# Persistence and change in marriage practices among Syrian refugees in Jordan

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**Abstract**

Early marriage, which is associated with a wide range of negative health and socioeconomic outcomes, may be a response to conflict and displacement. Since the onset of the Syrian conflict in 2011, there has been considerable attention to reports of high and potentially increasing rates of early marriage among Syrian refugee women. Using nationally representative survey data from Jordan in 2016 and Syria in 2009, as well as qualitative interviews with Syrian refugee youth in Jordan, we examine changes in age at marriage and drivers of early marriage. We find no evidence of an increase in early marriage rates after refugees' arrival to Jordan. Rates of early marriage among the Syrians now in Jordan were higher than pre-conflict national rates and have remained similar post-displacement, although poverty and security concerns have created new drivers for accelerating marriage for young women. Other dynamics of the Syrian marriage market in displacement may act to decelerate marriage rates, including declining rates of consanguinity and inability to meet marriage costs. Analysis of early marriage in displacement must be placed within the context of change in marriage practices among refugees more broadly.

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# 1   Introduction

Early marriage, defined as a formal marriage or an informal union before age 18 (UNICEF 2017), is associated with a wide range of negative outcomes for women and their children. Women married early lose their childhood, often taking on adult roles before they are developmentally ready. They have lower levels of education and economic empowerment, which contribute to low decision making authority within the household, restricted mobility, and vulnerability to intimate partner violence (Lee-Rife et al. 2012). Through the restriction of young women's educational and economic opportunities, early marriage also leads to negative intergenerational consequences for their children (Lee-Rife et al. 2012). Due to the association of early marriage with the early onset of sexual activity and pregnancy, women married early also suffer from negative health outcomes, including maternal morbidity and mortality, and depression (Kalamar, Lee-Rife, and Hindin 2016; UNICEF 2017).

The drivers of early marriage globally are multiple, and include poverty, lack of educational opportunities and sociocultural norms that emphasize girls' virginity (Lee-Rife et al. 2012; UNICEF 2017). In some countries, both globally (Hutchinson et al. 2016) and in the Middle East and North Africa (MENA) region specifically (UNICEF 2017), conflict and violence also shape early marriage practices. In contexts of conflict and forced displacement, the peacetime drivers of early marriage may be exacerbated, and others may emerge. Nevertheless, conflict does not necessarily lead to increases in early marriage rates. A recent systematic review of how exposure to conflict affects age at first marriage among adolescents emphasized the contextually-specific nature of factors that drive marriage rates (Neal, Stone, and Ingham 2016).

During recent and ongoing conflicts in the MENA region, there has been considerable attention to claimed increases in early marriage rates, including among the Syrian refugee populations in the neighboring countries of Jordan, Lebanon, and Turkey (UNICEF 2014; Save

the Children 2014; Cherri et al. 2017; Higher Population Council 2017; Yaman 2020). However, substantial data challenges have limited efforts to accurately assess changes in the rate of early marriage as compared to Syria prior to the conflict. Most studies have relied on non-representative samples (Save the Children 2014; Cherri et al. 2017) or did not account for the selectiveness of the Syrian refugee population (Higher Population Council 2017). At the same time, change in other dynamics of marriage markets that may have important implications for women's age at first marriage and their long-term wellbeing have not been well studied. This lack of contextualization of early marriage among Syrian refugees within pre-conflict patterns and other post-conflict dynamics of marriage has led to an incomplete and potentially misleading view of the practice. Expanding on the previous literature, in this paper we use a combination of nationally representative survey data from Syria in 2009 and Jordan in 2016, as well as qualitative interviews with Syrian refugee youth, to (1) assess change in the probability of marrying early among Syrian women who are now refugees in Jordan; and (2) analyze change in the dynamics of marriage markets among the refugee population in order to explore potential mechanisms behind any change in marriage ages.

## 2   Background

### 2.1 Early marriage in the MENA and among Syrian refugees

Early marriage rates vary considerably across the MENA region. In the region as a whole, one in five women aged 20-24 were married before the age of 18. Yet this rate ranged from a high in Sudan (34%) and Yemen (32%), to 17% in Egypt, 8% in Jordan, and 6% in Lebanon (among Lebanese, but 41% among Syrians in Lebanon), with considerable subnational variation (UNICEF 2017). There is also variation in age at marriage laws in the region. Jordan, like several other countries, sets the legal age at marriage at 18 but courts can grant exceptions

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for minors as young as 15 (UNICEF 2017). In Syria, the personal status law of 1953 (and its 2009 amendments) set the legal age of marriage at 18 for boys and 17 for girls, again with exceptions for boys as young as 15 and girls as young as 13 (UNICEF 2014). The law was recently amended to increase the legal age of marriage to 18 for both genders, with exceptions for those aged 15 and above in specific cases (SANA 2019).

In Syria, the most recent nationally representative data from prior to the conflict, the 2009 Syria Pan Arab Project for Family Health (PAPFAM) survey, found that 11.2% of girls aged 15-19 were married (League of Arab States and Syrian Arab Republic 2011). This was nearly identical to the 2002 PAPFAM rate of 10.8% of girls aged 15-19 married (League of Arab States and Syrian Arab Republic 2002). The PAPFAM survey reports did not calculate the probability of early marriage, but we calculate this statistic below for PAPFAM 2009. The 2006 Syria Multiple Indicator Cluster Survey (MICS) did calculate the percentage of girls aged 15-19 currently married (9.7%) and the probability of marriage before age 15 (3.4%) and before age 18 (17.7%) (Central Bureau of Statistics et al. 2008). The probability of marriage before age 18 was highest in Dara'a (26.2%) (Central Bureau of Statistics et al. 2008), the governorate of origin of 41.2% of Jordan's registered Syrian refugees (UNHCR 2018b). Overall, the population of Syrian refugees in Jordan came from governorates that had on average a 22.1% probability of early marriage prior to the conflict.[i] Thus, the group of Syrian refugees in Jordan is selective, and the Syrians displaced to Jordan come from areas with higher rates of early marriage within Syria prior to the conflict.

Studies that have argued that early marriage is increasing among Syrian refugees often compare national pre-conflict rates to the percentage of new marriages among Syrian refugees that are to girls under age 18. For instance, one estimate from 2013 using data on marriages in *shari'a* courts found that a quarter of registered marriages to Syrians in Jordan were early

marriages, which is higher than the early marriage rate in Syria pre-conflict (UNICEF 2014). This also represented an increase from 12% of registered marriages in 2011 and 18% in 2012 that were early (Save the Children 2014). Yet this kind of analysis ignores several types of compositional differences. The Syrians in Jordan are a select group, from areas that had higher rates of early marriage pre-crisis (Central Bureau of Statistics et al. 2008; UNHCR 2018a). Registered marriages are also only a subset of marriages to refugees.

Jordan's 2015 Population Census also indicated that 37% of Syrian marriages in 2011 were early marriages, and 35-36% over 2012 and 2013, rising to 39% in 2014 and 44% in 2015 (Higher Population Council 2017). Thus, the dramatic increase in early marriages from 12% to 25% of *registered* marriages is not reflected at the population level and may be driven by shifts in marriage registration. Previous analyses of the Jordan Labor Market Panel Survey (JLMPS) 2016, the data used in this study, found that, among refugees, a higher percentage of marriages formed in Syria in 2005-2008 were early (33%) as compared to marriages formed in 2012-2016 after arrival in Jordan (28%) (Sieverding, Berri, and Abdulrahim 2018). However, such studies have not calculated the probability of a girl marrying before age 18, the underlying statistic of concern.

Furthermore, although the Population Census trend statistics overcome selection into marriage registration, such statistics still suffer from compositional problems. Syrians in Jordan are disproportionately young (Krafft et al. 2018), such that even if the probability of any individual experiencing early marriage remained the same, the proportion of marriages before age 18 could rise simply because there were more individuals under age 18. Additionally, the Population Census statistics, as well as previous analyses of the JLMPS, use new marriages in a particular year as a denominator, rather than the full population of women. If women had a constant probability of early marriage but a falling probability of marrying at older ages, using a

denominator of new marriages would lead to a trend of a larger share of new marriages being early. This trend could be interpreted (incorrectly) as a rise in early marriage rather than a fall in later marriage.

**2.2 Marriage customs in Syria**

There are few studies on marriage customs in Syria prior to the conflict, or on aspects of marriage other than age among Syrian refugees. The available research suggests that most Syrian marriages are arranged by families (Davis et al. 2014; Collelo and Library Of Congress 1988). Kin marriage was also quite common in pre-conflict Syria; nationally, 39% of all marriages were consanguineous as of 2009. Marriage to kin was more prevalent in rural areas (48%) than urban areas (32%) (League of Arab States and Syrian Arab Republic 2011).

Young men's marriage timing and prospects in Syria were influenced by their socioeconomic status, employment, and the ability to secure housing (Kabbani and Kamel 2007). It is a social expectation that men in MENA be financially established prior to marriage. Customs are that the groom and his family must pay a *mahr*, or brideprice, as well as provide the conditions necessary for married life, particularly housing. The costs of marriage can be a substantial factor in marriage timing, as it is often necessary for the groom to save the equivalent of several years' salary in order to afford to marry (Krafft and Assaad 2017; Singerman 2007; Collelo and Library Of Congress 1988). How these customs around marriage costs, as well as other dynamics of marriage markets such as kin marriage (consanguinity), patrilocal residence, and spousal age gaps may have changed among the Syrian population in displacement has not been well studied.

**2.3 Links between early marriage, conflict and forced displacement**

Contextualizing changes in age at marriage within other changes in marriage markets resulting from conflict and displacement is particularly important because the relationship between early marriage and forced displacement is complex and context-dependent. Conflict and forced displacement may create both upward and downward pressures on (early) marriage rates (Neal, Stone, and Ingham 2016). In some contexts, early marriage rates have been found to increase during conflict and displacement due to factors including economic hardship (Neal, Stone, and Ingham 2016) and the desire to 'protect' girls from insecurity and sexual violence (Shemyakina 2013; Cetorelli 2014; Hutchinson et al. 2016).

Yet in other contexts, conflict and forced displacement have been found to decrease early marriage. Notably in Lebanon (Saxena, Kulczycki, and Jurdi 2004) and Palestine (Khawaja, Assaf, and Jarallah 2009), economic hardship due to conflict led to delays in marriage as the costs of marriage became increasingly difficult for men to meet. Disruption of social networks, lower availability of men as spouses, and changing gender norms are other factors that have been argued to lead to decreases in early marriage in different conflict and displacement settings (Neal, Stone, and Ingham 2016; Abbasi-Shavazi, Mahmoudian, and Sadeghi 2018). In longer-term situations of displacement, forced migrant populations may also adapt to the customs of the host community (Abbasi-Shavazi, Mahmoudian, and Sadeghi 2018). As early marriage prevalence is lower among Jordanians than the Syrian refugee population (Sieverding, Berri, and Abdulrahim 2018), this would imply that marriage ages may rise over time among Syrians.

Previous literature on Syrian refugees in neighboring host countries has identified several key factors associated with patterns of early marriage. Given that rates of early marriage were higher than the national average in some provinces of Syria from which many refugees originate, early marriage among Syrian refugees is likely due in part to a custom of marrying young prior to displacement (UN Women 2013; Cherri et al. 2017). Yet studies have also consistently

identified economic factors, including loss of livelihoods, poverty, and limited employment opportunities, as a key driver of early marriage among Syrian refugees in both Jordan and Lebanon (UN Women 2013; UNICEF 2014; Cherri et al. 2017; Mourtada, Schlecht, and DeJong 2017; DeJong et al. 2017; Higher Population Council 2017; Bartels et al. 2018). Another driver of early marriage is concern about girls' safety from gender-based violence and protection of their honor in the unfamiliar contexts of host countries (UNICEF 2014; Cherri et al. 2017; Higher Population Council 2017; Mourtada, Schlecht, and DeJong 2017). Girls deciding to marry may also chose this path to escape restrictions on their mobility by parents who fear for their daughter's reputation (Bartels et al. 2018). However, these studies have not addressed other dynamics of marriage markets, such as kin marriage and marriage costs, that may interact with these pressures to produce changes in rates of early marriage.

## 3    Data and Methods

We rely on a combination of qualitative and quantitative data to understand how marriage practices may have changed among the population of Syrians who are now refugees in Jordan. We assess change in early marriage rates using nationally representative survey data from the 2016 Jordan Labor Market Panel Survey (JLMPS) (Krafft et al. 2018), comparing with the national Syrian population pre-conflict using data from the PAPFAM 2009 survey (PAPFAM 2009). To examine the possible reasons behind our findings on trends in marriage age, we rely both on data from the JLMPS and from a qualitative study of the transition to adulthood among Syrian refugee youth in Jordan that was designed to complement the JLMPS. The qualitative data provides a more in-depth view of the possible mechanisms behind change in marriage practices than is possible with the quantitative data alone.

### 3.1 Quantitative data and analysis

#### 3.1.1 Surveys and sample

Both the JLMPS and PAPFAM are nationally representative household surveys with detailed demographic information. The data include marital status, age at marriage, and spouse characteristics, allowing for a detailed analysis of marriage outcomes. The JLMPS also includes data about living arrangements upon marriage and expenditures on marriage.

The JLMPS 2016 over-sampled areas with a high proportion of non-Jordanians in order to be able to provide data on the Syrian population in Jordan. This sampling strategy is incorporated into the sample weights, which are used for descriptive analyses for both data sources.[ii] Our JLMPS 2016 sample is primarily focused on the population of Syrians in Jordan.[iii] Moreover, for almost all our analyses, we limit the sample for both surveys to individuals aged 15-49 in the survey year.[iv] We do so for comparability, because PAPFAM only includes marriage timing for women aged 15-49. This gives us a sample size of 31,302 women in PAPFAM 2009 and 667 Syrian women and 615 Syrian men in JLMPS 2016.

#### 3.1.2 Quantitative analysis methods

Our key outcome of interest is age at marriage. Age at marriage is potentially censored for women who have not married by the time of the survey but may or may not marry in the future. We therefore estimate the probability of getting married by a certain age with survival analysis. First, we present descriptive analysis of age at marriage from Kaplan-Meier failure estimates. "Failure" (the event of getting married) in the Kaplan-Meier function is denoted as $F_a$, where $a$ is a specific age, and $T_a$ is the age at first marriage (the event). We therefore estimate:

$$F_a = \Pr(T_a \le a )  \tag{1}$$

This statistic can be interpreted as the probability of marrying at or before a certain age. We are particularly interested in the probability of early marriage before age 18, so at or before age 17. We focus on age 18 because this is the legal age at marriage in Jordan. However, we also calculate the probability of marrying before age 16 to look at potential shifts in age within early marriages; 16 is the earliest age for which we can do so with our sample.

We are interested in how age at marriage has changed over time and with refugees' exposure to conflict and displacement. Descriptively, we examine age at marriage for each sample by cohort (birth years 1967-1976, 1977-1992, and 1993-2002). This allows us to see, first, if the cohorts in JLMPS have similar marriage rates and timing as the national averages captured in PAPFAM. Second, it allows us to examine how conflict may have affected age at marriage, since those born in 1993-2002 would have been exposed to conflict and displacement starting at age 18 or younger. We focus primarily on outcomes for women, but present some results for men as the other half of the marriage market.

To analyze age at first marriage using multivariate survival analysis and including time-varying covariates (such as exposure to conflict and displacement), our data is structured as person-age observations. Essentially, we use retrospective information on age at first marriage to create longitudinal data on individuals' marital status in each year of age. An individual, $i$, is at risk of becoming married, and thus has an observation, each year of age from age 15[v] until the age of marriage (or censoring at their age in the survey year). We analyze the age at marriage using discrete time survival analysis where the hazard, $h_{ia}$, describes the probability of getting married at a particular age ($T_a$) for those who are not yet married (Jenkins, 1995):

$$h_{ia} = Pr(T_a| T_a \geq a )  \qquad (2)$$

To incorporate multiple and potentially time-varying covariates, $X_{iat}$ (varying over $t$, calendar time), we use a complementary log-log model (Jenkins, 1995):

$$h_{ia} = 1 - \exp\{-\exp[\theta(a) - \beta X_{iat}]\}$$ (3)

From this model we present hazard ratios (exponentiated coefficients). We also present, graphically, predicted hazards (the predicted probability of getting married at a particular age, if one has not yet done so).

For our multivariate models, we restrict our analyses to the years 2000-2015. We initially estimate our models with only the baseline hazards (hazards at each year of age, aggregating years of age as follows: 15-17, 18-20, 21-23, 24-26, 27-29, 30+) and time-varying calendar year covariates. Then, we test and aggregate the years with similar baseline hazards (2001-2004, 2005-2010, 2011-2015, where the last period includes exposure to conflict and displacement). Alternatively, we include a covariate for being in Jordan, or in Syria (at each year). These covariates help us discern whether conflict or being a refugee in Jordan impacts marriage timing or if the population of Syrians in Jordan had similar outcomes both pre- and post-conflict. In some of our models, we control for education level as an important measure of human capital that may affect marriage timing, and the number of older and younger siblings by sex, since these might represent demographic pressures. Educational attainment is operationalized into three categories, less than basic, basic (10th grade), and secondary and above. We additionally control for family background in the form of mother's and father's education, categorized in the same manner as individuals' own education.

In order to better understand the broader context of marriage practices, we also analyze variables from the JLMPS that capture other dynamics of the marriage market. Specifically, we investigate the prevalence of consanguineous (kin) marriage and nuclear households (as compared to extended family living) at marriage. We also examine the average husband-wife age gap (in years), value of the brideprice (*mahr*), and costs of marriage (expenditures on celebrations, jewelry, housing, furniture). We compare these outcomes for marriages formed in 2006-2010 and 2011-2016 to examine how marriage practices are changing.

### 3.2 *Qualitative data and analysis*

We complement the quantitative analysis with analysis of 71 in-depth interviews conducted in late 2017 with Syrian refugee youth aged 15-29 living in host (Jordanian) communities in Mafraq and Amman, the two governorates with the largest number of registered Syrian refugees (UNHCR 2018b). Mafraq was selected because it is close to the Syrian border and contains the Zaatari refugee camp, through which most refugees entered the country, as well as numerous urban and peri-urban communities that host refugees. In Amman, the capital of Jordan and the center of economic activity and public services, interviews were held in a part of Eastern Amman where there is a high concentration of refugees.

### 3.2.1 *Data collection and sample*

The inclusion criteria for the interviews were that respondents be aged 15-29, Syrian, and have arrived in Jordan since 2011. We adopted a purposive sampling strategy based on education, employment status and marital status. In particular, given our interest in early marriage, among 15-19 year-olds we sampled for variation in marital status among young women. It proved not possible to find young men in this age group who were married. A total of 71 young people were

interviewed, of whom 35 resided in East Amman and 36 in Mafraq (Table 1). The large majority arrived in Jordan in 2012 or 2013. About half of the sample (N=33) was in the 15-18 age group, followed by the 19-23 (N=24) and 24-29 (N=14) age groups. Only 15 respondents were still in school at the time of the interview although 23 had previously attended school in Jordan; the number of young men and women who were or had been in school in Jordan was about equal. Only four of the men were married but 19 of the women had ever been married by the time of the interview. Among ever-married women, all but two had married prior to the age of 18; this included both those who married in Syria and those who had married after arriving to Jordan.

*[Table 1 here]*

The interviews were conducted by a team of eight local interviewers trained on the study protocol and interview guide by the authors. Recruitment was conducted through a combination of contacting potential respondents who received services from a local community service organization (CSO) in Mafraq,[vi] going door-to-door in neighborhoods of Eastern Amman, and snowball sampling. In all cases, the interview team contacted potential respondents using a recruitment script and screened them for eligibility. Interested respondents were interviewed in private rooms on the CSO's premises or in their homes. Verbal consent to participate was obtained from respondents aged 18-29 and assent for those aged 15-17. Written consent from a parent or legal guardian was obtained for respondents aged 15-17. Interviewers offered to read the consent form if literacy was a barrier. Permission to tape record the interview was sought and all respondents and parents consented. In appreciation for their time, participants were given approximately 10 USD equivalent of phone credits, and transportation costs were covered as applicable. Ethical approval for the qualitative study was obtained from the Institutional Review Board (IRB) at the American University of Beirut.

*3.2.2 Interview guide and data analysis*

Interviews followed a modified life history approach in order to parallel the retrospective structure of the JLMPS data in terms of education, employment and marriage. We began with questions eliciting a brief description of the respondent's life in Syria before and after the conflict, including family situation and marital status. For each location of residence in Jordan, in chronological order, respondents were then asked about key life transitions. For those who had married since their arrival to Jordan, the questions covered the decision-making process around marriage, how the respondent met their spouse and the process of agreeing on the marriage, and the respondent's reflections on the decision to marry. Those who had not yet married were asked about their desired age at marriage and why. All respondents were also posed a set of more general questions about change in marriage customs among Syrians due to conflict and displacement.

The interviewers transcribed the interviews verbatim in the Syrian and Jordanian dialects of Arabic, after which all transcripts were back-checked completely for accuracy by the authors. We took two approaches to the analysis simultaneously in order to capture the longitudinal nature of the post-migration narratives while also analyzing themes across interviews. For each interview, we wrote detailed memos summarizing the life story of each respondent. In order to compare transitions and trajectories across respondents, we also kept an Excel sheet tracking details of respondents' school, work, and marriage experiences in Syria pre-arrival and then in each location of residence since arrival to Jordan.

We also coded interviews thematically in Dedoose. Two of the study authors conducted the qualitative coding on the Arabic transcripts. To develop the thematic codebook, we independently coded a small subset of interviews using an open coding approach in which codes were derived from the data. We then met to identify common codes across the interviews and

group codes into families, developing an initial codebook from this list. Each interview was subsequently coded by one of the authors, with each author adding codes as needed based on the interview content. We met during the earlier stages of coding to review the codebook, confirm common understandings of codes and revise or merge codes when needed. The data analysis process indicated that saturation was reached, as no new codes were added in later stages of the coding. Our thematic analysis in this paper focuses on code groups related to drivers of early marriage, desired age at marriage, customs around marriage in Syria, change in marriage customs after displacement, and challenges in getting married faced by Syrian refugees in Jordan. We also conducted this analysis for subgroups of respondents by gender and age group. Illustrative quotes are presented for each of the major themes; the quotes were translated into English by the authors.

## 4    Results

### 4.1    Patterns of marriage age

The proportion of Syrian women in Jordan in 2016 who were married early was very similar to the proportion who married early in the national Syrian population in 2009 (Figure 1). For both PAPFAM 2009 and JLMPS 2016, the 25th percentile of age at marriage was age 18. In PAPFAM 2009, 21% of women married before age 18 and 9% before age 16. In JLMPS 2016, 24% married before age 18 and 7% before age 16. Yet although rates of early marriage were similar in the two surveys, in JLMPS 2016 the median age of marriage was younger (20 vs. 22 in PAPFAM 2009) and the 75th percentile was much younger (24 vs. 30 in PAPFAM 2009). This indicates a compressed period of transition to marriage among the population of Syrian women now in Jordan, with large proportions marrying in their late teens and early twenties. It is

important to keep in mind that this analysis does not account for the timing of entry into Jordan, and many of the refugees were married prior to their arrival.

*[Figure 1 here]*

Figure 1 also shows the proportion of Syrian men married by each age among those aged 15-49 in the JLMPS 2016 (PAPFAM 2009 did not include age at marriage for men). At the median, Syrian men in Jordan were married five years later than their female counterparts (age 25 versus 20) and there was generally a 5-year age gap throughout the distribution. Thus, very few Syrian men marry before the age of 20, but the proportion married increases rapidly through men's 20s.

As an initial investigation into the evolution of age at marriage among the refugee population, Figure 2 shows the Kaplan-Meier failure estimates by aggregated birth cohorts for those aged 15-49 at the time of survey. Women in the 1967-1976 birth cohort, whose age at marriage was unlikely to be affected by the conflict, had the same 25th percentile, median, and 75th percentile of age at marriage across the two surveys (ages 18, 21, and 27, respectively). Among this oldest cohort of women, patterns of marriage among current refugees were thus similar to the national pattern in Syria. However, the 1977-1992 birth cohort (most of whom would have been likely to marry before the conflict) did not have similar ages of marriage comparing the PAPFAM 2009 and the JLMPS 2016. While the median age at marriage went up from 21 to 23 between the 1967-1976 and 1977-1992 birth cohorts in the PAPFAM, in the JLMPS the median age of marriage went down from 21 to 20 over the same cohorts. This result emphasizes the selective nature of the Syrian refugees in Jordan relative to the national population in Syria pre-conflict; the Syrian refugees who ended up in Jordan were marrying earlier than other Syrians just prior to the conflict.

*[Figure 2 here]*

Among the youngest cohort of women (born 1993-2002) in JLMPS 2016, whose marriage timing would most likely be disrupted by conflict and displacement, the 25th percentile was age 18, very similar to older cohorts.[vii] Although purely descriptive, and with diminishing sample sizes towards latter ages across cohorts, the results nonetheless suggest that there has not been any structural change in marriage or early marriage among Syrian women in Jordan over time, but that the Syrian refugee population in Jordan is a selected group who had earlier pre-conflict ages at marriage among women as compared to the national population.

The patterns for men (Figure 2) are only available in the JLMPS 2016. Very few men married before age 20, and this remained true across cohorts. Slightly more men were married by age 21 or 22 in the 1993-2002 cohorts than in previous cohorts. However, a similar share were married by age 24 as in the 1967-1976 cohort. Because men marry later, there are few observations at later ages for the 1993-2002 cohort, which likely contributes to noisy patterns.

Differences in Syrians' marriage patterns between PAPFAM 2009 and JLMPS 2016 could be due to selective movements into Jordan among Syrians, or to increased (or decreased) pressure over when to marry and whom to marry as consequences of war and displacement. To investigate these possibilities, and the role of calculation methods in obtaining different rates of early marriage for women, Table 2 shows two panels; panel A examines *all* women in the 1977-1992 and 1993-2002 birth cohorts and accounts for censoring, and panel B examines only *ever-married* women in these birth cohorts (and thus does not account for censoring).

In columns 1 and 2 in Table 2, we compare women in the 1977-1992 birth cohort across the two surveys. It is among this cohort (all of whom would have turned 18 prior to the Syrian conflict) where, in Figure 2, we saw a diverging trend between the national Syrian population, which experienced rising median ages at marriage, and the population of Syrian refugees now in

Jordan, which did not. Correspondingly, we see in panel A that a higher percentage of women in the 1977-1992 cohort in JLMPS 2016 were married before the age of 18 (31%) compared to the national population in Syria in 2009 (19%). Turning to the younger cohort, which is observed only in the JLMPS, Column 3 shows that early marriage was less common among the Syrians in Jordan who were born in 1993-2002, who would have been exposed to the conflict starting at age 16, with 18% married before age 18 (compared to 31% for those born in 1977-1992). This suggests, descriptively, that early marriage has been falling during the conflict period among those Syrians who fled to Jordan.

*[Table 2 here]*

In panel B of Table 2 we analyze the data akin to how other studies have typically assessed early marriage rates, calculating the percentage of early marriages among ever-married Syrian women. In columns 1 and 2, we return to the 1977-1992 cohort, for whom we see that in the PAPFAM and JLMPS there was a similar average age at marriage (age 19) and percentage married before age 18 (34-38% among the ever married). Looking at the cohort born between 1993-2002 in the JLMPS (age 15 to 23 at the time of the survey), we see a substantially higher percentage of ever-married women who married before 18 relative to the previous cohort (34% compared to 47%).

Comparing the results from panels A and B thus emphasizes the importance of calculating statistics that *do* account for censoring (including those not yet married, as in panel A) to understand trends in early marriage, because the probability of getting married before 18 is different than the percentage of existing marriages (i.e. among ever married women) that occurred before age 18. Those who marry at early ages are over-represented among ever-married women, since they are in the married state for longer. The more accurate method used in panel A

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indicated a decrease in the chance of marrying early among the Syrian population in Jordan, even though more of the marriages that do happen are to women under age 18, as shown in panel B.


## 4.2    Marriage timing in relation to conflict and displacement

In this section, we present multivariate models that allow us to statistically test for different patterns of marriage over time and by country of residence, thereby disentangling the effects of selection of Syrians into Jordan and the effects of conflict and displacement. To disentangle these effects, we estimate models that control for both baseline hazards (these capture different probabilities for the reference group, which is pre-conflict) and calendar time effects. Figure 3 shows a model of predicted hazard ratios with complete interactions between age groups and grouped calendar years after testing and aggregating periods with similar hazards (results available upon request). Figure 3 (and Appendix Table A1) allows us to see if there were different time trends in marriage at different ages, for example, higher hazards of early marriage. The model in Figure 3 controls for education only, to be comparable with PAPFAM.

Focusing first on the results for Syrian women, in PAPFAM 2009, there was a clear shift to reduced hazards, leading to later ages at marriage, from 2000-2004 to 2005-2008. Results for women from the JLMPS are noisy, but suggest very similar hazards of early marriage over time, a rising hazard of marriage over time at 18-20, a similar or lower hazard in 2011-2015 as in other years at ages 21-23, 24-26, and 27-29, and slightly higher hazards in 2011-2015 at ages 30+ compared to earlier periods. However, none of the JLMPS 2016 predicted hazards are significantly different over time. Results for men from JLMPS 2016 follow a similar pattern over time, with low hazards at 15-17 and 18-20 in all periods. There are slightly higher hazards of marriage at age 21-23 over time, but then identical hazards at ages 24-26. At older ages, there

were higher hazards of marriage at age 27-29 in 2011-2015 than in preceding years, but lower hazards at age 30+. None of the predicted hazards for men are significantly different over time.

*[Figure 3 here]*

As an alternative approach to examining the effects of conflict and displacement, we next use the JLMPS and disaggregate the hazards of marriage by the time-varying country of residence while controlling for education, parent's education, and the number of older and younger siblings by sex (Figure 4). For women at ages 15-17, we see a slightly higher hazard in Jordan than Syria, but this difference is not significantly different. At ages 18-20 and 30+, we do see a significantly higher hazard of marriage for those who were in Jordan in comparison to those who were in Syria. Over the rest of the distribution hazards are similar or not significantly different. Results for men (not shown) show no significant differences by location. Overall, the quantitative results do not indicate a structural change in early marriage patterns among the Syrian refugee population in Jordan.

*[Figure 4 here]*

### 4.3    *Changing marriage markets for Syrian refugees in Jordan*

The lack of significant change in early marriage rates may be the result of countervailing changes in the marriage market among Syrian refugees. In this section we examine how displacement may have created factors that could both accelerate and decelerate marriage rates. To do so, we rely on the qualitative and quantitative data. For the latter, we compare marriages

formed in the immediate pre-conflict (2006 – 2009/10) period in PAPFAM 2009 and JLMPS 2016 to those formed during conflict and displacement (2011-2016) in JLMPS 2016.

### 4.3.1 Factors accelerating marriage

The experiences of the qualitative sample were consistent with the JLMPS, as well as previous studies, in indicating that early marriage was a common practice among much of the Syrian refugee population prior to the conflict. All of the marriages that occurred among young women while they were still in Syria were at or prior to the age of 18. The qualitative sample is not representative, and early marriage in Jordan (although not while still in Syria) was one of the factors we sampled for, so this pattern should be interpreted with caution. However, it is indicative of the degree to which early marriage was seen as a common practice among some of the respondents, driven by customs in their communities.

*"I married young. Being married at 15, 16, or 17 is very usual in our customs; there is no problem in a girl marrying early."* 25-year-old young woman married at age 16 in Syria

On the other hand, there was some diversity in views on whether early marriage was customary in Syria. Other young men and women said that they preferred to delay marriage until their late 20s. These differences are likely related to variation in the prevalence of early marriage in respondents' governorates of origin, as well as variation in respondents' education levels. One respondent specifically mentioned that early marriage is not practiced in all areas of Syria, whereas others criticized early marriage and described it as a practice driven by ignorance.

Although early marriage was customary in some of their communities, young women who had married before age 18 after arriving to Jordan also identified economic hardship and concerns about security in an unfamiliar country as key reasons for marrying early. In a context

of displacement, parents, and in some cases young women themselves, sought financial and physical protection from hardship, referred to as *sutra*,[viii] through marriage.

"*I do not regret marrying early. It is ordinary. It could be a responsibility but it is sutra for us Syrians. A woman will only have her husband for support.*" 16-year-old young woman married at 16 in Jordan

"*If I were in Syria I wouldn't have married, but my dad said that here [in Jordan] it was a foreign country and he was protecting us through marriage. That is what he told me, otherwise he wouldn't oblige me to marry.*" 16-year-old young woman married at 14 in Jordan

Under conditions of economic and social uncertainty, for these young women and their families marriage served the dual purpose of alleviating economic burdens on the natal family and securing social protection through the union.

"*I agreed because our financial situation was not good, it was very hard. We did not know anyone here [in Jordan], so my parents were worried I would not marry, so they agreed to the proposal.*" 19-year-old young woman married at 17 in Jordan

### 4.3.2   Factors decelerating marriage

Although lack of economic and physical security created drivers favoring acceleration of early marriage rates, other dynamics of the Syrian marriage market in Jordan may have had opposite effects. Data from the JLMPS and PAPFAM indicate a decline in consanguinity and an increase in spousal age gaps post-conflict, which may reflect disruption of marriage markets. For

marriages in 2006-2010 the refugee population was similar to the national population with respect to consanguinity and spousal age gaps. Around 40% (37% PAPFAM 2009, 42% JLMPS 2016) of marriages were consanguineous and age gaps favored older husbands (Table 3). In contrast, there were some clear shifts in marriage characteristics when comparing marriages pre- and post-conflict in the JLMPS. For marriages in 2011-2016, only 23% of Syrian marriages in Jordan were consanguineous. This is likely due to the disruption of kin networks, which may make it more difficult for refugee families to identify potential spouses. The husband-wife age gap rose from four years on average to six years, although the six years is similar to the age gap at the national level in PAPFAM 2009.

[Table 3 here]

There were also indications that the Syrian refugee population may struggle to meet the financial requirements of marriage. The percentage of newly married couples that lived in nuclear households was 64% for marriages formed in Syria in 2006-2010 and fell to 56% in 2011-2016. This may be a function of men's ability to afford independent housing in Jordan. In fact, although total costs of marriage dropped between 2006-2010 and 2011-2016, the reported cost of housing increased slightly, likely due to higher housing costs in Jordan.

Housing was also an important theme in the qualitative respondents' discussions of marriage costs and expenditures pre- and post-conflict. On the one hand, most of the young women who had married in Jordan were residing with their in-laws after marriage and respondents said that co-residence was common in Syria as well. Yet on the other hand, young men discussed housing as one of the costs that made marriage difficult in Jordan. Many young men were working to support their parents and siblings and noted that marriage expenses become

more cumbersome when a man is also responsible for his natal household. With such expenses to meet and given limited employment opportunities in Jordan, many said they could not afford marriage-related costs such as brideprice (*mahr*) or an additional household to support.

"*Currently, supporting my parents is my priority. Nowadays, girls have many demands that I cannot fulfill. It would be a burden on me. I would like to get married but from a financial perspective, it is very hard. I would need to wait until I establish myself.*" 22-year-old single young man

All of the young men wanted to marry before 30, but some of those in their 20s said they were postponing marriage due to lack of resources.

Thus, although the JLMPS 2016 indicates that marriage costs have declined for the Syrian refugee population, these figures must be interpreted within the context of the precarious livelihoods refugee youth faced. Among the qualitative respondents, opinions were mixed about how customs around marriage costs had changed among Syrians since their arrival to Jordan. Whereas many young men complained of their inability to meet high marriage costs, other respondents said that marriage costs had gone down and noted that refugee families made concessions for the difficult economic situation of potential grooms.

"*We Syrians are cooperative when it comes to marriage…. My marriage expenses here were less than they would have been in Syria, it was limited because we did not have the means.*" 29-year-old man married in Jordan at 27

*"We [girl's family] did not ask for much. Even the* mahr *was small, clothing was just the necessary, in total around 300 Jordanian Dinars."* 19-year-old young woman married at 17 in Jordan

Although there was considerable disagreement among the qualitative respondents about trends in marriage costs, the fact that the JLMPS 2016 shows declines in the brideprice and jewelry costs may reflect not only the difficult economic situation of men, but also changes in the bargaining power of women's households, as these components of marriage costs are often seen as a form of security for the bride.

## 5    Discussion and conclusions

The impact of conflict on adolescents' exposure to early marriage is context specific and often difficult to assess empirically due to challenges with data availability and comprehensiveness (Neal, Stone, and Ingham 2016; Abbasi-Shavazi, Mahmoudian, and Sadeghi 2018). In situations of forced migration, data challenges are compounded by the selectiveness of refugee populations relative to their countries of origin (Abbasi-Shavazi, Mahmoudian, and Sadeghi 2018). Yet accurate estimates of change in early marriage rates among conflict-affected populations are critical for planning the humanitarian response for sexual and reproductive health services. Particularly among refugees in situations of increasingly protracted displacement, understanding early marriage rates and practices also has long-term implications for girls' education and intergenerational impacts on children.

A number of previous studies have reported high rates of early marriage among Syrian refugees in Jordan (UN Women 2013; UNICEF 2014; Save the Children 2014; Higher Population Council 2017), as well as in Lebanon (Cherri et al. 2017; Mourtada, Schlecht, and

DeJong 2017; Abdulrahim et al. 2017). However, our results caution against interpretations of high early marriage rates among Syrian refugees that equate these with *rising* rates of early marriage, particularly in studies that rely on unrepresentative data, do not account for selection of refugees, and calculate early marriage with a denominator of ever-married women or newly-formed marriages rather than the population at risk.

To the best of our knowledge, ours is the first paper to directly assess *change* in early marriage and age at marriage for Syrian refugees taking into consideration the selectiveness of the population. Our paper is also the first to calculate the probability of early marriage using survival analysis and accounting for censoring. Our results suggest that previous studies have, in the case of Jordan, overestimated the degree to which early marriage rates have changed among the population of Syrians who are now refugees in the country. Syrians in Jordan are a selected group that had earlier ages at marriage among women prior to the Syrian conflict as compared to the national population. The selectiveness of the refugee population in relation to early marriage is likely driven by governorate of origin and education. By far the largest proportion of Syrian refugees in Jordan (41%) originate from Dara'a governorate (UNHCR 2018b), which represented only 4% of Syria's pre-conflict population[ix] but had the highest rate of early marriage nationally at 26.2% (Central Bureau of Statistics et al. 2008). Another 12% of Syrian refugees in Jordan originate from rural Damascus (UNHCR 2018b), which had the second highest pre-conflict rate of early marriage (24.9%) (Central Bureau of Statistics et al. 2008). Syrian refugees are also somewhat less educated than the national pre-conflict population. Among refugees aged 20-34, the percentage with a secondary education ranged from 10-23% among men and 22-26% among women. For the national Syrian population in 2009, the corresponding figures were 24-35% among men and 23-37% among women (Masek 2020; Sieverding and Calderón-Mejía 2020).

Studies that compare national early marriage rates among Syrians pre-conflict to those among Syrian refugees in Jordan thus fail to take into account the selected nature of refugees. Our results indicate that the high rates of early marriage among Syrian refugees in Jordan are a continuation of pre-conflict trends. Our results do not indicate any significant difference in the hazard of early marriage over time or comparing when refugees were still in Syria to the time after their arrival in Jordan. We do find an increase in the hazard of marrying between ages 18-20, which indicates a compression of marriage ages for women towards the late teens.

It is important to note that our results differ from previous studies' findings of rising rates of early marriage due to the methods used, not due to our different data source. In addition to the fact that the JLMPS 2016 is nationally representative, we can see marriage rates change over time even within our cross-sectional data, by using the retrospective data on age at marriage and year of marriage. We also demonstrated how calculating early marriage among ever-married women using our sample provides statistics that are more in line with those estimated by previous studies that did not account for censoring. Furthermore, our results are corroborated by the recent Jordan Population and Family Health Survey report, part of the global Demographic and Health Survey program, which found that the percentage of Syrian women married by age 18 across cohorts was highest (40.9%) among those aged 25-29 in 2017-18, among whom marriage before age 18 would have taken place pre-conflict. Among women aged 20-24 in 2017-18, 36.6% married before age 18, a slight decrease (Department of Statistics [Jordan] and ICF International 2018).

Although the rate of early marriage among Syrian refugees in Jordan has not increased since their displacement, it is still high compared to many other countries in MENA, including the host country population in Jordan (UNICEF 2017; Department of Statistics [Jordan] and ICF International 2018). Consistent with studies in both Jordan (UN Women 2013) and Lebanon (Cherri

et al. 2017; Mourtada, Schlecht, and DeJong 2017), our qualitative findings suggest that while early marriage has been seen as customary among the Syrian refugee population since prior to the conflict, economic insecurity and gendered concerns about girls' security have created additional drivers for early marriage in a context of displacement. The finding that concerns over girls' honor and safety are a driver of early marriage is consistent with studies among conflict-affected populations in other countries, including Iraq (Cetorelli 2014) and Tajikistan (Shemyakina 2013). A key question raised by our results is thus why these additional drivers for early marriage have not, as of 2017, led to an increase in early marriage rates among Syrian women in Jordan.

A possible explanation for the stability in early marriage rates despite changing drivers for the practice lies in the broader dynamics of the marriage market among Syrian refugees. We find no significant differences over time in age at marriage among Syrian men, but the age gap between spouses has increased somewhat which could indicate unavailability of men. Consanguinity has declined, which likely reflects disruption of kin networks, and thus marriage markets, among a population where kin marriage was common. The economic insecurity affecting Syrian refugees may also have multiple impacts on marriage markets. While refugees' precarious economic situation creates an incentive for parents to marry their daughters earlier, for young refugee men the burden of supporting their natal families and lack of job opportunities also created a sense that marriage was more difficult to achieve. Studies of marriage and fertility patterns during the Lebanese civil war (Saxena, Kulczycki, and Jurdi 2004) and second Intifada (Khawaja, Assaf, and Jarallah 2009) found decreases in early marriage rates, which the authors attributed to young couples' inability to meet the costs of marriage in a context of instability, particularly in the Lebanese case. It is possible that similar dynamics affect the Syrian refugee population in Jordan, counteracting to some degree the economic incentives for households to marry their daughters young.

Another potential factor that could shape marriage timing for Syrian refugees in Jordan is norms and trends for age at marriage among Jordanians. While inter-marriage is allowed, previous analyses of the JLMPS found that over 90% of marriages among Syrian women in Jordan were to Syrian men (Sieverding, Berri, and Abdulrahim 2018). Thus, Jordanian norms for age at marriage, more so than direct inter-marriage, may influence Syrians' age at marriage. Early marriage rates among Jordanian women are low; among 18 and 19 year-olds in 2016, less than 1% married before age 16 and 7% before age 18 (Sieverding, Berri, and Abdulrahim 2018). Thus, the Syrian refugees in Jordan may have been influenced by host-community norms of lower rates of early marriage.

These countervailing forces for earlier and delayed marriage appear to have produced a trend in which early marriage rates are stable or even declining. Another potential outcome of these dynamics is diminished standards of living at marriage, for example through lower expenditures on marriage and increased rates of co-residence with parents. Our quantitative and qualitative results suggest that some of this adjustment is already occurring, with falling total expenditures on marriage and reductions in components such as brideprice. A qualitative study from Lebanon similarly found that Syrian refugees' marriage expenditures and expectations had declined after displacement (DeJong et al. 2017). Such changes in marriage practices are particularly important because brideprice and other marriage expenditures, as well as nuclear family residence upon marriage, are often associated with women's autonomy and economic resources within the household (Salem and Shah 2016; Nazier and Ramadan 2017). How these incentives and barriers to early marriage continue to evolve as Syrians' presence in Jordan is prolonged or refugees begin to return home will be an important area for future research, particularly as the global literature shows that the dynamics of marriage and family formation are likely to change during different stages of refugees' displacement and resettlement (Abbasi-Shavazi, Mahmoudian, and Sadeghi 2018).

Although it overcomes some of the analytical challenges faced by previous studies of early marriage rates among Syrian refugees in MENA host countries, our study has other limitations. The sample size of Syrians at risk of marriage (age 15 and above) in the JLMPS leads to some noise in our estimates, particularly for men. Similarly, the sample of young women in the qualitative component who married after arrival in Jordan is small, and was selected based on early marriage, so we cannot generalize from their experiences to the refugee population as a whole. We were not able to capture the marriage experiences of refugee youth who married at older ages, which may be quite different. The qualitative sample was from Eastern Amman and Mafraq, but did not include individuals in other governorates with refugee populations or either the Azraq or Zaatari refugee camps; marriage dynamics in these areas may be different.

Nevertheless, our study makes an important contribution to the literature on early marriage practices among populations affected by conflict, and particularly the Syrian refugee populations in neighboring host countries. Our findings call for a more careful approach to claims of rising rates of early marriage among Syrian refugees and to interventions that aim to address early marriage. Although rates of early marriage among Syrian refugees in Jordan may not be increasing, a substantial proportion of girls are still married early, putting them and their children at risk of negative health and socioeconomic outcomes. Interventions to address early marriage are therefore still needed but must be contextualized not only in refugees' situation of displacement but also in long-standing sociocultural practices that may be very difficult to change. Evidence reviews have suggested that multi-pronged programs that aim to empower girls, as well as those that target school retention, may be effective in reducing early marriage (Lee-Rife et al. 2012). Particularly in a population where schooling has been disrupted by conflict and there are significant gaps in enrollment rates among adolescents (Sieverding et al. 2018), retaining girls in school is a critical strategy for delaying marriage.

The results of our study also highlight the importance of expanding research on early marriage among Syrian refugees to include change in marriage practices more broadly, as well as to include more perspectives from young men. Other economic and social changes in how marriages are formed in displacement – beyond age – may have important consequences for the long-term wellbeing of women and their children. Consequently, there is a need for longitudinal research to understand how changes in marriage customs may continue to evolve and impact refugee women and their families. As this paper illustrated, having sufficient longitudinal or retrospective data from a representative population will be a critical prerequisite for such research.

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**TABLE 1   Characteristics of the qualitative sample**

| | Women | Men | Total |
|---|---|---|---|
| **Location** | | | |
| East Amman | 17 | 18 | 35 |
| Mafraq | 18 | 18 | 36 |
| **Year of arrival in Jordan** | | | |
| 2011 | 1 | 1 | 2 |
| 2012 | 13 | 14 | 27 |
| 2013 | 13 | 15 | 28 |
| 2014 | 6 | 6 | 12 |
| 2015 | 2 | 0 | 2 |
| **Age group** | | | |
| 15-18 | 17 | 16 | 33 |
| 19-23 | 11 | 13 | 24 |
| 24-29 | 7 | 7 | 14 |
| **School status in Jordan** | | | |
| Currently attending | 7 | 8 | 15 |
| Previously attended | 13 | 10 | 23 |
| Never attended | 15 | 18 | 33 |
| **Marital status** | | | |
| Single | 16 | 32 | 48 |
| Married | 14 | 4 | 18 |
| Widowed | 5 | 0 | 5 |
| **Early marriage by country of marriage** | | | |
| **Jordan** | | | |
|   Married before age 18 | 8 | 0 | 10 |
|   Married at age 18 or older | 2* | 4 | 4 |
|   Single | 16 | 32 | 48 |
| **Syria** | | | |
|   Married less than 18 | 9 | 0 | 9 |
| **Total** | 35 | 36 | 71 |

Note: *Both respondents married at age 18

**TABLE 2   Marriage age statistics by birth years, women aged 15-39 at time of survey**

| | PAPFAM 2009 | JLMPS 2016 | |
|---|---|---|---|
| | **(1)** | **(2)** | **(3)** |
| **a. All women** | **1977-1992** | **1977-1992** | **1993-2002** |
| *(age at time of survey)* | *19-34* | *24-39* | *15-23* |
| Married before age 18, percent | 19 | 31 | 18 |
| Married before age 16, percent | 8 | 9 | 7 |
| N | 17490 | 337 | 227 |
| | | | |
| **b. Ever-married women** | **1977-1992** | **1977-1992** | **1993-2002** |
| Age at marriage, average | 19 | 19 | 17 |
| Married before age 18, percent | 38 | 34 | 47 |
| Married before age 16, percent | 16 | 10 | 20 |
| N | 8,505 | 314 | 110 |

Note: In PAPFAM 2009, year married is missing from 775 ever-married women. In JLMPS 2016, year married is missing for one ever-married women. Panel A based on Kaplan-Meier failure estimate.
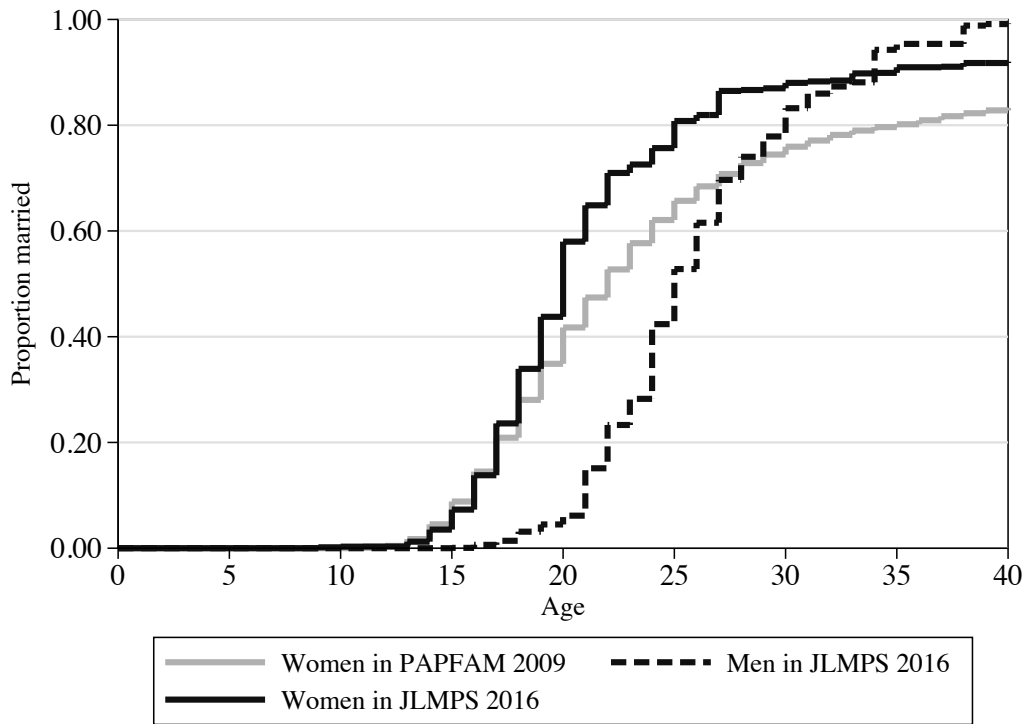Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

**TABLE 3   Other marriage outcomes and marriage costs (in nominal Jordanian Dinar) by year of marriage, ever-married women aged 15-39**

| | PAPFAM 2009 | JLMPS 2016 | |
| --- | --- | --- | --- |
| Year of marriage | 2006-2009 | 2006-2010 | 2011-2016 |
| *Percentage* | | | |
| Consanguineous marriage | 37 | 42 | 23 |
| Nuclear household at marriage | | 64 | 56 |
| *Mean* | | | |
| Husband-wife age gap (years) | 6 | 4 | 6 |
| Brideprice (mahr) | | 1869 | 1532 |
| Jewelry cost | | 979 | 558 |
| Furniture cost | | 902 | 427 |
| Housing cost | | 378 | 422 |
| Marriage celebration cost | | 891 | 461 |
| Total marriage cost | | 4630 | 3422 |
| N | 2,519 | 111 | 141 |

Note: In PAPFAM 2009, age of spouse for husband-wife age gap is missing from 43 women married in 2006-2009. In JLMPS 2016, age of spouse for husband-wife age gap is missing for 10 women married in 2006-2010 and 21 women married in 2011-2016.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016.

**FIGURE 1   Proportion married by age and sex, aged 15-49 at time of survey**



Notes: Showing through age 40 based on sample 15-49. Based on Kaplan-Meier failure estimate.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

**FIGURE 2  Proportion married by age, sex, and cohort, aged 15-49 at time of survey**



a. Women

b. Men

Birth cohorts
- - - - - PAPFAM 2009: 1967–1976
───── JLMPS 2016: 1967–1976
- - - - PAPFAM 2009: 1977–1992
───── JLMPS 2016: 1977–1992
- - - - PAPFAM 2009: 1993–2002
───── JLMPS 2016: 1993–2002
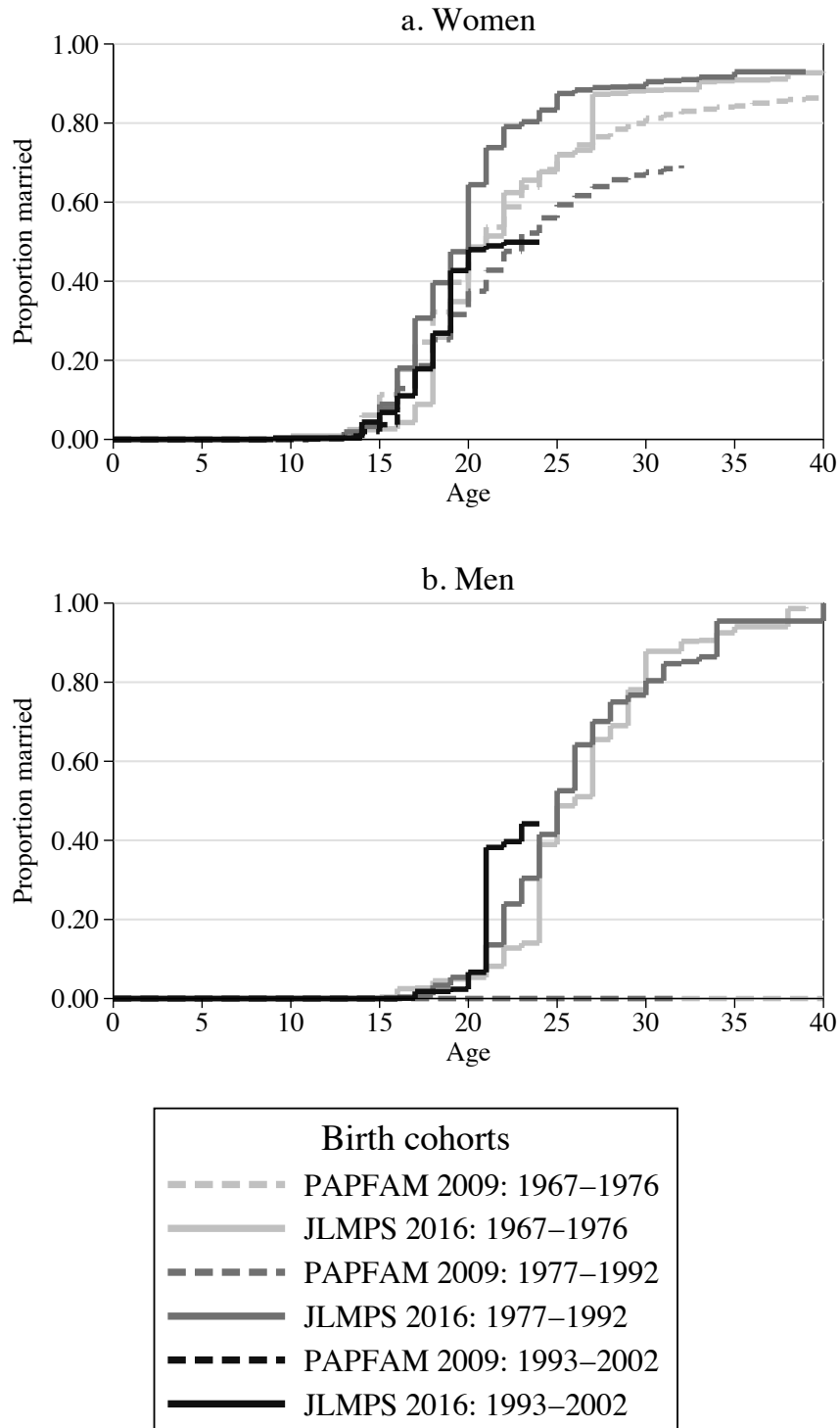
Notes: Showing through age 40 based on sample aged 15-49. Based on Kaplan-Meier failure estimate.
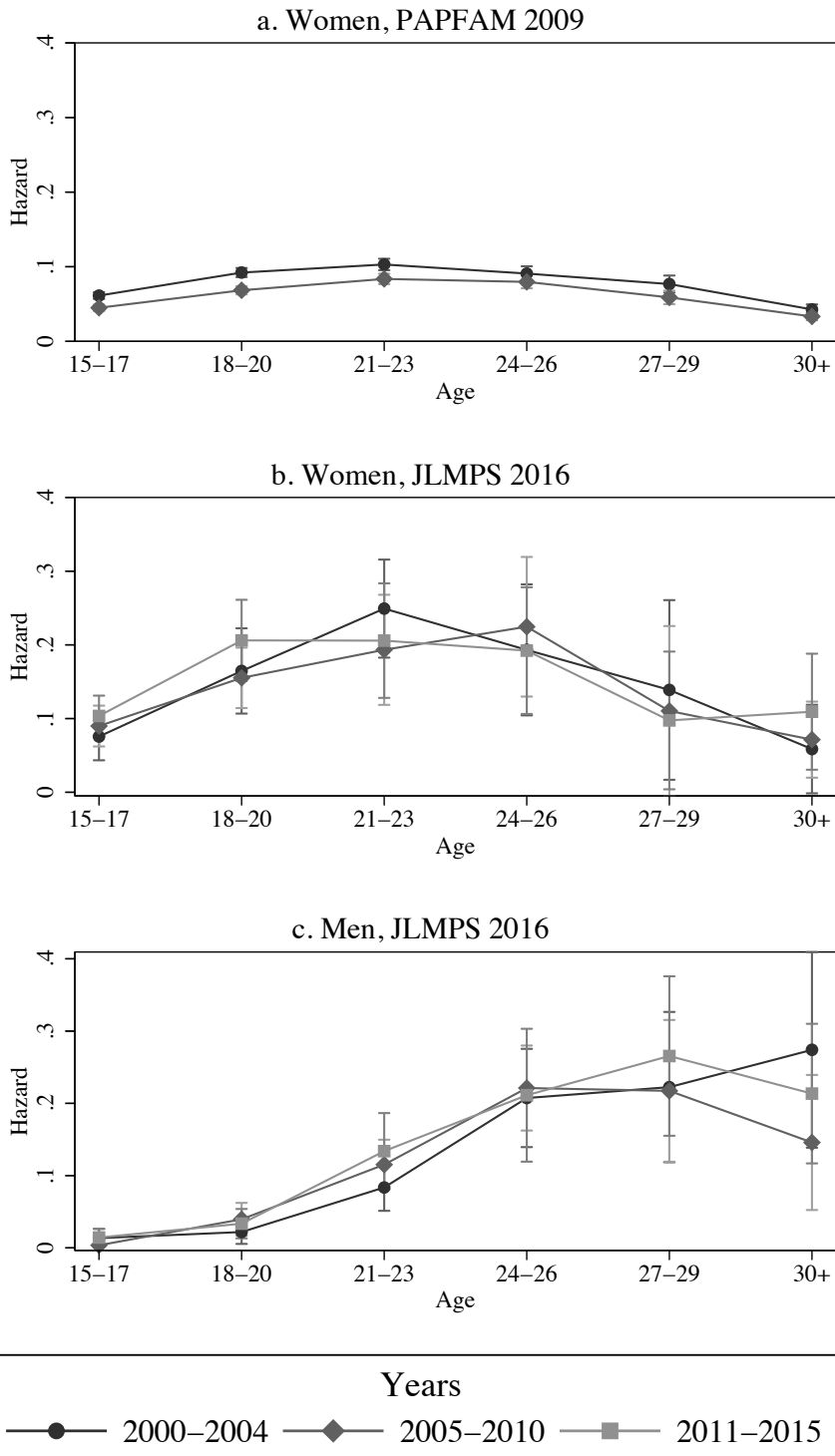Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

**FIGURE 3  Hazards of marriage, differences over time and by sex, aged 15-49 at time of survey**



a. Women, PAPFAM 2009

b. Women, JLMPS 2016

c. Men, JLMPS 2016

Years
2000–2004   2005–2010   2011–2015

Notes: Bars indicate 95% confidence intervals. See Appendix Table A1, specification 1 for the coefficients. Model controls for education.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

**FIGURE 4   Hazards of marriage, differences by country of residence (time-varying), women aged 15-49 at time of survey**
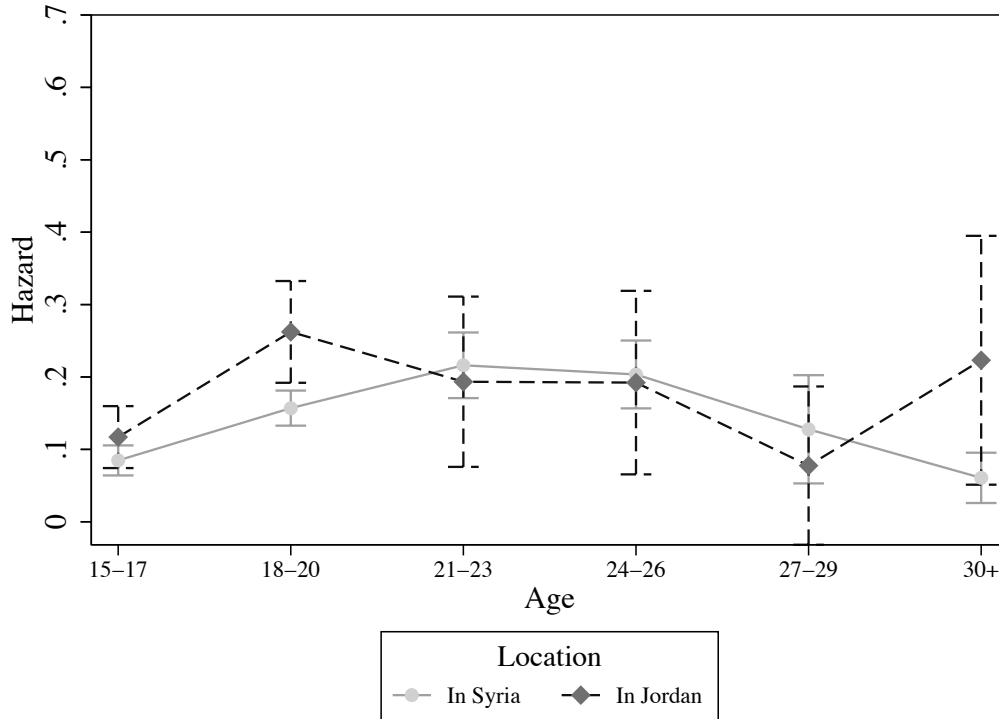


Notes: Bars indicate 95% confidence intervals. Model controls for education, mother's and father's education, and the number of older and younger siblings by sex. See Appendix Table A1, specification 2 for the coefficients.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

**TABLE A1   Discrete time hazard models of marriage, aged 15-49 at time of survey**

| | Spec. 1 | | | Spec. 2 |
|---|---|---|---|---|
| | Women in PAFAM 2009 | Women in JLMPS 2016 | Men in JLMPS 2016 | Women in JLMPS 2016 |
| **Ages 15-17 omit.** | | | | |
| 18-20 | 1.529*** | 2.258** | 1.585 | 2.258** |
| | (0.072) | (0.695) | (1.029) | (0.695) |
| 21-23 | 1.703*** | 3.472*** | 6.076*** | 3.472*** |
| | (0.092) | (0.907) | (3.318) | (0.907) |
| 24-26 | 1.483*** | 2.507* | 16.780*** | 2.507* |
| | (0.100) | (0.961) | (8.704) | (0.961) |
| 27-29 | 1.244* | 1.749 | 19.107*** | 1.749 |
| | (0.111) | (0.906) | (10.587) | (0.906) |
| 30+ | 0.673*** | 0.724 | 27.379*** | 0.724 |
| | (0.060) | (0.469) | (16.167) | (0.469) |
| **Ed. (illit omit.)** | | | | |
| Basic | 0.904** | 0.909 | 0.948 | 0.970 |
| | (0.035) | (0.162) | (0.237) | (0.170) |
| Secondary+ | 0.517*** | 0.597*** | 0.509*** | 0.566*** |
| | (0.018) | (0.090) | (0.071) | (0.091) |
| **Years (2000-2004 omit.)** | | | | |
| 2005-2010 | 0.686*** | 1.189 | 0.271 | |
| | (0.039) | (0.298) | (0.308) | |
| 2011-2015 | | 1.349 | 0.991 | |
| | | (0.372) | (0.587) | |
| **Age and years int.** | | | | |
| 18-20 # 2005-2010 | 1.129 | 0.813 | 6.974 | |
| | (0.084) | (0.330) | (8.314) | |
| 21-23 # 2005-2010 | 1.245** | 0.682 | 5.572 | |
| | (0.099) | (0.262) | (6.555) | |
| 24-26 # 2005-2010 | 1.300** | 1.063 | 4.036 | |
| | (0.128) | (0.570) | (4.763) | |
| 27-29 # 2005-2010 | 1.091 | 0.657 | 3.435 | |
| | (0.135) | (0.551) | (4.119) | |
| 30+ # 2005-2010 | 1.126 | 0.993 | 1.629 | |
| | (0.137) | (0.717) | (2.038) | |
| 18-20 # 2011-2015 | | 0.974 | 1.561 | |
| | | (0.354) | (1.161) | |
| 21-23 # 2011-2015 | | 0.645 | 1.857 | |

|  | Spec. 1 | | | Spec. 2 |
|---|---|---|---|---|
|  | **Women in PAFAM 2009** | **Women in JLMPS 2016** | **Men in JLMPS 2016** | **Women in JLMPS 2016** |
|  |  | (0.210) | (1.171) |  |
| 24-26 # 2011-2015 |  | 0.853 | 1.150 |  |
|  |  | (0.439) | (0.820) |  |
| 27-29 # 2011-2015 |  | 0.568 | 1.359 |  |
|  |  | (0.407) | (0.963) |  |
| 30+ # 2011-2015 |  | 1.372 | 0.641 |  |
|  |  | (0.987) | (0.482) |  |
| **In Jordan** |  |  |  |  |
| 15-17 # In Jordan |  |  |  | 1.447 |
|  |  |  |  | (0.350) |
| **Age and in Jordan int.** |  |  |  |  |
| 18-20 # In Jordan |  |  |  | 1.932*** |
|  |  |  |  | (0.363) |
| 21-23 # In Jordan |  |  |  | 1.071 |
|  |  |  |  | (0.392) |
| 24-26 # In Jordan |  |  |  | 1.073 |
|  |  |  |  | (0.443) |
| 27-29 # In Jordan |  |  |  | 0.607 |
|  |  |  |  | (0.494) |
| 30+ # In Jordan |  |  |  | 4.083* |
|  |  |  |  | (2.244) |
| **Mother ed. (illit omit.)** |  |  |  |  |
| Basic |  |  |  | 1.574* |
|  |  |  |  | (0.296) |
| Secondary+ |  |  |  | 1.146 |
|  |  |  |  | (0.351) |
| **Father ed. (illit. omit.)** |  |  |  |  |
| Basic |  |  |  | 1.129 |
|  |  |  |  | (0.158) |
| Secondary+ |  |  |  | 0.700 |
|  |  |  |  | (0.169) |
| **Siblings main effects** |  |  |  |  |
| Have older brother |  |  |  | 1.372* |
|  |  |  |  | (0.196) |
| Have older sister |  |  |  | 1.287 |
|  |  |  |  | (0.205) |

| | Spec. 1 | | | Spec. 2 |
|---|---|---|---|---|
| | Women in PAFAM 2009 | Women in JLMPS 2016 | Men in JLMPS 2016 | Women in JLMPS 2016 |
| Have younger sisters | | | | 1.254* |
| | | | | (0.142) |
| Have younger brother | | | | 0.993 |
| | | | | (0.123) |
| N obs. | 83977 | 2636 | 3213 | 2610 |

Notes: *p<0.05; **p<0.01; ***p<0.001.

Cells are hazard ratios, standard errors in parentheses. Standard errors clustered on the primary sampling unit (PSU) level.

Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

[i] Authors' calculations combining governorate-level probabilities of early marriage from MICS 2006 (Central Bureau of Statistics et al. 2008) weighted by governorates of origin from registered Syrian refugees in Jordan (UNHCR 2018a). Although the PAPFAM 2009 report did not present early marriage rates, it was consistent with the MICS 2006 in that the singulate mean age at marriage among women in Dara'a was the lowest (21.3 years) of any province in Syria (League of Arab States and Syrian Arab Republic 2011).

[ii] Weights are not applied to multivariate models. While there is a clear mandate to weight descriptive statistics, use of weights in multivariate regression is less clear-cut (Solon et al. 2013). We did test the sensitivity of our results to including weights; the weights vary substantially given the sampling and led to interactions where a heavily weighted individual drove the results.

[iii] Almost all (93%) of Syrians in Jordan in JLMPS 2016 met our definition of being Syrian refugees. Syrian refugees are defined as those who report Syrian nationality and either (1) are currently registered as a refugee and arrived in Jordan in 2011 or later, or (2) left a previous residence in 2011 or later due to violence, persecution, or a lack of security. Our qualitative sample could not be restricted to registered refugees due to ethical approvals. We therefore, in the quantitative analyses, analyze Syrians in Jordan without further restriction and treat Syrian in Jordan as synonymous with Syrian refugee in Jordan.

[iv] The JLMPS includes age at marriage for those aged 15-59. Marital status is asked for those aged 12 and older; none of the Syrian girls aged 12-14 in the JLMPS sample (N=103) were married.

[v] To ensure estimable hazards and interactions, we treat marriages that happened before age 15 as happening at age 15 in the multivariate models.

vi The CSO's activities focus on educational and cultural programs for children, with a focus on children and youth with sensory disabilities. As our study population was youth, they were recruited from households that engaged with the CSO from both rural and urban areas of Mafraq.

vii We cannot assess median age at marriage for this cohort in the PAPFAM due to censoring.

viii In general terms, *sutra* means acquiring security in life and protection from adversity (UNICEF 2014).

ix Authors' calculations from PAPFAM 2009.