

Timing of First Marriage Among Egyptian Women

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Introduction

Marriage patterns in the Arab Region, as in all developing countries, have undergone dramatic changes in the last 3 decades. Arab women and men are both marrying at older ages, with significant increases in age at first marriage among women (Tabutin and Schoumaker 2005). However, very little empirical research on the transition to marriage in the Arab region has been conducted (Rashad and Osman 2003), and the field of Arab family demography is virtually nonexistent, probably because of the belief that this is a 'soft' topic. However, marriage patterns have important linkages to the region's socio-economic development. Age at first marriage not only has significant ramifications on overall fertility levels and the demographic transition (Hajnal 1965; Bongaarts 1994), but also women's status within the home and society at large (Heaton 1996; Jensen and Thornton 2003). Who marries and when people marry can tell us something about underlying cultural and gender norms, and also highlight emergent inequalities in social trends, especially if marriage preferences the more well-off and affluent.

Egypt provides a particularly interesting context to explore the timing of first marriage in the Arab region. The largest Arab state and among the most populous in the world (UN 2009), Egypt has made significant strides to reduce its fertility and curb population growth primarily through intensive family planning programs (EDHS 2008; Ibrahim and Ibrahim 1998; Shanawany 1971; Fargues 1997), but nonetheless it faces major challenges in achieving replacement fertility in the next 2 decades (Khalifa et al 2000). Moreover, Egypt has made significant investments to combat illiteracy, promote schooling, in addition to undergoing a high degree of urbanization. However, it remains among a handful of Arab countries still stuck in the early phases of the marriage transition, alongside Yemen and Oman (Rashad and Osman 2003). The universality of marriage and relatively early marriage in the country, coupled with the onset of childbearing soon after marriage, makes it imperative, from a population policy perspective, to understand the determinants and correlates of the timing of marriage.

More importantly, there is a need to go beyond traditional approaches that have underscored the roles of women's educational attainment, labor force participation and urban residence and other demographic factors (Singh and Samara 1996). Empirical evidence from several developing countries suggests that educational attainment and women's age at marriage are not always positively related with age at marriage (Mensch et al 2005). The ideational change that is expected to accompany increased schooling because of exposure to Western middle class values (Goode 1963; Caldwell 1980; Caldwell 1982; Thornton and Lillard 1994) does not always supersede traditional family values and moralities that emphasize early marriage and women's domestic roles (Malhotra and Tsui 1996; Malhotra 1997).

Additionally, the emphasis on women's labor force participation, as one of the key determinants of age at first marriage, may not be that relevant in the Egyptian context. Paid employment can compete with entry into marriage only if it is an available option. However, Egyptian women's labor force participation is very low, suggesting that this is a labor market demand problem, commensurate with the overall high levels of youth unemployment.

Aside from being a labor demand problem, low work participation rates among Egyptian women also reflect traditional gender-role attitudes of wife as homemaker and husband as breadwinner. Cultural attitudes on gender can play a vital role in shaping people's behaviors, although the literature on the relationship between attitudes and behavioral outcomes is mixed. Gender attitudes or ideology do not always predict behaviors. Rather, circumstantial factors can trump gender attitudes and be more predictive of behavior (Deutsch 1999). Accordingly, the delay in marriage among recent female Egyptian cohorts may have more to do with the

persistence of traditional cultural attitudes and gender norms, combined with the increasing cost of marriage (related to the increasing cost of living and higher expectations of living standards) which together make early marriage less feasible.

The purpose of this paper is to address the knowledge gap in the literature on Arab family demography that has largely ignored marriage trends, or dealt with them from a traditional framework. Using data from the 2000 Egyptian Demographic and Health Survey I explore the association between the timing of marriage among Egyptian women and women's family size ideals, while controlling for women's educational attainment, work participation, place of residence and other demographic variables. Cultural attitudes are difficult to measure, and given the lack of direct questions on attitudes toward marriage and gender roles in this dataset, I use the ideal number of children as a proxy measure of attitudes towards women's roles. Women expressing preferences for larger families are more likely to be traditional and are more likely to subscribe to a predominately domestic and reproductive role for women (Heaton 1996).

The Egyptian Context

Marriage patterns in Egypt fit within the overall trend in changes in nuptiality in the Arab region. The universality of marriage has been consistent across the 1950s, 1960s and into the 1970s. Only after the 1970s are delays in marriage and increases in celibacy evident, albeit to varying degrees (Rashad and Osman 2003). In the 1970s, almost two-thirds of Egyptian women aged 20-24 were married by the age of 20 compared to less than one-third in the 1990s (Rashad and Osman 2003). Today, the median age at marriage for Egyptian women is 20.6 years (EDHS 2008) compared to the late 1980s when one-half of women married in their late teens (EDHS 1988).¹ However, Egypt still remains in the first stages of the marriage transition (Rashad and Osman 2003). Age at first marriage among Egyptian women has increased, but only slightly compared to other Arab countries (Eltigani 2000). The virtually universality of marriage is underscored by the fact that almost all women are married by the age of 30 (EDHS 2008). However, marked differences in median age at marriage by region, urban/rural residence, educational level and income quintile persist (EDHS 2008). Additionally, more than one-half of ever-married Egyptian women start their married life in someone else's home (Rashad and Osman 2003). Early marriage and co-residence with presumably older generations is known to impact young married women's status and position within the household. This pattern of decreasing proportions of married couples establishing a separate residence is common in many developing countries (Ruggles and Heggeness 2007), and is linked to urbanization and housing shortages (Rashad and Osman 2003), which are also important predictors of the timing of marriage in so far as they make marriage feasible (Dixon 1971).

The feasibility of marriage is directly linked to the costs of marriage, which not only reflect macroeconomic factors, but also affect social norms in terms of the perceptions of acceptable living standards that they generate. Housing shortages, and consequently the increasing cost of housing, combined with young people's expectations of establishing separate residence contribute to delays in marriage. Numerous studies have documented the positive association between urbanization/place of residence and age at first marriage (Brian and Lillard 1994; Mensch et al 2005). Moreover, rapid urbanization and housing shortages have increased housing costs. Yet, few studies on the Arab region (Singerman and Ibrahim 2003) or other developing countries, with the exceptions of India and Bangladesh (Mensch et al 2005) have linked delays in marriage to increases in the cost of marriage. Singerman and Osman (2003) dub the cost of marriage as the "hidden variable in the new Arab demography."

¹ Efforts to increase the legal minimum age at marriage from 16 to 20 years for girls failed in the 1970s (Shanawany 1971; Banett 1984), and remain as such till the present day (EDHS 2008). The legal age for men is 18 years.

The increase in marriage costs in Egypt since the 1970s coincides with the introduction of the Open Door Policy and the removal of key consumption subsidies under the structural adjustment policies of Mubarak which raised the costs of furniture, appliances and other household goods, and increased the overall cost of living (Singerman and Ibrahim 2003; Ibrahim and Ibrahim 1998). It is estimated that Egyptian families spend about 4.5 times their GNP per capita on marriage expenses. In urban parts of Egypt, this amount is 6 times GNP per capita and in rural areas it is 4 times (Singerman and Ibrahim 2003). In Egypt, housing costs are part of marriage costs, which also include the ceremony, furniture, appliances, as well as bridal gifts, a bridal price and trousseau. Although the quantity and quality of these items vary by class and region, in most cases the costs are born by the groom and/or his family. However, there is some shift toward joint sharing between the bride and groom (Singerman and Ibrahim 2003).

Notwithstanding, Egyptian marriages remain largely traditional – that is, based on ascribed characteristics and largely a negotiation between families, rather than individuals (Singerman and Ibrahim 2003). In fact, traditional norms and attitudes still prevail in Egypt despite increasing levels of educational attainment among the country's youth (Mensch et al 2003). A survey of unmarried Egyptian youth aged 10-19 years suggests the prevalence of traditional gender-role attitudes and norms consistent with Islamic ideals (Mensch et al 2003). Most Egyptian adolescents surveyed indicated that they expected a traditional gender division of labor within the household. Although many expressed egalitarian attitudes towards most household decisionmaking as a process that should be joint, the majority of both male and female adolescents believe that decisions pertaining to the household budget and whether women can work should be taken by the husband alone. Moreover, Mensch et al (2003) find that none of the usual background characteristics that explain gender-role attitudes had a significant or consistent effect in their study. Higher levels of schooling did not consistently correspond with more egalitarian gender-role attitudes. Additionally, place of residence did not have any effect in this study despite considerable differences in socio-economic development levels across regions (Mensch et al 2003).

Theoretical Context

The timing of first marriage in developing countries has been the subject of many empirical studies – initially for its linkages to the onset of childbearing, overall fertility rates and the demographic transition (Hajnal 1965; Bongaarts 1994). A second more recent strand of research in this area has focused on the relationship between early marriage and women's status and position both within the household and society (Heaton 1996; Jensen and Thornton 2003; Singh and Samara 1996). Early marriage has been correlated with negative outcomes for women's sexual and reproductive health. Additionally, women who marry early are likely to be less educated and employed, and more likely to face the risk of divorce or separation (Singh and Samara 1996), and even domestic violence (Jansen and Thornton 2003).

Accordingly, the bulk of research in this area in developing countries has focused on women, with a few exceptions (Malhotra 1997; Mensch et al 2005) – namely, due to data constraints. Additionally, different disciplines have adopted different theoretical approaches to the study of age at first marriage (Mensch et al 2005). Historical demography has postulated linkages between age at marriage and norms of household formation. Norms favoring nuclear households implied individuals first had to acquire the skills necessary to establish a separate residence (Wrigley et al 1997) and economic self-sufficiency (Watkins 1987). However, empirical evidence has challenged the notion that economic self-sufficiency is always related to earlier age at marriage (Ketzer and Higar 1981), especially among women. The negative relationship between women's economic independence and age at marriage is well documented (Dixon 1971; Raymo 1998). Participation in paid work is expected to delay age at marriage as

women become autonomous from their families and no longer look to marriage as a source of financial security (Greenhalgh 1985).

In contrast to historical demography's focus on household structures and norms of formation, social anthropologists have highlighted the critical linkages between the timing of marriage and cultural norms and values, such as dowry and bride price (Dahal et al 1993). Several studies have focused on the effects of dowry price on marriage processes and outcomes, especially in the South East Asian context (Caldwell 1983; Amin et al 2002). Economists' treatment of age at marriage is most notable in Becker's work. According to the Beckerian model, people get married when the utility of being single no longer outweighs that of being a married couple (Becker 1973).

Sociologists' approach to the study of the timing of age at marriage has emphasized individual's place in society and has integrated various individual and household level characteristics. Dixon (1971) forth a multidimensional framework for the analysis of age at first marriage that underscored 3 important dimensions – namely, mate availability (sex ratios), feasibility of marriage (availability of required resources) and its desirability (compared to alternatives such as remaining single, cohabiting, etc..). More recent models include a variety of socio-economic and demographic variables (Singh and Samara 1996; Heaton 1996). Women's educational attainment, labor force participation, urban residence and sex ratios are the 'usual suspects.' However, empirical evidence has challenged modernization theory, underscoring the need to take into consideration cultural values and gender norms, rather than to assume that higher income and education levels reflect Western values and more liberal and egalitarian ideologies. For example, a study of a young cohort of Sri Lankan women indicated that the timing of first marriage is more closely linked to underlying cultural attitudes and family values (Malhotra and Tsui 1996; Malhotra 1997). Additionally, empirical evidence from 8 developing countries shows that the probability of early marriage increased rather than decreased despite improvements in educational attainment among women. Although there is large support for the argument that increases in age at marriage are driven by increases in educational attainment, Mensch et al find that the explanatory power of improvements in educational attainment is exaggerated (Mensch et al 2005). These studies and results from other similar studies have resulted with increasing attempts to include variables on culture (difficult to measure) as well as measures of social attitudes and values in models on age at first marriage.

Analytical Approach

Models of the timing of marriage underscore the importance of contextual factors and the need to distinguish between individual, household, district and governorate-level factors. Contextual factors could influence age at marriage by affecting the cost of marriage and the availability of suitors. Additionally, cultural norms in one's community may play a more potent role than women's individual attitudes or preferences towards marriage and gender-roles or that of their parental home. However, in this paper, the timing of first marriage among ever-married Egyptian women is analyzed on the individual level, controlling for a number of socio-economic characteristics of women and their households. Where data on women's parental home are not available, data on the current household is used as a proxy instead with the underlying rationale being that marriages are for the most part homogamous.

Existing empirical research emphasizes the need to control for cultural factors, including gender norms, rather than assuming that women's education and work status are systematically correlated with more modern and western ideals and behaviors, such as delayed marriage. Accordingly, in this paper I focus on women's ideal number of children as a construct of attitudes towards women's roles, alongside women's educational level and work status. Ideal number of children has been used as a proxy for cultural attitudes on gender in so far as women

who express the desire for larger families are more likely to be traditional and oriented toward reproductive roles (Heaton 1996). However, this measure is imperfect in so far as the ideal number of children is influenced both by the age of women and their current number of children. Additionally, age at marriage and ideal number of children may be endogenous. Moreover, ideal family size may be a better reflection of women's attitudes and preferences rather than cultural norms at large, however, individual attitudes are partially shaped by cultural norms in one's community. Nonetheless, if we accept these caveats, then a positive correlation between early marriage, defined as marriage by 15, and traditional family size ideals (i.e. large or believed to be determined by God) suggests that traditional gender-role attitudes have a negative relationship with age at first marriage.

Data and Methods

Using data from the 2000 Egypt Demographic and Health Survey (DHS), I explore the association between women's age at first marriage and ideal number of children. The DHS surveyed 16,957 households across Egypt and interviewed 15,573 ever-married women aged 15-49 years. However, women who provided non-numeric responses (0.43% of the original sample); women with no data on household asset ownership (3.63% of original sample) and women with missing information on childhood place of residence (0.01% of the original sample) were dropped. This leaves us with a sample size of 14, 938 ever-married women aged 15-49 years.

A basic hypothesis is that women who express more traditional family size preferences are more likely to marry at younger ages and women who profess non-traditional family size ideals are more likely to marry at older ages. Moreover, at younger ages, educational attainment and employment status are expected to reduce women's odds of marriage, but at older ages, higher educational levels and working status are expected to have a positive impact on women's odds of marriage.

The testing of these hypotheses requires multivariate logistical analyses that control for a number of individual and household-level factors. Where data on the parental home are not available, they are substituted with data on current residence in so far as marriages are likely to be homogamous. I control for woman's age or birth cohort, childhood place of residence, and current residence (urban or rural). In lieu of a measure for parental home socio-economic status or wealth, I construct an assets index pertaining to women's current household. The DHS asked households whether or not they have electricity, own a TV, radio, refrigerator or a car. Accordingly, the household assets index was constructed by adding up the number of assets the household owns.

The dependent variable is age at marriage. Age at marriage is measured in terms of the proportion of women married by a particular age – namely, ages 15, 20, 25, 30 and over 30. These ages were selected to facilitate analysis by corresponding to the age cohorts which are divided in 5 year age groups. I run separate logistical regression models to predict the likelihood of marriage by each of these ages. A hazard analysis would be preferable, but in the absence of panel data, this type of analysis allows us to capture determinants of early marriage perhaps better than hazard models which do not distinguish between middle and late marriage. Moreover, hazard models assume proportionality in the effect of each factor at each age whereas this is not necessarily the case.

The main independent variables are ideal number of children, educational attainment and employment status. The 2000 Egypt DHS included questions on intra-household gender relations, such as household decisionmaking and domestic violence, and questions on ideals and preferences, including the ideal number of children a woman would like to have. In this paper, I propose that the ideal number of children be used as a construct for attitudes toward women's

roles in so far as women who would like to have larger families, believe it is up to God, or do not want to plan for their family size, are more likely to be traditional in their outlook on women's roles. As mentioned above, the validity of this construct is weakened by the fact that the ideal number of children is sensitive to both a woman's age and her current number of children, as well as the inherent endogeneity between age at marriage and ideal number of children. However, the validity of this construct is partially supported by the fact that ideal number of children when treated as a categorical variable (traditional/large versus nontraditional/small as explained below) is negatively correlated with women's household decisionmaking index score.² Although women's say in household decisionmaking is best characterized as a measure of the evidence of empowerment (Kishor 2000) rather than an attitudinal one, arguably more traditional women are less likely to have a final say on household decisions than those who are less traditional.

Respondents provided numeric answers, non-numeric answers, and some responded with "don't know" and others with "Leave it to God" when asked about their ideal number of children. Numerical responses ranged from 0-24. On average, women in the sample prefer to have 3 children, and given current fertility rates which are 3.0 children per woman, women who expressed the desire for 4 or more children are coded as 'traditional'. Additionally women who responded "Leave it to God" or "Don't Know" when asked about their ideal number of children were also coded as espousing traditional family size ideals.³ Women expressing the desire for 3 or less kids were coded as "nontraditional." Educational attainment is treated as a 4 level ordinal variable – no education, primary, secondary and higher. Employment status is treated as a binary variable reflecting whether women are currently employed. It would be preferable to include a variable on employment status before marriage, but this variable was not included in the publically available recoded file. I assume that women who currently work are likely to have worked before marriage; and this is a conservative assumption since the norm is that women drop out of work after marriage. Summary statistics on the dependent, independent and control variables are provided in Table 1.

Results

The characteristics of the sample of women by age of marriage are provided in Table 2. Over one-half of women in the sample are aged between 25 and 39 years and about one-quarter are nearing, or at the end, of their childbearing years between 40 and 49 years. Women aged 15-19 years comprise less than 4% of the sample. Over one-half grew up in the countryside and about one-quarter in a town. About one in every ten women was raised in the capital or a large city. Trends in childhood place of residence are reflected in current place of residence with 53% of the sample residing in urban areas. One-half of the sample has access to 4 out of 5 assets (electricity, TV, radio, fridge or car). Less than 2% of women reside in poor households while almost 7% reside in households that enjoy access to all 5 assets described above. Over 40% of women have never attended school, less than 20% have completed a primary education. About one-third have a secondary education and only 8% have a college degree or higher. The majority of women do not work. More than one half are nontraditional in their preferences for the ideal

² The DHS asked women respondents, "Who in your family usually has the final say on the following decisions? Your own health? Making large household purchases? Making household purchases for daily needs? Visits to friends, family or relatives? What food should be cooked each day?" The following 6 response categories were available: respondent alone, husband and respondent (joint), respondent and other, husband alone, someone else, and decision not made/not applicable. In this study, a household index, excluding cooking, was constructed. The index ranged from 0 to 4 and women's score on the decision making index reflects the number of items for which women report being primary decision makers. Among the 14,938 women in the final sample, the mean score was 1.05 with a standard deviation of 1.187478.

³ Women who responded "Leave it to God" and "Don't Know" exhibited the same coefficients in the regression as those who desire for or more kids and accordingly were categorized together as "traditional."

number of children. However, 43% would like four or more kids, are undecided or believe it is up to God.

Bivariate analyses

Women from older cohorts who grew up in the countryside are more likely to have married early – i.e. by 15. Rural women are likely to marry early while women who marry later are more likely to be urban. Over 70% of women married by 15 are rural dwellers while more than 75% who marry over the age of 30 are urban. Household wealth, reflected by assets ownership, seems to facilitate marriage at all ages. Women who belong to wealthier households are more likely to marry and the positive association between household wealth and the likelihood of marrying seems more evident at older ages. Less educated Egyptian women in the sample marry earlier while more educated women seem to put off marriage to older ages. Over 70% of women who marry by 15 have never been to school while almost one-third marrying by 30 have a college degree or more. Most Egyptian women do not work. Those who marry early are more likely not to be working, while those who marry later are more likely to be currently employed. Additionally, women with nontraditional family size ideals appear to marry later while those with more traditional ideals appear to marry early. Over 60% of women who marry by 15 express traditional family size ideals while more than three quarter of those marrying by 30 are nontraditional. These relationships are further explored in multivariate analyses that control for background differences among women.

Multivariate analyses

Results from the multivariate regressions are presented in Table 3. As expected, women's educational attainment and work status are associated with lower odds of marriage at younger ages but higher chances of marrying at older ages. Having a primary school education alone reduces women's chances of marriage by 15 compared to having never attended school. Women with a secondary and post secondary education are less likely to marry by 20 compared to uneducated women. However, having a secondary and higher education significantly improves women's chances of marriage at the older ages of 25 and 30. Women who are currently working are less likely to marry early (by 15) and to marry by 20. However, employment is associated with higher odds of marriage by ages 25, 30 and over 30. Women who are currently working are more than 1.4 times as likely to marry by the ages 25, 30 and over 30 compared to women who do not work. Additionally, women who express traditional family size ideals are 1.7 times more likely to marry early (by 15) than women with nontraditional ideals and their odds of marrying diminish with age. Women with traditional ideals are half as likely to marry by 30 as women with nontraditional family size ideals. Additionally, family size ideals appears to be just as strongly associated with the timing of first marriage among Egyptian women as educational attainment and employment status.

The relationship between the control variables and age at marriage are in the expected direction, with a few exceptions. Women who grew up in the capital, a large city, city and even a town are less likely to marry early or by 20 than women who were raised in the countryside. Correspondingly, these women are more likely to marry at older ages compared to women brought up in the countryside. Interestingly, women who grew up abroad are the most likely to marry by 15 and 20. Women who live in the city appear to be the most likely to marry by 30 even when compared to women living in the capital or a large city. Household wealth seems to have a weak positive association with odds of marriage at an early age (by 15) and a negative association by older ages. However, these relationships are only statistically significant in the models predicting marriage by 25, 30 and over the age of 30. The relationship between birth cohort and age at marriage is counterintuitive. It appears that women in younger cohorts (currently aged 15-19 years) are more likely to have married by 15 and 20 compared to women

of older birth cohorts (currently aged 45-49). To rule out whether this can be partially attributed to improper coding of women's ages, 15-16 year olds were dropped from the sample but the results remained the same. Additionally 30-34 years olds and 35-39 year olds are less likely to marry by 30 compared to 45-49 year olds. The 40-44 years olds appear to be just as likely, if not slightly more so, to marry at older ages compared to the 45-49 years olds, however, this association is not statistically significant.

Conclusion

The purpose of this study is to address the gap in Arab family demography and the lack of research on a growing trend in the Arab world – namely, the delay in age at first marriage among Arab women. Rather than focusing on women's educational attainment and work participation alone, this study attempts to incorporate a less tangible dimension that may have profound implications on the timing of age at marriage – namely, cultural attitudes on women's roles. The role of cultural attitudes, including gender-role attitudes, is underscored by existing empirical research which indicates that higher education and paid work among women are not systematically associated with more modern and western ideals and behavior, such as delayed marriage. In fact, the increasing levels of educational attainment and persistence of lower labor force participation among Arab women continues to confound policymakers and researchers.

Notwithstanding the difficulty of measuring cultural values and norms, in this paper ideal family size is proposed as a proxy measure for attitudes toward women's roles in so far as women who express a desire for larger families are more likely to profess traditional gender-role attitudes and to subscribe to primarily reproductive roles for women. This study explores the relationship between the ideal number of children and the timing of marriage. Net of the effects of education, work status and other background variables, women with more traditional family size ideals are more likely to marry at younger ages while women with less traditional family size ideals are more likely to marry later on. This association is not unexpected since family size ideals are correlated with women's age and the onset of marriage. Women who marry later are aware of their reduced fecundity and this is reflected in their responses and preferences. Accordingly, the validity of the ideal number of children as a construct for cultural attitudes for women's roles or cultural gender-role attitudes is questionable. However, women who want larger families will try to realize this objective by marrying earlier while women who want smaller families will put off marriage in the pursuit of other activities, such as education or work. Testing the correlation between ideal family size and other more mainstream measures of gender-role attitudes could strengthen the validity of this construct. The 2000 Egypt DHS collected data on women's participation in household decisionmaking and although this variable is more precisely a measure of the evidence of empowerment rather than gender role attitudes, it was negatively correlated with our dichotomous measure of family size ideals. In so far as a low score on household decisionmaking index implies more traditional intra-household gender relationship and accordingly a more traditional woman, than the statistically significant negative correlation between women's household decisionmaking score and ideal number of children partially supports the use of this variable as a construct of traditional gender-role attitudes. However, additional research is needed to corroborate whether family size ideals is a valid construct for gender-role attitudes, in lieu of the availability of a dataset that provides more direct measures.

The results of this study are consistent with trends reported in existing literature – namely, that educational attainment and work status reduce women's odds of marriage at younger ages but increase their chances of marrying at older ages. Women who are in school are likely to postpone marriage either because of the time spent in school or because of exposure to western middle class ideals and norms, which influence preferences and lifestyle choices.

Additionally, women who work are likely to postpone marriage given that they are likely to be more socially independent of their families and communities and less influenced by their pressures to marry. Financial independence imparted by paid work (and control over earnings) allows working women to put off marriage. Similarly, childhood place of residence and urban residence influence women's odds of marriage in so far as living in more cosmopolitan areas exposes women to more modern ideals and offers opportunities for education and work. On the other hand, the association between urban residence and delayed marriage may be partially explained by housing shortages and the increasing cost of living. Future research would have to include district level measures of cost of living to further explore this association. That women who grew up abroad are more likely to marry early is somewhat counterintuitive. However, these women may have grown up in nearby places in the Arab region that are just as traditional, if not more, than their home country. Alternatively, the parents of these women may have feared for their daughters' chances of marrying because of their overseas residence, and may have encouraged them to marry early. The household assets index was weakly correlated with the timing of marriage. As expected, more affluent households delay the marriage of their daughters at younger ages. This can be partially explained by parents' desire to ensure the completion of their daughters' education and because early marriage runs counter to status symbols conveying culturedness and modernity (Janson 2006). In fact, among the middle class, more educated women may stand a better chance in the marriage market. However, the household assets index constructed in this study may be a weak measure of household wealth and may not fully capture the influence of the wealth or socio-economic status of the parental home. More direct measures of the socio-economic status of the parental home, including mother and father's education, work status, occupation and income could expand our knowledge of the pathways to delayed marriage among Arab women.

The relationship between women's birth cohort and the transition to first marriage was the most difficult to interpret. The results of this study suggest that more recent cohorts are more likely to marry early than older cohorts. These findings were substantiated even when 15 and 16 year olds were dropped from the analysis ruling out the possibility of errors in the coding of respondents' age. On one hand, this may be partially associated with the rise in radical Islam, or the return to more conservative and traditional interpretations of Islam among Egyptians and elsewhere in the Arab region. However, more direct measures of religiosity are required to ascertain whether this is a cohort or period effect.

Finally, the findings of this study underscore the need to consider both individual and household level variables, and to include measures of aspects that are more challenging to measure, such as cultural attitudes and values whose role has largely been inferred as a residual. Future research on the timing of first marriage could adopt more direct measures of cultural attitudes for women's roles and undertake a multi-level analysis of the transition to marriage. Future research on the transition to marriage in the Arab world would also have to shift its focus on men to get a more comprehensive picture of the transitions underway in Arab family demography.

Table 1. Summary Statistics of Dependent, Independent, and Control variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Dependent variable					
Age at first marriage	15573	18.95011	4.10079	8	45
Married by 15	15573	0.202209	0.4016601	0	1
Married by 18	15573	0.3077763	0.4615883	0	1
Married by 22	15573	0.3119502	0.4633045	0	1
Married by 26	15573	0.1299685	0.3362796	0	1
Married by 30	15573	0.0364734	0.1874709	0	1
Married over 30	15573	0.0116227	0.1071836	0	1
Independent variables					
Educational level					
No education	15573	0.4246452	0.4943049	0	1
Primary	15573	0.1815321	0.3854708	0	1
Secondary	15573	0.3133629	0.4638754	0	1
Higher	15573	0.0804598	0.2720124	0	1
Currently working	15573	0.1690747	0.3748299	0	1
Ideal number of children (Numeric responses) ⁽¹⁾	12104	2.991408	1.400626	1	24
Recoded ideal number of children					
Non-traditional (women who want 3 or less kids)	15573	0.5689334	0.4952413	0	1
Traditional (women who want 4 or more kids; women who answered "Leave it to God" and women who answered "don't know")	15573	0.4267643	0.4946233	0	1
Control variables					
Age/birth cohort					
15-19	15573	0.0382072	0.1917022	0	1
20-24	15573	0.144224	0.351328	0	1
25-29	15573	0.1826238	0.3863702	0	1
30-34	15573	0.1734412	0.3786404	0	1
35-39	15573	0.1726064	0.3779188	0	1
40-44	15573	0.1427471	0.349826	0	1
45-49	15573	0.1461504	0.3532683	0	1
Urban/rural (current residence)					
Urban	15573	0.460926	0.4984869	0	1
Rural	15573	0.539074	0.4984869	0	1
Childhood place of residence					
Capital, large city	15571	0.1083424	0.3108224	0	1
City	15571	0.0548455	0.2276858	0	1
Town	15571	0.2669707	0.4423911	0	1
Countryside	15571	0.5684927	0.4953024	0	1
Abroad	15571	0.0013487	0.0367005	0	1
Household assets					
Electricity	15573	1.192192	1.139053	0	7
Radio	15573	1.056958	1.210942	0	7
TV	15573	1.129198	1.175026	0	7
Refrigerator	15573	0.8860849	1.275747	0	7
Car	15573	0.3381494	1.323029	0	7
Household assets index ⁽²⁾	15007	3.45612	1.021261	0	5

Notes:

1/ Data on household assets was not collected for women who were not in their de jure residence. These women were coded a '7' and are treated as missing for the household assets index since no information was collected on them.
 2/ Non-numeric responses are "Leave it to God", "Don't Know" and other which are coded 9, 97 and 99 respectively.

Table 2. CHARACTERISTICS OF SAMPLE ON KEY VARIABLES BY AGE AT FIRST MARRIAGE

Characteristics	Age at first marriage					Total
	By 15	By 20	By 25	By 30	Over 30	
Current age						
15-19	4.8	5.77	0	0	0	3.82
20-24	9.46	19.14	12.85	0	0	14.42
25-29	14.19	16.88	26.7	13.07	0	18.26
30-34	15.88	15.67	19.69	28.74	12.71	17.34
35-39	18.83	15.88	17.28	21.44	28.73	17.26
40-44	15.72	13.45	12.33	20.73	33.7	14.27
45-49	21.12	13.23	11.14	16.02	24.86	14.62
Total %	100	100	100	100	100	100
Childhood Place of residence						
Capital, large city	4.67	9.16	16.64	21.32	21.55	10.83
City	2.45	4.07	8.57	14.37	13.81	5.48
Town	17.85	24.54	35.38	39.34	35.36	26.69
Countryside	74.98	62.09	39.19	24.73	29.28	56.84
Abroad	0.06	0.13	0.19	0.24	0	0.13
Missing	0	0.01	0.03	0	0	0.01
Total %	100	100	100	100	100	100
Urban/rural (current residence)						
Urban	28.61	40.85	63.32	77.15	75.69	46.09
Rural	71.39	59.15	36.68	22.85	24.31	53.91
Total (100%)	100	100	100	100	100	100
Household assets index - current residence (scale 0-5)						
None	2.76	2.03	1.08	0.47	0.55	1.85
One	5.49	3.65	1.97	2.12	4.42	3.55
Two	13.27	10.34	4.81	4	3.31	9.2
Three	31.91	25.88	14.36	9.78	11.6	23.32
Four	40.68	49.19	60.64	62.07	66.85	51.09
Five	3.78	5.65	11.96	15.78	8.29	7.35
Not de jure residence/missing	2.1	3.26	5.17	5.77	4.97	3.63
Total	100	100	100	100	100	100
Educational attainment						
Illiterate	70.63	45.41	19.72	14.49	23.2	42.46
Primary	20.99	20.38	12.82	10.37	19.34	18.15
Secondary	8.22	31.57	47.34	43.46	39.78	31.34
Higher	0.16	2.64	20.12	31.68	17.68	8.05
Total %	100	100	100	100	100	100
Currently working						
No	91.24	89.06	70.81	57.13	60.22	83.09
Yes	8.76	10.94	29.19	42.87	39.78	16.91
Total %	100	100	100	100	100	100
Ideal number of children						
Non-traditional (women who want 3 or less kids)	37.73	55.27	71.03	76.8	77.35	56.89

Table 2. CHARACTERISTICS OF SAMPLE ON KEY VARIABLES BY AGE AT FIRST MARRIAGE

Characteristics	Age at first marriage					Total
	By 15	By 20	By 25	By 30	Over 30	
Traditional (women who want 4 or more kids; "Leave it to God" ; "don't know")	61.7	44.35	28.51	22.97	22.1	42.68
Non-numeric responses	0.57	0.38	0.46	0.24	0.55	0.43
N	3,149	7,697	3,697	849	181	15,573

Notes:

Values are unweighted

Table 3. PREDICTING ODDS OF AGE OF FIRST MARRIAGE AMONG EGYPTIAN WOMEN

VARIABLES	Married by 15	Married by 20	Married by 25	Married by 30	Married over 30
Educational attainment (ref.: illiterate)					
Primary	0.696***	1.134***	1.453***	1.384**	1.628*
Secondary	0.160***	0.903**	3.320***	3.810***	2.814***
Higher	0.0143***	0.237***	6.547***	7.969***	2.632***
Currently working (ref.:no)					
Yes	0.855**	0.631***	1.431***	1.472***	1.401*
Ideal number of children (ref.: Nontraditional = 3 or less)					
Traditional	1.702***	1.089**	0.663***	0.505***	0.332***
Age (ref.: 45-49)					
15-19	1.246*	3.474***			
20-24	0.667***	2.476***	0.804**		
25-29	0.782***	1.168**	1.661***	0.323***	
30-34	0.828**	1.142**	1.161*	0.923	0.258***
35-39	0.859**	1.164**	1.088	0.745**	0.723
40-44	0.785***	1.140**	1.013	1.101	1.172
Urban/rural (ref.: rural)					
Urban	0.767***	0.924	1.280***	1.423***	1.697**
Childhood Place of residence (ref.: countryside)					
capital, large city	0.702***	0.947	1.105	1.542***	1.269
city	0.688***	0.736***	1.232**	2.064***	1.451
town	0.899	0.962	1.113	1.398**	0.993
abroad	1.899	2.687*	0.521	0.478	
Household assets index (continuous; scale 0-5)					
Constant	1.02	0.999	1.045*	0.859***	0.773**
Constant	0.462***	0.932	0.108***	0.0452***	0.0323***
Observations	14938	14938	14383	12299	9616
log pseudo likelihood	-6462	-9758	-6916	-2484	-778.3
degrees of freedom	17	17	16	15	13
pseudo R2	0.148	0.0575	0.132	0.159	0.0934
Wald Chi2	2239	1191	2102	940.6	160.4

NOTES:

Table 3. PREDICTING ODDS OF AGE OF FIRST MARRIAGE AMONG EGYPTIAN WOMEN

VARIABLES	Married by 15	Married by 20	Married by 25	Married by 30	Married over 30
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*** p<0.01, ** p<0.05, *

p<0.1

Unweighted

The following observations were dropped from the logistical regression: women for whom no household assets data were available because they were not in their de jure place of residence (3.63% of original sample of 15,573 ever-married women aged 15-49 years); women who provided a non-numeric response other than "leave it to God" or "don't know" (0.43% of original sample) to the question on family size ideals; and women with missing information on their childhood place of residence (0.01% of the original sample).

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