015
	(0.018)	(0.032)	(0.033)	(0.044)	(0.041)
N		2637		2637	2637
Pseudo-R2		0.1832		0.2059	0.1705
Log-Likelihood		-1919.793		-1279.105	-1016.363

(d) marginal effect for discrete change of dummy variable from 0 to 1

* p<0.05, ** p<0.01, *** p<0.001

Note: Marginal effects are computed for a reference individual whose dummy variables are set to zero and whose continuous variables are set to their sample mean.

Does the association between the type and quality of the first job and the duration of transition to first employment survive when other determinants of type and quality of job are included? To address this issue we ran regressions similar to the ones shown in Table 7 but including time to first job and time to first job squared as additional regressors. The marginal effects of these two variables for the reference individual are shown in Table 9. All the regressors shown in Table 7 are included as well but are not shown. Based on these results the peak probability of a good job is associated with a transition duration of 6.5 years, the peak probability of a formal job is associated with a duration of 6 years and the peak probability of a public first job is associated with a duration of 9.4 years, holding all other characteristics constant. Thus, getting a good first job is associated with fairly long search times. The reduced probability of obtaining such jobs for younger generations of youth is therefore the most likely explanation for their more rapid transition from school to work.

Table 8: Average and Standard Deviation of Time to First Job by Type and Quality of First Job

Type & Quality of First Job		Time to First Job	
		Mean	Std. Dev.
Job Quality	Poor	1.6	1.5
	Fair	1.8	1.8
	Good	2.5	1.9
Formality	Informal	1.8	1.7
	Formal	2.6	2.0
Sector	Private	1.9	1.8
	Public	2.5	2.0
	Total	2.0	1.8

Table 9: Marginal Effect of Time to First Job and Time to First Job Squared on Job Quality and Probability of Formal and Public Jobs

	Ordered Probit			Probit	Probit
	Pr(Poor)	Pr(Fair)	Pr(Good)	Pr(Formal)	Pr(Public)
Time of first job	-0.012***	-0.066***	0.078***	0.119***	0.037**
	(0.003)	(0.013)	(0.014)	(0.017)	(0.014)
Time of first job squared	0.001**	0.005**	-0.006**	-0.010***	-0.002
	(0.000)	(0.002)	(0.002)	(0.002)	(0.002)

* p<0.05, ** p<0.01, *** p<0.001

Note: Other regressors shown in Table 7 are included but not shown.

5.3 TRANSITION TO A SECOND JOB

To further investigate employment dynamics for educated young men in the Egyptian labor market, we examine in this section the determinants of the hazard of transition to a second job. As shown in Table 10, the median duration to a second job for young men with at least a secondary education in Egypt is 8.7 years, with 25 percent of young men transitioning to a second job in less than 4 years and 25 percent remaining in their first jobs up to 16 years.[8] Unlike the transition to the first job, where younger cohorts had a significantly shorter transition time, the pattern across cohorts is somewhat more complicated for the transition to the second job. Transition times appears to be getting shorter from the 1971-75 to the 1976-80 cohort and then getting longer for younger cohorts. It remains to be seen whether this pattern holds in the multivariate analysis. There is not a strong relationship between the rate of transition to a second job and educational attainment. The shortest transition times are observed for those with 5-year technical secondary degrees, but the differences across educational levels appear to be fairly small.

The hazard for transition to a second job varies significantly with the type and quality of the first job. As expected, the lowest rates of transition are from the self-employment or employer states and from public sector work. The second lowest rates of transition to second jobs are for private formal sector wage work and unpaid family work. The highest rates of transition to second jobs are from both regular and irregular informal wage work in the private sector. Also, as expected, rates of transition to second jobs are highest from poor first jobs, followed by fair first jobs, and lowest for good jobs. Finally, there appears to be no clear bivariate relationship between transition time to a first job and the hazard of transition to a second job.

These results differ significantly from the results obtained by Egel and Salehi-Isfahani (2010) for Iran. They find that there is less stability in the Iranian public sector than in the private sector and they attribute this higher level of mobility to the widespread use of temporary contracts in the Iranian public sector. While temporary contracts are used in the public sector in Egypt as well, they are still the exception rather than the rule. According to the ELMPS 06, the proportion of temporary contracts in the Egyptian public sector constituted only 5.8 percent of public sector employment in 2006. Another significant deviation between our result and the Iranian results is their finding that workers in formal jobs are more mobile than workers in informal jobs. Jobs in the formal sector in Iran last an average of just over two years for males whereas in Egypt the median duration is 8.7 years in private formal employment and much longer in public employment. The difference may be due to the fact that their sample includes workers at all educational levels whereas ours only focuses on those with secondary education and above. They do in fact find that university graduates with informal jobs are more mobile than those in formal jobs, but not by much. Secondary school graduates, who constitute the majority of educated workers in Iran (and Egypt), have shorter employment durations in formal employment than in informal employment. Thus, the differences appear to be real. A possible explanation of the observed differences between Iran and Egypt could be due to the fact that temporary employment contracts that can be renewed indefinitely in the formal sector have been around longer in Iran than in Egypt. Prior to the new labor law of 2003, temporary contracts were allowed in Egypt, but if renewed once, they immediately reverted to being indefinite contracts. The 2003 law, which came into effect in 2004, allowed employers to renew temporary

Table 10: Time to Second Job for Those who Obtained First Job by Selected Characteristics (25th, 50th and 75th percentiles), Men 15-34 with Secondary School Certificates or Higher

	25%	50%	75%
All	3.9	8.7	15.7
Birth Cohort			
1971-75	4.7	9.8	17.8
1976-80	3.6	7.5	12.5
1981-85	3.8	8.1	>14
1986-90	5.8	9.1	>12
Own Education			
General Secondary	6.6	9.7	>16
Technical Secondary 3yrs	4.0	8.4	15.3
Technical Secondary 5yrs	3.6	7.9	>13
Post-Secondary	3.7	8.8	>13
University & Higher	4.0	10.4	16.5
Type of First Job			
Public sector work	7.3	>17	>17
Private formal wage work	4.5	8.7	>16
Private informal regular wage work	2.9	6.1	11.8
Private informal irregular wage work	3.0	7.0	10.2
Unpaid family work	4.3	7.9	12.6
Employer/self-employed	>15	>15	>15
Quality of First Job			
Poor	3.0	5.9	13.1
Fair	4.0	8.8	16.0
Good	7.2	>16	>16
Time to First Job			
0 years	4.1	6.9	11.5
1 years	3.4	7.6	>16
2 years	4.9	>15	>15
3 years	4.1	10.7	>15
4 years	5.3	>13	>13
5 years	4.3	10.1	>12
6 years	5.2	8.7	>12
7 years	4.4	>8	>8
8 years	3.5	>7	>7

Note: Estimates from Kaplan-Meier life table estimates.

contracts an indefinite number of times - a situation that seems to have been prevalent in Iran for some time (see footnote 6 in Egel and Salehi-Isfahani 2010). It remains to be seen whether the change in rules in Egypt will lead to shorter job durations in the Egyptian formal sector.

We now move to a multivariate analysis of the determinants of the hazard of transition to a second job. As in the case of the transition to the first job, we estimate discrete-time hazard models with non-parametric duration dependence for the baseline

Figure 3a

The Hazard of Getting a Second Job
by Year Since Entering First Job for the Reference Individual

Figure 3b

The Cumulative Probability of Getting a Second Job
by Year Since Entering First Job for the Reference Individual
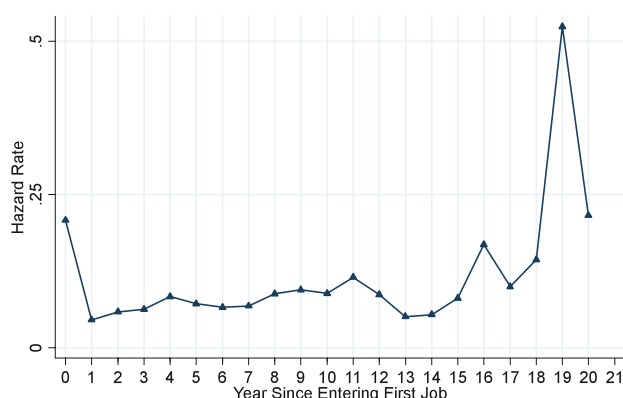
hazard. The exponentiated coefficients (hazard ratios) are shown in Table 11, and the parameters of the spell dummies indicating the shape of the baseline hazard are shown in Appendix Table A2. Model 1, our baseline model, includes the basic set of regressors that were also included in the hazard model for time to first job (Model 4 in Table 5), namely: cohort, time-varying local labor market conditions, own educational attainment, parent's education, father's employment, the presence of household enterprises, and region of residence at school exit. Model 2 adds the time to the first job and its square. Model 3 adds to Model 1 dummies indicating the type of the first job. Model 4 adds both time to first job and its square as well as the type of the first job dummies. Model 5 adds to Model 1 dummies indicating the quality of the first job, and Model 6 adds to Model 1 the time to first job, its square, and the quality of first job dummies. As before, the quality of first job is determined based on the job quality index discussed above.[9]

As in the case of the transition to the first job, we start by discussing the shape of the baseline hazard, which can be ascertained from the coefficients of the spell dummies shown in Appendix Table A2. Since there is relatively little variation in these coefficients across models, we use Model 1 to plot the shape of the hazard and cumulative hazard for the reference individuals in Figures 3a and 3b. We aggregate spell dummies from year 20 onwards, since by then there are very few people left in our sample of 15 to 34 year olds.

The basic pattern that emerges is that the hazard of changing jobs is highest immediately after getting a first job, when just under 25 percent of first job holders move to a second job. It then declines sharply after that. The hazard of moving to a second job then rises very gradually from year 1 to year 11. By then the cumulative probability of changing jobs has risen to over 60 percent. The hazard of moving to a second job goes down from year 11 to year 15, after which it becomes unstable because there are relatively few individuals in our sample who survive that long in a first job.[10] The spike in the hazard at year 19 is almost certainly a statistical artifact since there are only 5 observations in our sample who survive in a first job that long.

All six models show that the hazard of a second job increases for the two cohorts that follow the 1971-75 birth cohort, but then declines for the 1986-90 cohort. This difference among cohorts is somewhat attenuated, once the type of the first job is controlled for (in Models 3 and 4). This suggests that the observed difference is due to the higher likelihood of public employment for members of the oldest cohort. Model 2 shows that time to first job has a weak effect on reducing the hazard of transition to a second job, an effect that disappears completely when the type of first job or quality of first job is controlled for (Models 4 and 6). Thus, it is only when a longer search for the first job results in a public or formal private sector job, or in a better job,

Table 11: Discrete-Time Proportional Hazard Model for Hazard of Second Job with Non-Parametric Time Dependence and a Gamma Mixture Distribution for Unobserved Individual Heterogeneity, Men 15-34 with Secondary Schooling and Higher who have Obtained a First Job, Egypt, 2006[1]

Covariates	Model 1[1]	Model 2[2]	Model 3[3]	Model 4[4]	Model 5[5]	Model 6[6]
Birth Cohort (Ref: 1971-75)						
1976-1980	1.336***	1.310***	1.230**	1.224**	1.276***	1.271**
	(0.087)	(0.086)	(0.081)	(0.081)	(0.093)	(0.093)
1981-1985	1.382***	1.320**	1.235*	1.218*	1.339**	1.321**
	(0.118)	(0.114)	(0.105)	(0.106)	(0.127)	(0.128)
1986-1990	1.355*	1.258	1.238	1.206	1.385*	1.348
	(0.195)	(0.184)	(0.179)	(0.177)	(0.223)	(0.221)
Time to First Job (in years)						
Time to first job		0.903**		0.945		0.945
		(0.033)		(0.035)		(0.038)
Time to first job squared		1.011		1.008		1.008
		(0.006)		(0.006)		(0.007)
Type of First Job (Ref: Unpaid Family Work)						
Public job			0.545***	0.557***		
			(0.062)	(0.064)		
Private formal wage job			0.852	0.877		
			(0.099)	(0.104)		
Private informal regular wage			1.195*	1.207*		
			(0.102)	(0.104)		
Private informal irregular wage			1.417***	1.424***		
			(0.137)	(0.137)		
Employer or self-employed			0.523***	0.535***		
			(0.068)	(0.070)		
Quality of First Job (Ref: Good First Job)						
Poor first job					3.457***	3.403***
					(0.408)	(0.404)
Fair first job					1.903***	1.881***
					(0.191)	(0.189)
Local Labor Market Variables (Time Varying)						
Local unemployment rates	1.003	1.003	1.005	1.005	1.004	1.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Ratio of local priv. W&S workers	1.002	1.002	1.001	1.001	1.002	1.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Ratio of local public workers	1.002	1.002	1.003	1.003	1.003	1.003
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Own Educational Attainment (Ref: Technical Secondary 3 yrs.)						
General secondary	0.921	0.904	0.898	0.888	0.856	0.847
	(0.193)	(0.189)	(0.188)	(0.186)	(0.207)	(0.205)
Technical secondary 5yrs	1.170	1.173	1.308	1.312	1.273	1.283
	(0.213)	(0.214)	(0.240)	(0.241)	(0.268)	(0.270)
Above intermediate	0.956	0.950	1.103	1.099	1.054	1.055
	(0.103)	(0.102)	(0.119)	(0.119)	(0.126)	(0.127)
University and higher	0.917	0.910	1.134	1.128	1.105	1.105
	(0.068)	(0.068)	(0.088)	(0.089)	(0.090)	(0.091)
Parents' Educational Attainment (Ref: Below Secondary)						
Father: secondary	1.011	1.018	1.063	1.063	1.041	1.042
	(0.096)	(0.097)	(0.101)	(0.101)	(0.108)	(0.108)
Father: post secondary	1.212	1.216	1.210	1.200	1.344	1.331
	(0.239)	(0.240)	(0.240)	(0.239)	(0.289)	(0.288)
Father: university and higher	1.367*	1.365*	1.432**	1.430**	1.599***	1.596***
	(0.176)	(0.176)	(0.183)	(0.183)	(0.220)	(0.219)
Mother: secondary	0.831	0.832	0.833	0.830	0.835	0.832
	(0.111)	(0.111)	(0.111)	(0.111)	(0.121)	(0.121)
Mother: post secondary	0.839	0.829	0.882	0.880	0.875	0.877
	(0.161)	(0.159)	(0.169)	(0.169)	(0.185)	(0.185)
Mother: university and higher	0.691	0.686	0.771	0.764	0.753	0.751
	(0.185)	(0.183)	(0.206)	(0.204)	(0.202)	(0.201)

Father's Employment (Ref: Government Employee)						
Irregular job	0.939	0.947	0.696	0.703	0.333	0.332
	(0.430)	(0.434)	(0.321)	(0.325)	(0.239)	(0.238)
Self-employed	0.956	0.939	0.951	0.948	0.891	0.885
	(0.082)	(0.081)	(0.083)	(0.083)	(0.085)	(0.084)
Regular job (non-government)	1.047	1.046	0.952	0.953	0.917	0.916
	(0.084)	(0.085)	(0.078)	(0.078)	(0.083)	(0.083)
Unpaid job or jobless	0.828*	0.817*	0.777**	0.775**	0.744**	0.740**
	(0.071)	(0.071)	(0.067)	(0.067)	(0.070)	(0.070)
Presence of Household Enterprise (Ref: No HH Enterprise)						
HH has farm	0.859*	0.849*	0.920	0.918	0.956	0.949
	(0.066)	(0.065)	(0.074)	(0.074)	(0.081)	(0.080)
HH has a non-agric. enterp.	1.061	1.050	1.162*	1.157*	1.024	1.023
	(0.064)	(0.064)	(0.075)	(0.075)	(0.069)	(0.069)
Region of Residence (Ref: Greater Cairo)						
Alexandria & Suez Canal	1.149	1.158	1.156	1.164	1.085	1.093
	(0.123)	(0.124)	(0.124)	(0.125)	(0.128)	(0.129)
Urban Lower Egypt	0.863	0.873	0.870	0.879	0.793	0.800
	(0.096)	(0.097)	(0.097)	(0.099)	(0.098)	(0.099)
Urban Upper Egypt	1.008	1.009	0.967	0.971	0.773*	0.776*
	(0.105)	(0.105)	(0.102)	(0.103)	(0.091)	(0.092)
Rural Lower Egypt	0.951	0.955	0.947	0.951	0.735**	0.740**
	(0.096)	(0.097)	(0.096)	(0.097)	(0.085)	(0.086)
Rural Upper Egypt	1.191	1.180	1.113	1.115	0.839	0.841
	(0.127)	(0.126)	(0.121)	(0.122)	(0.102)	(0.102)
Spell Dummies	included	included	included	included	included	included
Constant	0.202***	0.223***	0.207***	0.213***	0.107***	0.113***
	(0.046)	(0.052)	(0.048)	(0.051)	(0.028)	(0.030)
Log Gamma Variance	0.000	0.000	0.000	0.000	0.000	0.000
	(0.004)	(0.002)	(0.000)	(0.001)	(0.006)	(0.005)
Number of Spells	13,259	13,259	13,259	13,259	11,614	11,614
Number of Individuals	2,750	2,750	2,750	2,750	2,352	2,352
Log-Likelihood	-4266.599	-4261.852	-4202.601	-4201.462	-3527.058	-3526.097

*p<0.05, ** p<0.01, *** p<0.001

1. Exponentiated regression coefficients indicating hazard ratios. Standard errors in parentheses can be used to test the statistical significance of the deviation of the exponentiated coefficient from 1.
2. A baseline model.
3. Model 1 plus 'time to a first job' and 'time to first job squared' terms added.
4. Model 1 plus type of first job dummies added.
5. Model 1 plus 'time to a first job' and 'time to first job squared' terms and type of first job dummies added.
6. Model 1 with quality of first job dummies added.
7. Model 1 plus 'time to a first job' and 'time to first job squared' terms and quality of first job dummies added.
8. The coefficients for the spell dummies are shown in Appendix Table A2.

that it reduces the hazard of transition to a second job. Models 3 and 4 confirm the importance of type of first employment on subsequent job moves. People who obtain either a public job or become employers or self-employed in their first job have the lowest hazard of transition to a second job. The second lowest hazard of transition is for people who obtain formal private sector employment, followed by unpaid family work. The highest hazards of transition are among informal private wage workers, with irregular wage workers (those with presumably some of the worst jobs) having the highest hazards of moving on.

When quality of first job is included instead of type of first job, as in Models 5 and 6, we see that those with poor jobs have nearly three and a half times the hazard, and those with fair jobs nearly twice the hazard, of moving on to a second job compared to those who start out with a good job. These estimates are robust to the inclusion of time to first job and its square as additional regressors. Thus it appears that there is some scope for mobility if one gets stuck with a poor or fair job in one's first job, but the question remains whether such mobility allows young men to improve their job quality. To answer this question, we present

Table 12: Transition Matrix for Quality of First and Second Jobs (Row Percentages)

		Job Quality in Second Job			
		Poor	Fair	Good	Total
Job Quality in First Job	Poor	30	52	18	100
	Fair	12	63	25	100
	Good	0	25	75	100
	Total	15	56	29	100

the transition matrix from quality of first job to quality of second job for those with at least two jobs. As shown in Table 12, nearly 70 percent of those in first poor jobs who managed to change jobs actually improved their job quality. Similarly 25 percent of those in fair jobs improved their job quality upon changing jobs. The table also shows, however, that 25 percent of those who started in good jobs and changed jobs ended up in fair jobs. Fortunately, mobility from good jobs is rather low.

As in the case of transitions to a first job, neither local labor market conditions nor own educational attainment has any significant impact on transitions to second jobs. Having a father who is educated at the university level, however, seems to increase the hazard of transition to a second job and having a father who is not working reduces that hazard. Being part of a household that has a farm reduces the hazard of transition to a second job, but the effect is only significant in Model 2. Having a non-farm enterprise in the household increases the hazard of moving to a second job in Models 3 and 4. Finally, region of residence at school exit has no effect on the hazard of transition to a second job.

These results differ in significant ways from the results obtained by Egel and Salehi-Isfahani (2010) for Iran. They find that there is less stability in the Iranian public sector than in the private sector and they attribute this higher level of mobility to the widespread use of temporary contracts in the Iranian public sector. While temporary contracts are used in the public sector in Egypt as well, they are still the exception rather than the rule. According to the ELMPS 06, the proportion of temporary contracts in the Egyptian public sector constituted only 5.8 percent of public sector employment in 2006.

Another significant deviation between our result and the Iranian results is their finding that workers in formal jobs are more mobile than workers in informal jobs. Jobs in the formal sector in Iran last an average of just over two years for males whereas in Egypt the median duration is 8.7 years in private formal employment and much longer in public employment. The difference may be due to the fact that their sample includes workers at all educational levels, whereas ours only focuses on those with secondary education and above. However, they do find that university graduates with informal jobs are more mobile than those in formal jobs, but not by much. Secondary school graduates, who constitute the majority of educated workers in Iran (and in Egypt), have shorter employment durations in formal employment than in informal employment. Thus, the differences appear to be real.

A possible explanation of the observed differences between Iran and Egypt could be due to the fact that temporary employment contracts, which can be renewed indefinitely in the formal sector, have been around longer in Iran than in Egypt. Prior to the new labor law of 2003, temporary contracts were allowed in Egypt; however, if renewed once, they immediately reverted to being indefinite contracts. The 2003 law, which came into effect in 2004, allowed employers to renew temporary contracts an indefinite number of times, a situation that seems to have been prevalent in Iran for some time (see Egel and Salehi-Isfahani 2010). It remains to be seen whether the change in rules in Egypt will lead to shorter job durations in the Egyptian formal sector.

6. TRANSITIONS TO MARRIAGE

Marriage constitutes the sole socially-accepted institution of family formation in the Arab world and is widely perceived as the main marker of adulthood. Nonetheless, the region has experienced a significant delay in male age at first marriage that makes it stand out among other world regions. While female age at marriage has also gone up, the trend there is comparable to trends elsewhere in the world. Thus, the increase in male age at marriage and the continuing large age gap between spouses appears to be specific to Arab societies (Mensch 2005, Mensch et al. 2005). This seemingly involuntary postponement of marriage by young men may have the same major social and political implications of the better documented effects of a "surplus" unmarried male population in China resulting from unbalanced sex ratios (Hudson and Den Boer 2002, 2004). While the high cost of marriage has been documented for Egypt (Singerman 2007, Singerman and Ibrahim 2001), an in-depth analysis of the causes of the significant delay in men's age at marriage is still lacking.

Using the detailed life-course data available from the ELMPS 06, this section of the paper analyzes the determinants of the timing of marriage in Egypt and links the timing of marriage to the changing labor market prospects facing Egyptian youth that were described in the previous section. Specifically, we link the timing of marriage to the timing of first employment, the incidence and timing of a good job, the migration experience of the young man, his educational attainment, the socioeconomic background of his parents, the performance of local labor markets, and the prevailing sex ratios in the region of residence.

This section is structured as follows. After briefly describing trends in the timing of marriage in Section 6.1, we present in Section 6.2 our results on the determinants of the timing of marriage among men in Egypt. To better illustrate these results, we use our estimates to conduct simulations of the effect of the timing of the first job, and the first "good" job, if any, on the timing of marriage. The simulations are presented in Section 6.3.

Figure 4: Median Age at First Marriage by Year of Birth and Sex (Four-year Moving Average)
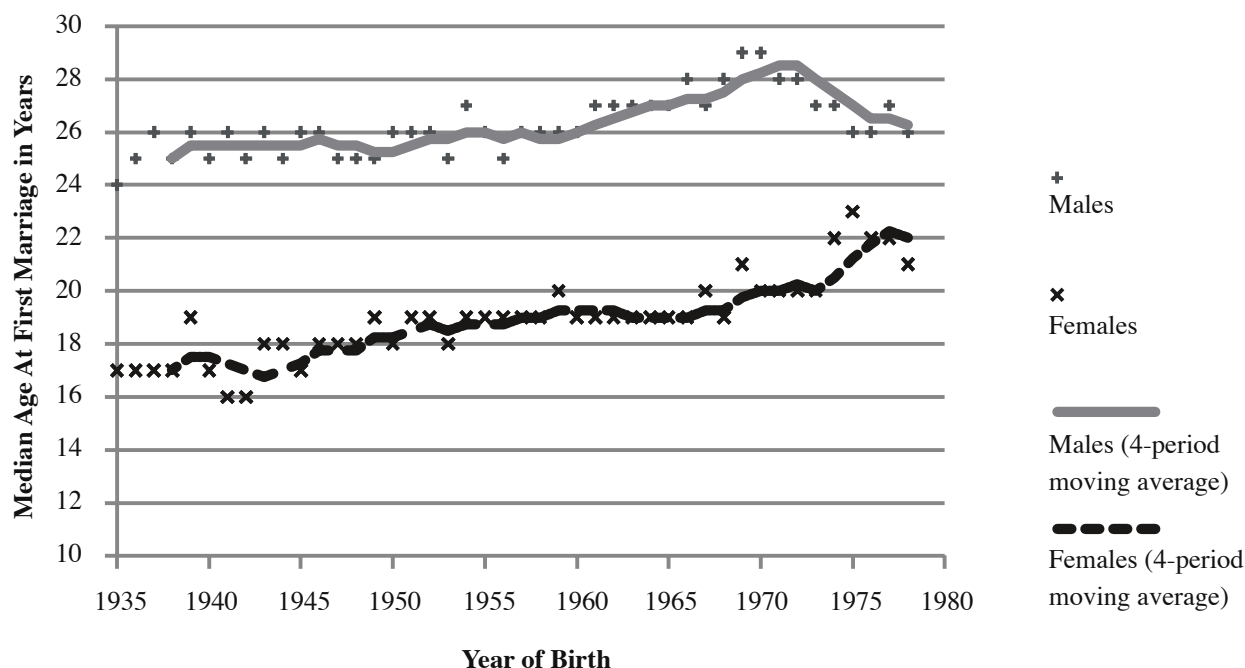
Source: ELMPS 06.

Figure 5: Kaplan-Meier Survival Function for Distribution of Age at First Marriage for Men, by Cohort of Birth
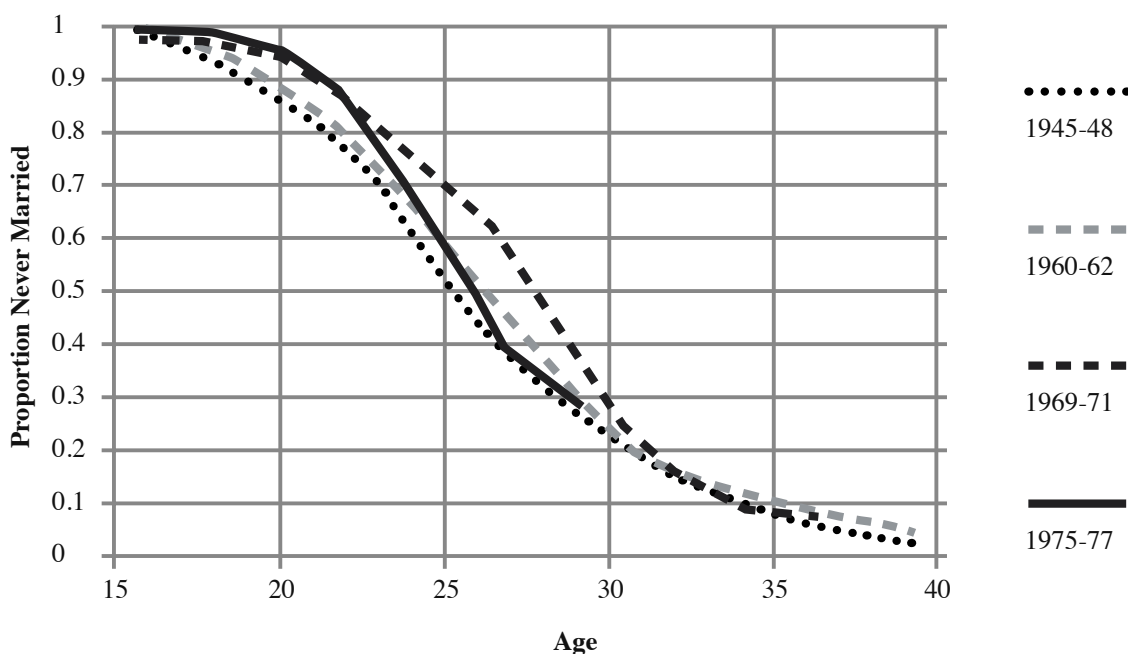
Source: ELMPS 06.

6.1 RECENT TRENDS IN THE TIMING OF MARRIAGE IN EGYPT

While for a long time Egypt conformed to the general trend in Arab societies of delayed marriage for men, this trend has actually reversed itself in recent years, starting with the cohorts born in the early 1970s. Figure 4 shows the median age at first marriage for men and women in Egypt. The numbers plotted in the figure are computed using life table analysis that takes into account that some members of each cohort had not yet married at the time of the survey. As Figure 4 shows, the delay in male age at first marriage started with the cohorts born by the end of the 1950s and continued through to those born in the early 1970s. The delay for women began somewhat earlier and continued uninterrupted through the cohorts born in the late 1970s.[11]

As a result of this pattern, the age gap between spouses remained fairly constant at 8 to 9 years and only started to narrow for males born after 1973. The delay in the age of marriage for young men and its subsequent reversal can be observed throughout the entire distribution of age at marriage by birth cohort and not just at the median.

The declining trend identified here is relatively novel and goes counter to either conventional wisdom or recent qualitative studies. Assaad and Ramadan (2008) attribute this recent decline to housing law reform passed in 1996 that made it easier for young couples to acquire market-rate rental housing.

The delay in age of marriage for young men and its subsequent reversal can also be seen by looking at the entire distribution of age at marriage by birth cohort and not just at median age. As shown in Figure 5, the delay in age at marriage from the 1945-48 birth cohort to the 1960-62 birth cohort was very slight, with the median age shifting by at most one year from 25 to 26. By the 1969-71 birth cohort, the median had reached about 28. Seventy percent of that cohort had not yet married by age 25, and 30 percent had not married by age 30. The reversal in the delay in age at marriage is readily apparent for the 1975-77 birth cohort compared to the 1969-71 cohort. Although very early marriages (before age 23) were equally rare for these two cohorts (less than 20 percent), the median age at first marriage drops from 28 to 26, right back to where it was for the 1960-

Table 13: Summary Statistics of Explanatory Variables, Men 18-40 with Secondary School Education or Higher

Explanatory Variables	Mean	St. dev.	N	min	max
Individual Characteristics					
*Age at leaving school**	19.6	2.39	3995	17	39
General secondary degree	0.018	0.132	3995	0	1
Technical secondary 3 yrs***	0.598	0.490	3995	0	1
Technical secondary 5 yrs	0.021	0.142	3995	0	1
Post-secondary	0.076	0.264	3995	0	1
University & higher	0.288	0.453	3995	0	1
*Age at taking up first job**	20.17	3.63	3332	6	37
*Age at taking up first good job**	23.75	3.57	1132	12	3
Duration of migration period**	4.38	3.9	39	0	15
*Age at returning back to Egypt**	27.82	4.40	39	19	39
Number of sisters	2.04	1.51	3995	0	12
Parental Background					
Father: below secondary education***	0.775	0.417	3995	0	1
Father: secondary education	0.115	0.319	3995	0	1
Father: post-secondary education	0.023	0.148	3995	0	1
Father: university & higher	0.0871	0.282	3995	0	1
Mother: below secondary***	0.881	0.324	3995	0	1
Mother: secondary education	0.073	0.260	3995	0	1
Mother: post-secondary	0.017	0.129	3995	0	1
Mother: university & higher	0.030	0.169	3995	0	1
Father: government employee***	0.442	0.497	3995	0	1
Father: regular wage worker outside government	0.128	0.334	3995	0	1
Father: irregular wage work or not working	0.107	0.309	3995	0	1
Father: employer or self-employed	0.323	0.468	3995	0	1
Regional and Community-Level Variables					
Sex ratio in district of residence in 1996	0.860	0.114	3995	0.40	3
Greater Cairo***	0.196	0.375	3995	0	1
Alexandria and Suez	0.104	0.305	3995	0	1
Urban Lower Egypt	0.137	0.344	3995	0	1
Rural Lower Egypt	0.236	0.425	3995	0	1
Urban Upper Egypt	0.172	0.377	3995	0	1
Urban Upper Egypt	0.181	0.385	3995	0	1
Cohort 1966 - 1970***	0.147	0.354	3995	0	1
Cohort 1971-1975	0.222	0.415	3995	0	1
Cohort 1976-1980	0.290	0.454	3995	0	1
Cohort 1981-1985	0.274	0.446	3995	0	1
Cohort 1986+	0.067	0.250	3995	0	1

** provided that individuals are not censored and that migration started before year of marriage

*** omitted category

Note: Italics denote time-varying covariates

Source: ELMPS 06

62 cohort. Finally, it is clearly apparent from Figure 5 that marriage for men in Egypt is virtually universal by age 40.

The results for Egypt contrast sharply with the findings for Iran in Egel and Salehi-Isfahani (2010). Although marriage is virtually universal in Iran by age 40 as well, the tendency in Iran has been for a continual delay in the age at first marriage across cohorts. The median age of marriage for men in Iran has shifted from about 23.5 for those born in 1964 to 26 for those born in 1979 and then remained constant until the 1984 birth cohort. We should note however that the median age for men in Egypt had climbed much higher than in Iran before it started its recent decline.

6.2 THE DETERMINANTS OF THE DURATION TO FIRST MARRIAGE IN EGYPT

Similar to our analysis of the duration to first and second jobs, we divide our explanatory variables into time-varying and time-invariant covariates. The principal explanatory variables upon which we focus our attention in this section are all time-varying and describe the employment trajectories of the individuals in the sample. The first is an indicator variable that switches on when the individual first takes up a job that lasts for at least six months. From the year of first employment onwards, the variable in our person-year dataset takes on the value of 1 irrespective of whether or not the individual experiences a period of non-employment later. Out of a total of 3,995 men aged 18-40 in our sample, 3,332 (83 percent) actually got a first job.

The second time-varying covariate attempts to capture the impact of job quality on the timing of marriage. We do that by including a variable that switches from zero to one when, if ever, an individual has obtained a "good" job. The definition of a "good" job is the same as that used earlier. Again, out of 3,332 individuals who got at least one job, 1,132 (34 percent) got a "good" job. We use an indicator for "good" job rather than other job classifications, such as formal job or public job, because it correlates closely to formal employment, captures job quality in both the public and private sectors, and appears to be closely related to job satisfaction, as indicated by low levels of mobility to second jobs.

The third employment-related time-varying covariate relates to a young man's experience with international migration. There is ample qualitative evidence that young men often use temporary international migration as a strategy to raise the necessary capital for marriage (Singerman 1995, Hoodfar 1997). Migration experience may also help them get better jobs after returning to Egypt. We use the migration history module of the ELMPS 06 to determine young men's experience with international migration. We assume that an individual who departed abroad after age 15 left in order to work. Our time-varying migration variable turns on when an individual returns from migration. We also include a time-invariant variable that indicates how long he was away in total. Since we are only interested in the effects of migration on the timing of marriage, we ignore migration that occurs after marriage. Only 39 individuals in our sample, or 1 percent, migrated prior to marriage. The mean duration of migration for those who migrated was 4.4 years and the mean age upon return was 27.8 (see Table 13).

The norm in the literature is to lag the employment-related time-varying covariates by one year (see for example Gutiérrez-Domènech 2008). The argument is that the decision to marry and marriage itself usually occur with a certain time-lag. The disadvantage of this approach is that it assumes the length of the lag rather than allows it to be determined from the data. Since it may take longer than one year for a change in employment status to affect the hazard of marrying, a more complex lag structure may be justified. We therefore initially estimate several models with a one-year lag, but then include a version of our preferred model with a more complex lag structure for the time-varying employment variables, namely one, three and five-year lags. The combined effect of these lagged variables can tell us about the speed with which the hazard of marrying responds to changes in employment or migration status.

The last time-varying covariate we use is an indicator variable that shows whether the individual was still in school. Although all individuals in our sample are currently out of school by design, we start observing them at age 14 and therefore they would have been in

school in the past. The variable takes on the value of 1 when the individual is attending school and switches to zero when he leaves it.

Our time-invariant explanatory variables include cohort of birth, own educational attainment, number of living sisters, parental education, father's type of employment, the sex ratio in the district of residence in 1996, region, and the duration of migration, if the individual is a return migrant. We include the number of living sisters a young man has as an explanatory variable because young men in Egypt are expected to step in financially should their parents have difficulties in accumulating the required capital for his sisters to marry. We therefore expect men with a higher number of sisters to marry later. The mean number of sisters for men in the sample is two. The individuals in our sample fall into one of four birth cohorts, namely 1966-70, which is the reference cohort, 1971-75, 1976-80, 1981-85, and 1986+. Since the last cohort only includes individuals 18 to 20 in 2006, it is much smaller than the previous three. We use the same categories for own education, parental education and father's employment that we used in the transition to employment analysis.

We control for conditions in an individual's wider community that can affect the timing of marriage by including the sex ratio in the district of residence as provided by the 1996 Population Census. Because there is an average age gap of 6-7 years between spouses in Egypt, sex ratios were calculated by dividing the number of males in a given five-year age group by the number of females in the younger five-year age group in the individual's district of residence. For example, men aged 25 to 29 were related to women aged 20 to 24. Men in the sample were assigned the sex ratio corresponding to their age in 1996. The average district-level sex ratio for individuals in the sample was 0.86 (see Table 13).

In what follows we estimate a series of increasingly richer models. Model (1) includes only the cohort and education dummies. Model (2) adds the labor market and migration variables describing an individual's employment trajectory, with the time-varying variables lagged one period only. Model (3) adds the number of sisters and parental background variables. Model (4) adds the community-level variables and regional dummies. Finally, Model (5) is similar to Model (4) but includes the full lag structure of the time-varying labor market variables, i.e. one, three and five-year lags.

Table 14 reports the exponentiated coefficients for the various discrete-time hazard models we estimate with the exception of the coefficients of the spell dummies, which are shown in Appendix Table A3. In discussing

Figure 6a

The Hazard of First Marriage

by Age and Cohort of Birth

Figure 6b

The Cumulative Probability of Getting Married

by Age and Cohort of Birth
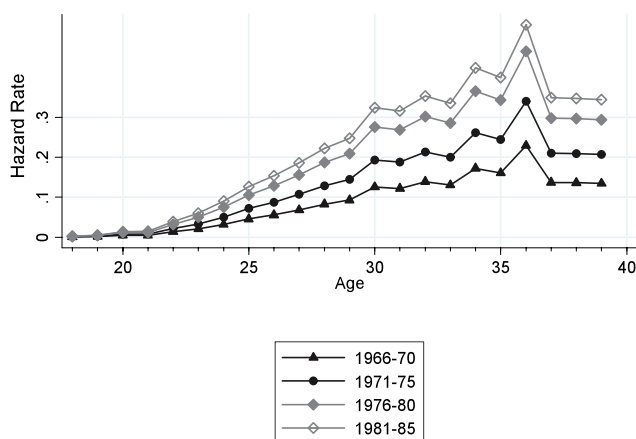
Note: Calculations based on Model 4 in Table 14.
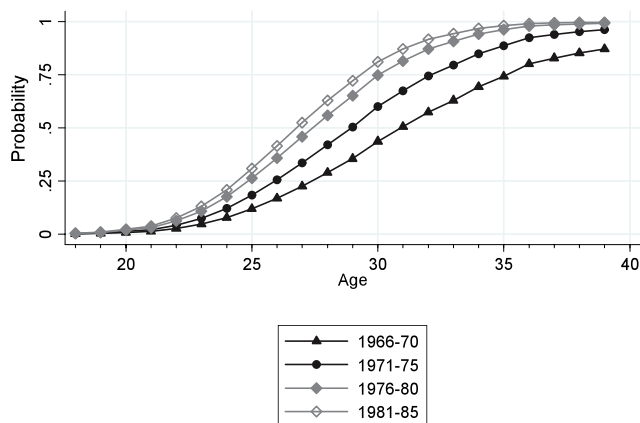
the results, we will focus on Models (3) and (4), our most comprehensive models, and will point out differences with other models, if any.

The discrete-time baseline hazard and cumulative probability of first marriage for reference individuals in different cohorts are shown in Figure 6a and 6b. The hazard function reveals a non-monotonic relationship with age, with the hazard of first marriage increasing with age until about age 30 and then remaining roughly constant for another decade.[12] The reversal in the delay in the age at first marriage is readily apparent in the multivariate results. For the cohorts under consideration, namely people born between 1966 and 1988, the hazard of marrying has increased significantly for every cohort starting with the 1971-75 cohort, meaning that the age at first marriage has declined steadily for cohorts born after 1970, the same pattern seen in Figure 5. Based on these results, the median age of marriage for the reference individual has gone from 31 for the 1966-70 birth cohort to 27 for the 1981-85 cohort, keeping all else constant.

This is a somewhat surprising result given the popular concerns about the increased difficulty of marrying and the perception that Egyptian society is going through a marriage crisis. Assaad and Ramadan (2008) argue that the decline in the age at marriage after the 1970 birth cohort can be attributed to the change in housing laws that occurred in the late 1990s that made rental housing more readily available to young people, precluding the need to save large amounts of cash to acquire housing. The concern about the deteriorating labor market conditions facing young men is real, however, and is clearly contributing to greater difficulty in marrying as we discuss below.

We move to an examination of the results relating to the impact of a young man's employment trajectory on his hazard of marrying. Since we return to these variables when we present the simulation results, we limit ourselves here to the direction and rough magnitude of the effects. We first note based on Model (3) that getting a first job increases the hazard of marrying by nearly two times. As Model (4) suggests, however, this effect is spread out over more than three years, since the coefficients of both the one-year and three-year lagged

variables are both significantly above one. Getting a good job more than doubles the hazard of marrying, but unlike the first job, the effect is almost immediate. The three-year and five-year lagged versions of the variable have insignificant effects in Model (4). The results on the employment variables are fairly consistent across all four models where they are entered with only a single period lag.

Similarly, migrating abroad and returning from such migration has a fairly large positive effect on the hazard of marrying, with those returning from migration having nearly three times the hazard of marrying than those who did not migrate at all. Again the impact of returning from migration is fairly immediate and raises the probability of marriage one year after returning. It turns out, however, that the duration an individual spends abroad does not significantly affect the hazard of marrying.

Like most previous studies (e.g., Yabiku 2005, Ghimire et al. 2006) we find that being enrolled in school reduces the hazard of marrying, but in our case the effect is not significant once other time-varying characteristics are taken into account. Unlike Yabiku (2005) who finds that school attainment in Nepal increases the hazard of marriage, we find that higher educational attainment, correcting for enrollment status, significantly delays marriage. Compared to an individual with a three-year technical secondary degree, the hazard of first marriage for someone with a university degree or higher is about 30 percent lower in Model 3. It is even lower in Model 1, where parental background and region are not controlled for. This is consistent with the interpretation that education in Egypt does more to raise a young man's expectation about what sort of spouse he should marry than to make it possible for him to afford marriage. The results on Iran show no significant effect of own education on male age at marriage once father's education is controlled for (Egel and Salehi-Isfahani 2010).

Based on findings in the literature (Bates et al. 2007) and studies on social class and mobility in Egypt (Nagi 2001), we expect indicators related to social class, such as parental background, to have important effects on

the hazard of marrying. In fact, we find that parental education does not affect the hazard of marrying in a significant way, over and above its effect on one's own education. Again this contrasts with Iran where father's education significantly delayed men's marriage, but not their own education.[13] In any case, the results in both countries show that higher social class or education raises expectations for the quality of spouse more than it increases a young man's ability to marry and thus delays marriage. This is in contrast to the situation in Nepal (Yabiku 2005) or Yemen (Assaad et al. 2009), where male education speeds up marriage.

Table 14: Discrete-Time Proportional Hazard Model for Hazard of First Marriage with Non-Parametric Time Dependence and a Gamma Mixture Distribution for Unobserved Individual Heterogeneity, Men 18-39 with Secondary Schooling, Egypt, 2006[1]

Explanatory Variables	Model 1[2]	Model 2[3]	Model 3[4]	Model 4[5]
Labor Market Trajectory Variables				
Start any job (-1)	2.200***	1.854***	1.908***	1.534***
	(0.201)	(0.160)	(0.163)	(0.173)
Start any job (-3)				1.267*
				(0.131)
Start any job (-5)				1.095
				(0.086)
Start "good" job (-1)	2.510***	2.415***	2.435***	2.250***
	(0.162)	(0.148)	(0.140)	(0.238)
Start "good" job (-3)				1.152
				(0.156)
Start "good" job (-5)				0.973
				(0.112)
Duration of migration period	1.032	1.023	1.024	1.026
	(0.035)	(0.032)	(0.030)	(0.031)
Return from migration (-1)	3.243***	3.306***	2.817***	2.550**
	(0.995)	(0.921)	(0.757)	(0.899)
Return from migration (-3)				1.517
				(0.944)
Return from migration (-5)				0.872
				(0.685)
Cohort of Birth (Ref: 1966-1970)				
Cohort 1971-1975	1.440***	1.685***	1.594***	1.599***
	(0.101)	(0.112)	(0.099)	(0.103)
Cohort 1976-1980	2.238***	2.467***	2.411***	2.401***
	(0.182)	(0.197)	(0.186)	(0.191)
Cohort 1981-1985	2.635***	3.199***	2.960***	2.913***
	(0.346)	(0.416)	(0.380)	(0.377)
Cohort 1986-1990	4.977***	5.429***	5.096***	5.173***
	(2.331)	(2.660)	(2.516)	(2.555)
Own Educational Attainment (Ref: Technical Secondary 3 yrs)				
Enrolled in school	0.792	0.833	0.814	0.755
	(0.124)	(0.123)	(0.119)	(0.114)
General secondary	0.601*	0.562**	0.624*	0.633*
	(0.127)	(0.117)	(0.121)	(0.127)
Technical secondary 5 years	0.708*	0.775	0.729*	0.742
	(0.123)	(0.126)	(0.114)	(0.120)
Post-secondary	0.777**	0.785**	0.865	0.888
	(0.075)	(0.073)	(0.074)	(0.079)
University & higher	0.539***	0.663***	0.688***	0.737***
	(0.038)	(0.044)	(0.042)	(0.054)

Explanatory Variables (continued)	Model 1[2]	Model 2[3]	Model 3[4]	Model 4[5]
Parents' Educational Attainment (Ref: Below Secondary)				
Father: secondary schooling		1.028	1.128	1.145
		(0.091)	(0.094)	(0.097)
Father: post-secondary		0.724	0.831	0.846
		(0.156)	(0.171)	(0.176)
Father: university & higher		0.939	1.022	1.028
		(0.111)	(0.115)	(0.117)
Mother: secondary		0.823	0.839	0.835
		(0.104)	(0.103)	(0.103)
Mother: post-secondary		0.870	0.868	0.860
		(0.183)	(0.174)	(0.174)
Mother: university & higher		0.765	0.802	0.796
		(0.148)	(0.150)	(0.150)
Father's Employment (Ref: Government Employee)				
Self-employed or employer	1.244***	1.244***	1.211***	1.199**
	(0.075)	(0.075)	(0.069)	(0.069)
Regular wage worker outside government[2]	1.002	1.002	0.992	0.991
	(0.080)	(0.080)	(0.075)	(0.077)
Irregular worker or jobless	0.985	0.985	0.912	0.906
	(0.094)	(0.094)	(0.083)	(0.084)
Number of sisters	1.048**	1.048**	1.026	1..27
	(0.017)	(0.017)	(0.015)	(0.016)
Regional and Community-Level Variables				
Sex ratio in district of residence in 1996			0.853	0.847
			(0.213)	(0.213)
Alexandria and Suez Canal Cities[4]			0.961	0.960
			(0.086)	(0.087)
Urban Lower Egypt			1.153	1.153
			(0.098)	(0.099)
Urban Upper Egypt			0.904	0.897
			(0.075)	(0.076)
Rural Lower Egypt			1.404***	1.409***
			(0.107)	(0.112)
Rural Upper Egypt			1.557***	1.551***
			(0.130)	(0.141)
Spell Dummies[6]	included	included	included	included
Constant	0.107**	0.107**	0.091***	0.081***
	(0.018)	(0.018)	(0.026)	(0.026)
Gamma Variance	0.220***	0.220***	0.000	0.017
	(0.050)	(0.050)	(0.000)	(0.077)
Log-Likelihood	-5885.014	-5885.014	-5809.234	-5798.813
Person-years	49,848	49,848	49,848	49,848
N	3,996	3,996	3,996	3,996

*p<0.05, ** p<0.01, *** p<0.001

1. Exponentiated regression coefficients indicating hazard ratios. Standard errors in parentheses can be used to test the statistical significance of the deviation of the exponentiated coefficient from 1.

2. Baseline model including time-varying employment and migration variables lagged one period, cohort and own educational attainment.

3. Adds to Model 1 parental and family background variables.

4. Adds to Model 2 community and regional level variables.

5. Adds to Model 3 the time-varying employment and migration variables lagged three periods and five periods.

6. The coefficients of the spell dummies are shown in Appendix Table A3.

Note: Italics denote time-varying covariates

We do find a relationship between age at marriage and the father's employment status. Having a father who is self-employed or an employer raises the hazard of marriage by about 20 percent compared to someone whose father is a government employee. This increase in the hazard of marriage in families that own their own enterprises could reflect the eagerness of the father to bring the additional help that a daughter-in-law can provide into the family business. Other paternal employment states are not significantly different from government employment.

We expected that the number of sisters a man has to have a negative effect on his hazard of marrying, but do not find such an effect. If anything, it seems to marginally raise his hazard of marrying in Model 2, but has an insignificant effect in Models 3 and 4.

Consistent with the literature, we find that living in a district with a 'surplus' of men relative to women of the appropriate age (i.e., a sex ratio greater than 1) has a negative impact on the hazard of marrying, but the effect is not statistically significant at conventional levels (Models 3 and 4). We find that controlling for other factors, men in rural areas have hazards of marrying that are about one and a half times higher than men in urban areas, with the ratio being higher in rural Upper Egypt than in Lower Egypt. The different urban regions do not differ significantly from each other. This confirms our expectation that more metropolitan, urbanized areas have later ages at marriage, which may be due in part to the availability and cost of housing.

Our estimates indicate that there is some remaining unobserved heterogeneity, as measured by the variance of gamma, in Models 1 and 2, but these variances tend toward zero in our preferred Models 3 and 4.

6.3 SIMULATING THE EFFECT OF LABOR MARKET EXPERIENCE ON THE HAZARD OF MARRIAGE

To clarify the impact of the different labor market trajectories on the timing of marriage of young men, we conduct a series of simulations where we vary the timing of first employment, first good employment, if any, and migration for a reference individual.[14] If not otherwise specified, the reference individual starts his first employment at age 19, does not obtain a "good" job, and is not a return migrant. Our simulations are based on the estimation results from Model (4), the last model in Table 14. This is our richest model that includes all the time-varying covariates with their full lag structures.
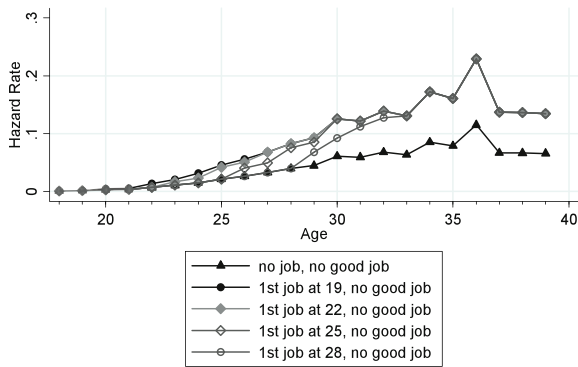
To see how the employment situation of young men affects their transition to marriage, we simulate the following scenarios:

- **Scenario 1 ("job entry effect")** compares the reference case with the four alternatives relating to the timing of first-time job entry, namely, not obtaining a job at all and delaying entry into employment to the ages of 22, 25, and 28.

- **Scenario 2 ("timing of first-time job entry vs. timing of getting a 'good' job")** examines the impact of obtaining any job versus obtaining a "good" job, while varying the timing of both eventualities. The main idea here is to compare a situation where an individual waits to find a "good" job at the expense of entering into employment late with a situation where he enters early but gets any job. To get at this possible trade-off, we simulate the following cases and compare them to our reference case: early job entry (at age 19) and directly obtaining a "good" job, early job entry (again at age 19) while obtaining a good job only comparatively late (at age 25 and 28), and, finally, two cases of waiting for a good job; i.e., not taking up just "any" job at an early age but waiting to get a "good" job at age 25 and at age 28.

- **Scenario 3 ("incidence of migration and timing of return from migration")** compares the impact of migrating abroad and returning at different ages to starting to work early in the domestic labor market.

Figures 7a and 7b show our simulation results for Scenario 1. Figure 7a shows the effect of different timings of first-time employment on the hazard of marrying and Figure 7b shows the same for the cumulative probability of remaining unmarried by a certain age for reference individuals who never get "good" jobs. As expected, the lowest hazard of
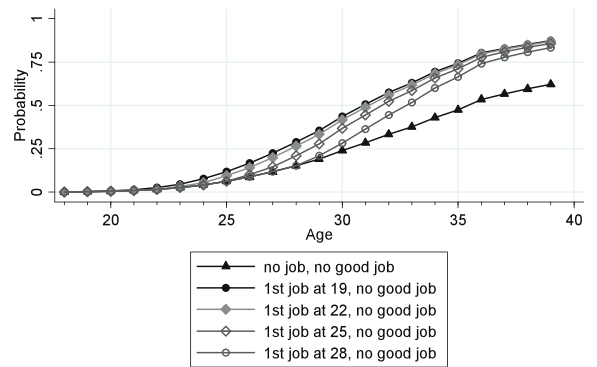
Figure 7a

The Hazard of First Marriage
by Age and Timing of First Job

Legend:
- no job, no good job
- 1st job at 19, no good job
- 1st job at 22, no good job
- 1st job at 25, no good job
- 1st job at 28, no good job

Figure 7b

The Cumulative Probability of Getting Married
by Age and Timing of First Job

Legend:
- no job, no good job
- 1st job at 19, no good job
- 1st job at 22, no good job
- 1st job at 25, no good job
- 1st job at 28, no good job

Figure 8a

The Hazard of First Marriage
by Age, Timing of First Job and Timing of First Good Job

Legend:
- 1st job at 19, no good job
- 1st job at 19, good job at 19
- 1st job at 19, good job at 25
- 1st job at 19, good job at 28
- 1st job at 25, good job at 25
- 1st job at 28, good job at 28
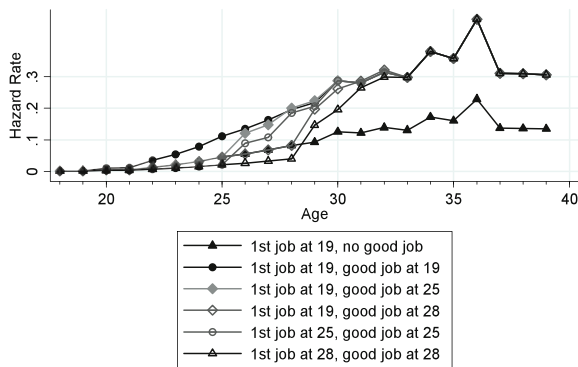
Figure 8b

The Cumulative Probability of Getting Married
by Age, Timing of First Job and Timing of First Good Job

Legend:
- 1st job at 19, no good job
- 1st job at 19, good job at 19
- 1st job at 19, good job at 25
- 1st job at 19, good job at 28
- 1st job at 25, good job at 25
- 1st job at 28, good job at 28
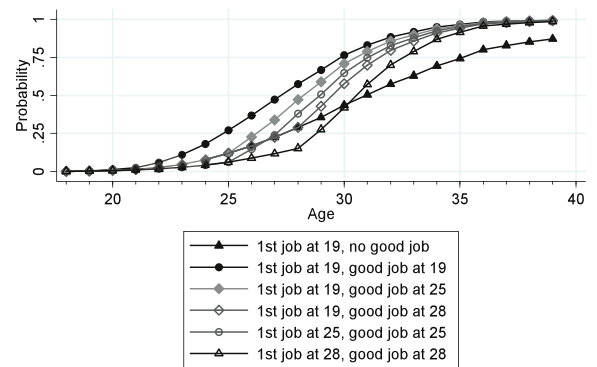
Figure 9a

The Hazard of First Marriage
by Age and Age of Return from Migration, if Any

Legend:
- 1st job at 19, no migration
- 1st job at 19, return at 22
- 1st job at 19, return at 25
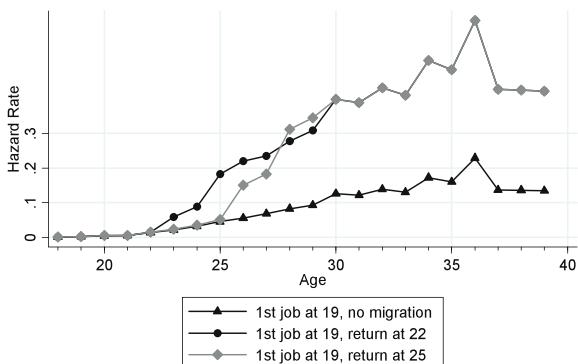
Figure 9b

The Cumulative Probability of Getting Married
by Age and Age of Return from Migration, if Any

Legend:
- 1st job at 19, no migration
- 1st job at 19, return at 22
- 1st job at 19, return at 25
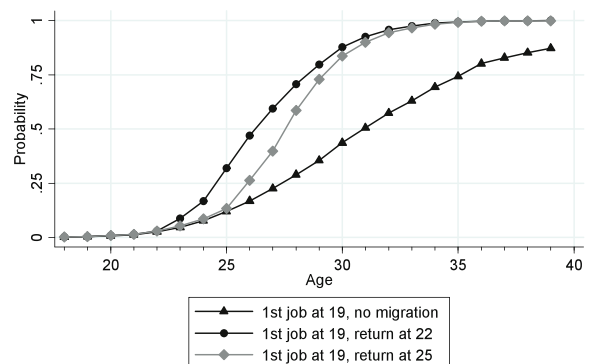
marrying is for those who do not get a job at all and the highest hazard is for those who obtain first jobs early (age 19). The hazards for those obtaining first jobs later start out low and then "catch up" to the higher hazards several years after the job is acquired, because of the lag structure of the estimates. Thus, for example, the hazard of marrying for a young man who obtains first employment at age 28 catches up to the hazard of someone who obtained a first job at 19 by age 33. From Figure 7b, we can see that the median age at marriage for a reference individual who obtains a job at age 19 is 31. If entry into employment is delayed to age 22, there is hardly any delay in marriage, but if it is delayed to age 28, here is a delay in the median age to 33. If there is no entry into employment at all, the median age goes to 35. These results are in line with those of Egel and Salehi-Isfahani (2010) for Iran where a three-year delay in entry into employment for a secondary school graduate results in about a year delay in the median age of marriage.

Model 4 suggests that getting a "good" job as opposed to any job further increases the hazard of marrying, but is it worth waiting for a good job, from a marriage timing perspective, if such waiting enhances the probability of getting a good job? This is what Scenario 2 is designed to investigate. Figure 8a shows that for two individuals entering employment at age 19, one who enters into a good job has about twice the hazard of marrying as one who gets a fair or poor job. If one gets a first job at 19 and a good job at 25, the hazard of marrying starts out low but shifts to the "good job" hazard within a year or two of getting that good job. If one delays entry into a first job until age 25, but then gets a good job at that age, the hazard of marrying is initially lower than if one took any job at 19, but then catches up with it within a year (at age 25) and then exceeds it to catch up with the "good job" hazard by age 28. Someone who waits until age 28 to enter the job market and finds a good job at that age has a lower hazard of marrying until age 28 than someone who takes any job at 19. Their hazard only catches up with those who do not get good jobs immediately after getting a job, but only catches up with the hazard of those who got good jobs early by age 32.

Figure 8b shows the effect of these scenarios on the probability of being married by a certain age. The median age at marriage is the easiest way to summarize the information in the figure. A reference young man who gets a good job immediately at 19 has a median age at marriage of 27, more than four years earlier than someone who starts working at 19 but never gets a good job and three and a half years earlier than someone who waits until age 28 to enter directly into a good job. The median age of marriage for someone who waits to enter the job market until age 25 but gets a good job at that age is 28 years, about three years younger than someone who enters earlier and never gets a good job. In fact, it is only one year later than someone who gets any job at 19 and a good job at 25 and about half a year earlier than someone who enters any job at 19 and only gets a good job at 28. This suggests that from the perspective of reducing age at marriage, it may be worth it for a young man to remain unemployed and search for a good job rather than enter early into any job, if getting any job will delay his ability to get a good job by three years or more.

The final scenario we examine in our simulation (Scenario 3) relates to the incidence of international migration prior to marriage and the timing of return from such migration. Our results indicate that the actual duration of migration seems not to matter, so we set that duration to the mean value for return migrants, which is 4.5 years. We designate the situation of a reference individual who never goes abroad and starts work at 19 in the domestic labor market as the reference case. As shown in Figure 9a, a young man who migrates and returns at age 22 sees his hazard of marrying rising rapidly after that age. Interestingly, someone who returns at age 25 has a brief period between the ages of 28 and 30 where they have a higher hazard of marrying than someone returning at age 22. As shown in Figure 9b, however, the lowest median age of marriage (26) is for someone who migrates and returns by age 22. This compares to a median age of 27.5 for someone who migrates and returns at 25 and to a median age of 31 for someone who does not migrate and starts working in the domestic market at age 19.

7. CONCLUSIONS

We examined in this paper two major aspects of the transition to adulthood for young men in Egypt, namely the transition to employment and the transition to marriage and family formation, with a focus on how the first transition affects the second. Our most important finding with regard to the transition to employment is that as job quality has fallen for more recent cohorts of new entrants, they appear to be, paradoxically, making a faster transition to first employment. This seeming contradiction is quickly dispelled when we realize that longer transitions represent longer search durations for jobs that meet a minimum level of expectation. For decades, these expectations, at least for educated workers, were shaped by the ready availability of jobs in the public sector. As educated young people realize that public sector jobs are no longer forthcoming and few formal private sector jobs are substituting for them, it becomes increasingly futile for them to spend a long time searching for these jobs. Instead, they simply take up whatever informal employment they can find or even create for themselves.

Family background can either lengthen or shorten transition times to first employment depending on whether it contributes more to raising expectations of job quality (i.e. raises the reservation wage) or provides the additional connections and resources necessary to find jobs that meet these expectations. Young people who have a family business to join make the smoothest transition to employment, but they may also be the very young people who become trapped in very low productivity employment on a small family farm or family enterprise. Our investigation of transitions to second jobs suggests that those with "bad" jobs can often move to improve their job quality, but that those who are more likely to do that are the ones in informal and casual wage employment rather than in self-employment or unpaid family work.

Regarding the transition to marriage, we find that, contrary to expectations, the age of marriage for men has not continued to increase in recent years, but that there is evidence of a reversal in that trend for cohorts born after the early 1970s. This reversal cannot be explained by developments in the labor market, as the pattern of earlier marriage among men is actually strengthened rather than weakened when labor market variables are accounted. We concur with Assaad and Ramadan (2008) who attribute the pattern toward earlier marriage for men in recent years to a change in housing laws in the mid to late 1990s that made rental housing more accessible.

The labor market has affected marriage in two contradictory ways. On the one hand, the trend toward earlier entry into employment has contributed to earlier marriage among young men. On the other hand, we show that better jobs significantly speed up transition to marriage, so that the recent trend toward lower quality jobs would have had the opposite effect. If longer job searches do indeed increase the probability of obtaining a better job, as our work on the transition to employment suggests, it may be worthwhile for a young man wishing to marry to extend his search. Someone who waits until age 25 to get a job, but gets a good job, is likely to marry sooner than someone who takes a job at 19 but never gets a good job. Another effective strategy to speed up marriage that a small minority of young men has been able to use is to migrate to work abroad, typically to the Gulf, to save the money necessary for marriage.

The results of this research have significant implications for policy. We show that getting good jobs, which are essentially formal jobs, has a profound effect on a young man's ability to signal that he is ready to marry. By allowing for more flexible employment contracts and a lower social insurance burden, current labor market policies and ongoing reform efforts are attempting (with some success) to increase the extent of formality in the Egyptian labor market (Wahba 2009). While it is still too early to study the impact of these labor market reforms on age at marriage, we can already see how similar reforms in the housing market that led to greater access to rental housing have indeed paid off in terms of curbing the delays in marriage among young men. Clearly, other policies that can increase the supply of good jobs in the domestic market, such as policies that lead to more rapid economic growth, would also help.

We also show that early entry into jobs after completing schooling is helpful so long as it does not reduce the chances of getting a "good" job later. Policies and programs that encourage such early entry and reduce queuing or waiting for formal jobs would also curb delays in marriage. Examples of such policies are ones that reduce the cost of hiring new entrants for employers through subsidies for on-the-job training or a temporary reduction in social insurance contributions. Finally, policies that make it easier for young men to migrate for work abroad to enable them to save up for marriage would also be helpful in curbing the "waithood" phenomenon. These would include agreements with labor receiving countries on temporary work visas and the portability of social insurance benefits to encourage circular migration.

NON-PARAMETRIC DURATION DEPENDENCE PARAMETER ESTIMATES

Appendix Table A1 - Non-Parametric Duration Dependence in Discrete-Time Hazard Model of Time to First Job, Exponentiated Regression Coefficients[1]

Year 1	20.60***	10.53***	10.51***	8.85***
	(5.086)	(0.793)	(0.791)	(0.856)
Year 2	10.11***	2.795***	2.789***	2.46***
	(4.345)	(0.278)	(0.277)	(0.305)
Year 3	37.48***	6.603***	6.595***	6.878***
	(21.42)	(0.594)	(0.592)	(0.745)
Year 4	88.90***	8.103***	8.083***	7.81***
	(69.49)	(0.787)	(0.785)	(0.909)
Year 5	151.45***	7.347***	7.340***	7.03***
	(149.183)	(0.854)	(0.853)	(0.951)
Year 6	275.62***	7.524***	7.494***	7.54***
	(323.24)	(1.063)	(1.059)	(1.174)
Year 7	523.87***	8.071***	8.020***	7.464***
	(713.23)	(1.380)	(1.371)	(1.399)
Year 8	408.32***	4.026***	4.014***	3.775***
	(617.71)	(1.159)	(1.156)	(1.105)
Year 9	485.93***	3.666***	3.639***	3.357***
	(785.38)	(1.329)	(1.319)	(1.229)
Year 10	979.75***	5.518***	5.448***	5.040***
	(1686.24)	(2.005)	(1.980)	(1.851)
Year 11 & higher	1369.29***	3.974***	3.904***	3.678***
	(2660.08)	(1.543)	(1.516)	(1.441)

* p<0.05, ** p<0.01, *** p<0.001
[1]See Table 7 for remaining regression coefficients. Reference category is year 0.

Appendix Table A2 - Non-Parametric Duration Dependence in Discrete-Time Hazard Model of Time to Second Job from Starting First Job, Exponentiated Regression Coefficients[1]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Year 1	0.199***	0.199***	0.201***	0.201***	0.224***	0.224***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.026)	(0.026)
Year 2	0.258***	0.257***	0.263***	0.262***	0.301***	0.301***
	(0.026)	(0.026)	(0.027)	(0.027)	(0.033)	(0.033)
Year 3	0.277***	0.275***	0.285***	0.284***	0.298***	0.297***
	(0.029)	(0.029)	(0.030)	(0.030)	(0.035)	(0.035)
Year 4	0.374***	0.369***	0.388***	0.386***	0.445***	0.443***
	(0.038)	(0.038)	(0.040)	(0.039)	(0.049)	(0.049)
Year 5	0.319***	0.314***	0.334***	0.332***	0.378***	0.376***
	(0.038)	(0.038)	(0.040)	(0.040)	(0.049)	(0.049)
Year 6	0.293***	0.287***	0.307***	0.305***	0.357***	0.355***
	(0.041)	(0.040)	(0.043)	(0.042)	(0.053)	(0.053)
Year 7	0.302***	0.295***	0.318***	0.315***	0.325***	0.322***
	(0.046)	(0.045)	(0.049)	(0.048)	(0.056)	(0.056)
Year 8	0.394***	0.383***	0.413***	0.409***	0.409***	0.405***
	(0.061)	(0.059)	(0.064)	(0.063)	(0.072)	(0.071)
Year 9	0.425***	0.413***	0.448***	0.444***	0.435***	0.431***
	(0.072)	(0.070)	(0.076)	(0.076)	(0.085)	(0.084)
Year 10	0.398***	0.386***	0.418***	0.414***	0.468***	0.463***
	(0.082)	(0.080)	(0.087)	(0.086)	(0.104)	(0.103)
Year 11	0.523**	0.504**	0.550**	0.543**	0.590*	0.582*
	(0.113)	(0.109)	(0.119)	(0.118)	(0.141)	(0.139)
Year 12	0.388**	0.371***	0.413**	0.406**	0.479*	0.470*
	(0.114)	(0.109)	(0.122)	(0.120)	(0.148)	(0.146)
Year 13	0.223**	0.209**	0.231**	0.226**	0.209**	0.204**
	(0.112)	(0.105)	(0.117)	(0.114)	(0.121)	(0.118)
Year 14	0.238*	0.220**	0.243*	0.236*	0.288*	0.279*
	(0.138)	(0.128)	(0.141)	(0.137)	(0.168)	(0.163)
Year 15	0.362	0.333	0.360	0.350	0.420	0.408
	(0.210)	(0.194)	(0.209)	(0.204)	(0.245)	(0.238)
Year 16	0.789	0.723	0.774	0.749	0.937	0.905
	(0.399)	(0.366)	(0.392)	(0.380)	(0.476)	(0.460)
Year 17	0.449	0.413	0.445	0.432	0.561	0.543
	(0.450)	(0.414)	(0.446)	(0.434)	(0.564)	(0.545)
Year 18	0.665	0.611	0.607	0.589	0.813	0.787
	(0.668)	(0.614)	(0.610)	(0.593)	(0.818)	(0.792)
Year 19	3.182	2.934	2.839	2.760	3.639*	3.523*
	(1.899)	(1.753)	(1.694)	(1.648)	(2.171)	(2.102)
Year 20 & higher	1.042	0.963	0.756	0.736	0.902	0.876
	(1.055)	(0.975)	(0.764)	(0.744)	(0.914)	(0.887)

*p<0.05, ** p<0.01, *** p<0.001*

[1]*See Table 11 for remaining regression coefficients. Reference category is year 0.*

Appendix Table A3 - Non-Parametric Duration Dependence in Discrete-Time Hazard Model of Age At First Marriage, Exponentiated Regression Coefficients[1]

	Model 1	Model 2	Model 3	Model 4
Age 14	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Age 15	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Age 16	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Age 17	0.003***	0.003***	0.003***	0.003***
	(0.002)	(0.002)	(0.002)	(0.002)
Age 18	0.013***	0.011***	0.011***	0.013***
	(0.005)	(0.004)	(0.004)	(0.005)
Age 19	0.024***	0.021***	0.021***	0.026***
	(0.006)	(0.006)	(0.005)	(0.008)
Age 20	0.040***	0.035***	0.036***	0.044***
	(0.009)	(0.008)	(0.008)	(0.011)
Age 21	0.043***	0.040***	0.040***	0.048***
	(0.009)	(0.009)	(0.008)	(0.012)
Age 22	0.087***	0.084***	0.087***	0.100***
	(0.017)	(0.016)	(0.015)	(0.021)
Age 23	0.136***	0.134***	0.138***	0.155***
	(0.024)	(0.023)	(0.021)	(0.030)
Age 24	0.193***	0.187***	0.194***	0.216***
	(0.032)	(0.030)	(0.028)	(0.039)
Age 25	0.287***	0.276***	0.286***	0.312***
	(0.045)	(0.043)	(0.040)	(0.053)
Age 26	0.369***	0.365***	0.361***	0.383***
	(0.057)	(0.055)	(0.050)	(0.062)
Age 27	0.438***	0.461***	0.456***	0.473***
	(0.067)	(0.068)	(0.062)	(0.074)
Age 28	0.590***	0.560***	0.564***	0.576***
	(0.088)	(0.082)	(0.077)	(0.086)
Age 29	0.687*	0.675**	0.641**	0.652**
	(0.104)	(0.099)	(0.090)	(0.097)
Age 30	0.981	0.951	0.895	0.898
	(0.147)	(0.138)	(0.125)	(0.130)
Age 31	1.001	0.929	0.870	0.870
	(0.157)	(0.144)	(0.131)	(0.132)
Age 33	1.046	1.088	0.932	0.935
	(0.202)	(0.201)	(0.171)	(0.172)
Age 34	1.313	1.518*	1.263	1.264
	(0.281)	(0.301)	(0.248)	(0.252)
Age 35	1.308	1.451	1.157	1.169
	(0.344)	(0.358)	(0.282)	(0.291)
Age 36	1.908*	2.178**	1.702*	1.738*
	(0.545)	(0.573)	(0.435)	(0.460)
Age 37	1.048	1.338	0.962	0.985
	(0.483)	(0.532)	(0.383)	(0.401)
Age 38	1.035	1.435	0.963	0.978
	(0.627)	(0.712)	(0.498)	(0.514)
Age 39	1.033	1.514	0.950	0.968
	(0.891)	(1.025)	(0.684)	(0.704)

*p<0.05, ** p<0.01, *** p<0.001*

[1] *See Table 14 for remaining regression coefficients. Reference category is year 32.*

REFERENCES

Ahn, N. and P. Mira (2001). "Job Bust, Baby Bust?: Evidence from Spain." *Journal of Population Economics* 14, 505-21.

Amer, M. (2009). "The Egyptian Youth Labor Market, School-to-Work Transition, 1988-2006." In Ragui Assaad (Ed.), *The Egyptian Labor Market Revisited*. Cairo: The American University in Cairo Press.

Anderson, K. H., M. A. Hill, and J. S. Butler (1987). "Age at Marriage in Malaysia." *Journal of Development Economics 26*, 223-34.

Andrews, M. and S. Bradley (1997). "Modeling the Transition from School and the Demand for Training in the United Kingdom." *Economica* 64, 387-413.

Andrews, M., S. Bradley, and D. Stott (2002). "The School-to-Work Transition, Skill Preferences and Matching." *Economic Journal 112*, C201-C219.

Assaad, R. and F. El-Hamidi (2009). "Women in the Egyptian Labor Market: An Analysis of Developments, 1988-2006." In Ragui Assaad (Ed.), *The Egyptian Labor Market Revisited*. Cairo: The American University in Cairo Press.

Assaad, R. (2008). "Unemployment and Youth Insertion in the Labor Market in Egypt." In Hanaa Kheir-El-Din (Ed.), *The Egyptian Economy, Current Challenges and Future Prospects*. Cairo: The American University in Cairo Press.

Assaad, R. and D. Mohie (2008). "School-to-Work Transition Indicators with an Application to Egypt." Report presented to the World Bank Human Development, Education, and Social Protection Sector. Draft.

Assaad, R., R. Roushdy and A. Rashed (2009). "Measuring and Operationalizing Job Quality in Egypt." Gender and Work in the MENA Region Working Papers Series Number 1. Cairo, Egypt: The Population Council.

Assaad, R. and M. Ramadan (2008). "Did Housing Policy Reforms Curb the Delay in Marriage Among Young Men in Egypt?" Middle East Youth Initiative Policy Outlook Number 1. Washington, D.C.: Wolfensohn Center for Development at Brookings and Dubai School of Government. [www.shababinclusion.org]

Bates, L. M., J. Maselko, and S. R. Schuler (2007). "Women's Education and the Timing of Marriage and Childbearing in the Next Generation: Evidence from Rural Bangladesh." *Studies in Family Planning 38*(2), 101-12.

Becker, G. S. (1973). "A Theory of Marriage: Part I." *Journal of Political Economy 81*, 813-846.

Becker, G. S. (1974). "A Theory of Marriage: Part II." *Journal of Political Economy 82*, S11-S26.

Bergstrom, T. and B. Schoeni (1996). "Income Prospects and Age at Marriage." *Journal of Population Economics 9*, 115-130.

Bergstrom, T. C. and M. Bagnoli (1993). "Courtship as a Waiting Game." *Journal of Political Economy 101*, 185-202.

Betts, J. , C. Ferrall, and R. Finnie (2000). "The Transition to Work for Canadian University Graduates: Time to First Job, 1982-1990." Business and Labour Market Analysis, Statistics Canada. Research Paper No. 141.

Bradley S. and N. Nguyen (2004). "The School to Work Transition." In G. Johns and J. Johns (Eds.), *The International Handbook of the Economics of Education*. Cheltenham, U.K.: Edward Elgar.

Bratberg, E. and O. Nilson (1998). "Transition from School to Work: Search Time and Job Duration." Forschungsinstitut zur Zukunft der Arbeit (IZA) Discussion Paper No. 27.

Caltabiano, M. and M. Castiglioni (2008). "Changing Family Formation in Nepal: Marriage, Cohabitation and First Sexual Intercourse." *International Family Planning Perspectives 34*(1), 30-39.

Danziger, L. and S. Neuman (1999). "On the Age at Marriage: Theory and Evidence from Jews and Moslems in Israel." *Journal of Economic Behavior & Organization 40*, 179-93.

De la Rica, S. and A. Iza (2005). "Career Planning in Spain: Do Fixed-term Contracts Delay Marriage and Parenthood?" *Review of Economics of the Household 3*, 49-73.

Dhillon, N. and T. Yousef (2007). "Inclusion: Meeting the 100 Million Youth Challenge." Middle East Youth Initiative Report. Washington, D.C.: Wolfensohn Center for Development at Brookings and Dubai School of Government. [www.shababinclusion.org]

Dustmann, C., N. Rajah, and A. van Soest (1998). "School Quality, Exam Performance and Career Choice." Discussion Papers No. 120. Tilburg: Center for Economic Research.

El-Hamidi, F. and J. Wahba (2005). "The Effect of Structural Adjustment on Youth Unemployment in Egypt." Paper presented at the 12th Annual Conference of the Economic Research Forum (ERF), Cairo, Egypt. [http://www.erf.org.eg/cms.php?id=conferences_details&conference_id=3] Accessed August 20, 2009.

Egel, D. and D. Salehi-Isfahani (2010). "Youth Transitions to Employment and Marriage in Iran: Evidence from the School to Work Transition Survey." *Middle East Development Journal 2*(1), 89-120.

ERF (2006). "Egypt Labor Market Panel Survey of 2006." Publicly Accessible Database, Economic Research Forum, Cairo, Egypt (www.erf.org.eg).

Ghimire, D. J., W. G. Axinn, S. T. Yabiku, and A. Thornton (2006). "Social Change, Premarital Nonfamily Experience, and Spouse Choice in an Arranged Marriage Society." *American Journal of Sociology 111*(4), 1181-1218.

Gutiérrez-Domènech, M. (2008). "The Impact of the Labour Market on the Timing of Marriage and Births in Spain." *Journal of Population Economics 21*, 83-110.

Hoodfar, H. (1997). *Between Marriage and the Market: Intimate Politics and Survival in Cairo*. Berkeley: University of California Press.

Hudson, V. M and A.M. Den Boer (2004). *Bare Branches: The Security Implications of Asia's Surplus Male Population*. Cambridge, Mass.: MIT Press.

Hudson, V.M. and A.M. Den Boer (2002). "A Surplus of Men, a Deficit of Peace: Security and Sex Ratios in Asia›s Largest States." *International Security 26*(4), 5-38.

Jenkins, S. (1997). "Estimation of Discrete Time (Grouped Duration Data) Proportional Hazards Models: pgmhaz." Mimeo.

Jenkins, S. (2005). "Survival Analysis, Lecture Notes and Lessons Using Stata." Mimeo.

Keeley, M. C. (1977). "The Economics of Family Formation." *Economic Inquiry 15*(2), 238-50.

Kreyenfeld, M. (2000). "Employment Careers and the Timing of First Births in East Germany." Max Planck Institute for Demographic Research Working Paper, 2000-004.

Lassibille, G., L. Navarro Gomez, I. Aguilar Ramos, and C. de la O Sanchez (2001). "Youth Transition from School to Work in Spain." *Economics of Education Review 20*, 139-149.

Lenton, P. (2003). "The School-to-Work Transition in England and Wales: Evidence from a Pooled Cross-Sectional Analysis." Lancaster University Management School Working Paper 2003/006.

Mensch, B. (2005). "The Transition to Marriage." In C. B. Lloyd (ed.), *Growing Up Global: The Changing Transitions to Adulthood in Developing Countries*. Panel on Transitions to Adulthood in Developing Countries, National Research Council. Washington, DC: The National Academies Press.

Mensch, B. S., S. Singh, and J. B. Casterline (2005). "Trends in the Timing of First Marriage Among Men and Women in the Developing World." Population Council Policy Research Division Working Paper 202.

Nagi, S. Z. (2001). *Poverty in Egypt: Human Needs and Institutional Capacities*. Oxford: Lexington Books.

Nguyen, N. and J. Taylor (2003). "Transition from School to First Job: The Influence of Educational Attainment." Lancaster University Management School Working Paper 2003/009.

Oppenheimer, V. K., M. Kalmijn, and N. Lim (1997). "Men's Career Development and Marriage Timing during a Period of Rising Inequality." *Demography 34*(3), 311-30

Rabe-Hesketh, S. and A. Skrondal (2008). *Multilevel and Longitudinal Modeling Using Stata (2nd Edition)*. College Station, TX: Stata Press.

Russell, H., and P. O'Connell (2001). "Getting a Job in Europe: The Transition from Unemployment to Work among Young People in Nine European Countries." *Work, Employment & Society 15*(10), 1-24.

Singer, J. and J. Willet (1993). "It's about Time: Using Discrete-Time Survival Analysis to Study Duration and the Timing of Events." *Journal of Educational Statistics 18*(2), 155-95.

Singerman, D. (1995). *Avenues of Participation: Family, Politics, and Networks in Urban Quarters of Cairo*. Princeton, NJ: Princeton University Press.

Singerman, D. (2007). "The Economic Imperatives of Marriage: Emerging Practices and Identities Among Youth in the Middle East." Middle East Youth Initiative Working Paper Number 6. Washington, D.C.: Wolfensohn Center for Development at Brookings and Dubai School of Government. [www.shababinclusion.org]

Singerman, D. and B. Ibrahim (2001). "The Costs of Marriage in Egypt: A Hidden Dimension in the New Arab Demography." In Nicholas Hopkins (Ed.), special edition on "The New Arab Family," *Cairo Papers in Social Science 24* (1/2), 80-116.

Steele, F. (2005). "Event History Analysis." ESRC National Centre for Research Methods. NCRM Methods Review Papers NCRM/4.

Verdu, C., L. Cortes, and M. Rodriguez (2008). "To Find or Not To Find a First 'Significant' Job." *Revista de Economia Aplicada 46*(XVI), 37-59.

Wahba, J. (2009). "The Impact of Labor Market Reforms on Informality in Egypt." Gender and Work in the MENA Region Working Papers Series Number 3. Cairo, Egypt: The Population Council.

Yabiku, S. T. (2005). "The Effect of Non-family Experiences on Age of Marriage in a Setting of Rapid Social Change." *Population Studies 59*(3), 339-54.

ENDNOTES

1. While the bride and her family contribute some of the costs of marriage, about 70 percent of these costs on average are covered by the groom and his family according to data from the Egypt Labor Market Panel Survey of 2006 (Singerman 2007; see also analysis in Section 3).

2. According to the Egypt Labor Market Panel Survey of 2006, fewer than five percent of technical secondary graduates in Egypt continue on to two-year post-secondary institutes and fewer than two percent continue on to university.

3. See Singerman (2007) for a detailed analysis of this data.

4. The impact of having a parent with post-secondary education has opposite effects for fathers and mothers. Post-secondary degrees are fairly rare in Egypt, so these results must be interpreted with some degree of caution.

5. By year 11, 99.8 percent of the individuals in the sample had transitioned into a first job.

6. The job quality index is normalized to have a mean of zero and units of one standard deviation when all current jobs observed in 1998 and 2006 in Egypt are pooled together into a single distribution.

7. It is quite likely that our job quality index understates the quality of self-employment and unpaid family labor because it emphasizes institutional aspects of employment such as the presence of social and medical insurance coverage and paid vacations, which are typically absent in family enterprises.

8. The results reported in Table 10 are corrected for censoring by using a Kaplan-Meier life table estimator.

9. Because there are some missing observations on the variables used to estimate the job quality index, Models 5 and 6 are estimated on fewer individuals than the first 4 models.

10. As seen in Appendix Table A2, the coefficients of the spell dummies are insignificant after year 14.

11. It is not possible to calculate the median age at marriage for cohorts born after that because less than 50 percent of these cohorts are married.

12. Although all men in the sample are currently over age 18, which is the legal age of marriage, several older men in the sample had married before 18, with the earliest marrying at age 14.

13. These differences in results should be interpreted with caution as there might be significant collinearity between an individual's own education and his parents' education.

14. As before, the reference individual is born between 1966 and 1970, has a three-year technical secondary education, lives in Greater Cairo, and has parents with below secondary education and a father that works for the government. He also has the average number of sisters and lives in a district with the average sex ratio.

ABOUT THE MIDDLE EAST YOUTH INITIATIVE

Our Mission

To develop and implement a regional action plan for promoting the economic and social inclusion of young people in the Middle East.

Creating Alliances for Maximum Progress

The Middle East Youth Initiative's objective is to accelerate the international community's ability to better understand and respond to the changing needs of young people in the Middle East. By creating an international alliance of academics, policymakers, youth leaders and leading thinkers from the private sector and civil society, we aim to develop and promote a progressive agenda of youth inclusion.

The Middle East Youth Initiative was launched in July 2006 by the Wolfensohn Center for Development at the Brookings Institution in partnership with the Dubai School of Government.

Connecting Ideas with Action

The initiative blends activities in an attempt to bridge the divide between thinkers and practitioners and utilizes robust research as a foundation for effective policy and programs. The initiative has three complementary pillars:

Research and Policy: Pathways to Inclusion

With this initiative, cutting-edge research advances the understanding of economic and social issues affecting young people. The main target group is youth 15 to 29 years old, with a special focus on young men and women who live in urban areas and have secondary or post-secondary education. In addition to addressing needs of older youth, the initiative will also focus on strategies for promoting development of youth 15 years and under in areas such as primary education, skills development and community participation.

The research framework focuses on youth making two major transitions to adulthood: i) the transition from education to employment; and ii) the transition to household formation (marriage and family). Research will concentrate on strategies to achieve inclusion in:

- Quality education
- Quality employment
- Marriage
- Housing
- Civic participation

Our goal is to examine the relationship between economic and social policies and generate new recommendations that promote inclusion.

Advocacy and Networking: Creating Vital Connections

The initiative aspires to be a hub for knowledge and ideas, open to all stakeholders who can make change happen. Strong partnerships with policymakers, government officials, representatives from the private sector and civil society organizations, donors and the media will pioneer forms of dialogue that bridge the divide between ideas and action. By bringing in the voice and new perspectives of young people, the initiative will revitalize debate on development in the Middle East.

Practical Action: Life-Changing Impact

Outcomes matter. With a focus on areas with the greatest potential for innovation and impact, the initiative will mobilize partners for practical action that can improve young people's lives. The initiative will help develop policies and program interventions which provide youth with skills, expand opportunities for employment and facilitate access to credit, housing and civic participation.

ABOUT THE WOLFENSOHN CENTER FOR DEVELOPMENT

The Wolfensohn Center for Development at the Brookings Institution was founded in July 2006 by James D. Wolfensohn, former president of the World Bank and member of the Brookings Board of Trustees.

The Wolfensohn Center for Development analyzes how resources, knowledge and implementation capabilities can be combined toward broad-based economic and social change in a four-tier world.

The following principles guide the center's work:

- A focus on **impact, scaling-up and sustainability** of development interventions

- Bridging the gap between **development theory and practice** to bring about action

- Giving **voice** to developing countries, with high-level policy engagement and broad networking

- A **rigorous, independent research** approach that draws from multiple disciplines

- Working in **partnership** with others

ABOUT THE DUBAI SCHOOL OF GOVERNMENT

The Dubai School of Government is a research and teaching institution focusing on public policy in the Arab world. Established in 2005 under the patronage of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the United Arab Emirates and Ruler of Dubai, the school aims to promote good governance by enhancing the region's capacity for effective public policy.

Toward this goal, the Dubai School of Government collaborates with international institutions such as Harvard University's John F. Kennedy School of Government and the Lee Kuan Yew School of Public Policy in its research and training programs. In addition, the school organizes policy forums and international conferences to facilitate the exchange of ideas and promote critical debate on public policy in the Arab world.

The school is committed to the creation of knowledge, the dissemination of best practice and the training of policy makers in the Arab world. To achieve this mission, the school is developing strong capabilities to support research and teaching programs including:

- Applied research in public policy and management

- Masters degrees in public policy and public administration

- Executive education for senior officials and executives

- Knowledge forums for scholars and policy makers

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