ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية
2019

working paper series

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January 2019

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[1] Research supported by a grant from the Ford Foundation on "Youth and Vulnerability in the Middle East" to the Economic Research Forum. The authors appreciate research assistance from Mariam Sharpless.
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First published in 2018 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Abstract

Since the onset of the Syrian conflict there has been considerable attention to reports of high rates of early marriage among Syrian refugee women. Yet assessing whether early marriage has increased among refugee populations has been complicated by data issues. 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, as well as change in marriage practices more broadly, among Syrian refugees in Jordan. Our results show that the Syrian refugee population now in Jordan had younger ages of marriage than the national (pre-conflict) rate in Syria, since prior to their displacement. Rates of early marriage among the population of Syrians currently in Jordan have remained similar from pre- to post- conflict, both in descriptive terms and as measured by multivariate hazard models. Nevertheless, drivers of early marriage may have changed to some degree; as with previous literature, we find that poverty and security concerns have created additional drivers for early marriage. However, young refugee men also felt that the challenging economic conditions they faced as refugees created disincentives to marry. Age at marriage must therefore also be examined along with other changes in marriage practices; our findings suggest that marriage expenditures may be lower post-conflict, whereas independent residence upon marriage and consanguinity are both less common. Along with age at marriage, these other marriage outcomes have important long-term implications for women's wellbeing.

Keywords: Early Marriage, Age at Marriage, Marriage Practices, Syria, Jordan, Refugees

JEL Classifications: J12, J13, F22, F51

1. Introduction

Conflict and forced migration have wide-ranging effects on families and family structure, including on the process of family formation. In demographic theory and empirical studies of conflict-affected populations, exposure to conflict and forced migration may lead to delays in marriage and childbearing due to factors such as family separations or reduced availability of men in the marriage market, or to accelerations in marriage due to factors such as the desire for protection (Williams et al. 2012; Cetorelli 2014; Abbasi-Shavazi, Mahmoudian, and Sadeghi 2018). In recent and ongoing conflicts in the Middle East and North Africa (MENA) region, there has been considerable attention to the latter dimension, accelerations in marriage and particularly increases in early marriage, including among the Syrian refugee populations that have taken refuge in neighboring MENA countries.

Early marriage, defined as a formal marriage or an informal union before age 18 (UNICEF 2005), is associated with a wide range of negative outcomes for women and their children (UNICEF 2005). Women married early often have their educational opportunities cut short, and are less likely to participate in market work or family economic decisions. In part due to their lower levels of economic empowerment, women married early are particularly vulnerable to sexual, emotional, and physical abuse (Lee-Rife et al. 2012; Yount, Crandall, and Cheong 2018). Due to the association of early marriage with early pregnancy, women married early and their children also suffer from other negative health outcomes. Death from pregnancy or childbirth is far more likely for underage mothers; girls ages 10-14 are five times more likely to die from pregnancy or childbirth than women who are 20-24 years old (United Nations 2001). Children born to mothers under the age of 18 also have higher infant mortality and poorer nutrition and health outcomes, leading to negative intergenerational consequences of early marriage (Parsons et al. 2015).

Early marriage rates vary considerably across the Middle East and North Africa. 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, where 34% of women aged 20-24 report having married before 18, to 32% in Yemen, 17% in Egypt, 8% in Jordan, and 6% in Lebanon (among Lebanese, but 41% among Syrians in Lebanon). There is also considerable subnational variation in early marriage rates within the region, which is in some cases related to the occurrence of conflict (UNICEF 2017).[6] In the case of the ongoing conflict in Syria, reports and recent census data have indicated high rates of early marriage among Syrian refugee girls in Jordan and other host countries (Abdulrahim et al. 2017; UNICEF 2014; Higher Population Council 2017; Cherri et al. 2017). However, while estimates show high prevalence of early marriage among Syrian refugees, substantial data challenges limit efforts to accurately assess *change* in the rate of early marriage as compared to Syria prior to the conflict. Most studies have relied on small, non-representative samples, or did

[6] These statistics were calculated using data come from Egypt DHS 2014; Jordan PFHS 2012; Lebanon UNICEF Baseline Survey 2016; Sudan MICS 2014; Yemen DHS 2013.

not account for changes in composition between the national Syrian population pre-conflict and the population of Syrian refugees in Jordan (or other host countries).

In a context of forced displacement, an analysis of early marriage needs to consider both practices around early marriage in refugees' country of origin and how the situation of displacement may affect drivers of marriage age. Conflict and displacement may also cause other changes in marriage practices, for example around meeting potential spouses, marriage costs and living arrangements, which may interact with drivers of marriage age. In this paper, we use nationally representative survey data from Syria in 2009 and Jordan in 2016, in combination with qualitative interviews conducted with Syrian refugee youth in Jordan, to analyze change in marriage practices among Syrian refugees in Jordan, with a particular focus on age at marriage and early marriage. We find that early marriage was common in Syria prior to the conflict, particularly so among the population of Syrians who subsequently became refugees in Jordan. The quantitative analyses indicate that, overall, rates of early marriage among the population of Syrians currently in Jordan have remained similar from pre- to post- conflict, both in descriptive terms and as measured by the multivariate hazard models. Nevertheless, drivers of early marriage may have changed to some degree; the qualitative interviews indicated that poverty and security concerns have created additional drivers for early marriage. However, the interviews also indicated that young refugee men felt that the challenging economic conditions they faced as refugees created disincentives to marry. The quantitative data suggest that marriage expenditures may be lower post-conflict, whereas independent residence upon marriage and consanguinity are both less common.

The paper proceeds as follows. Section 2 discusses the existing evidence on early marriage in Syria and among Syrian refugees. Section 3 presents the data and methods for both the quantitative and qualitative analyses. Section 4 presents the results on patterns of age at marriage, drivers of early marriage, and how other marriage practices have changed among the Syrian refugees in Jordan from pre- to post-conflict. Section 5 discusses the implications and limitations of the results and concludes.

2. Early marriage in Syria and among Syrian refugees

2.1. Marriage in Syria

In Syria, the personal status law of 1953 (and 2009 amendments) set the legal age of marriage at 18 for boys and 17 for girls (UNICEF 2014). However, with the approval of their male legal guardian and judicial permission, boys could legally marry as early as 15 and girls as early as 13. There are relatively few studies on marriage customs in Syria prior to the conflict. The available resources on marriage suggest that only a minority of young men and women chose their partners, and most Syrian marriages were arranged by their families (Cultural Orientation Resource Center 2014). Nationally, 38.8% of all marriages were consanguineous. Consanguineous marriages were more likely to occur in rural areas (48.4% of marriages in rural areas were to a kin) as compared to urban areas (32.1% of marriages in urban areas were to a kin) (League of Arab States and Syrian Arab Republic 2011).

Family status, employment, and the ability to acquire housing all played interlinked and important roles in young men's marriage timing and prospects in Syria (Kabbani and Kamel 2007). There is social pressure on men in Syrian society, as much of the MENA region, to be financially established before they get married. By tradition in MENA, the groom or his family must pay a *mahr*, or brideprice, to the bride or her family, as well as establish the conditions necessary for married life, such as housing. The costs of marriage can be very high in the region; it is not uncommon for the groom to need to save the equivalent of several years' salary in order to marry (Krafft and Assaad 2017; Singerman 2007).

In terms of age at marriage, the most recent nationally representative data from Syria prior to the conflict, the 2009 Syria Pan Arab Project for Family Health (PAPFAM) found that 11.2% of girls aged 15 to 19 were married (League of Arab States and Syrian Arab Republic 2011). The 2009 PAPFAM rate was nearly identical to the 2002 PAPFAM rate of 10.8% of girls aged 15 to 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 present this statistic below for PAPFAM 2009. The 2006 Syria Multiple Indicator Cluster Survey (MICS) did calculate both 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 early marriage (before age 18) was highest in Daraa (26.2%) (Central Bureau of Statistics et al. 2008), the governorate of origin of 41.2% of Jordan's registered Syrian refugees (UNHCR 2018a). Indeed, the population of Syrian refugees in Jordan came from governorates that had on average a 22.1% probability of early marriage.[7]

2.2. Prevalence and drivers of early marriage among Syrian refugees

2.2.1. Prevalence of early marriage

A number of studies have examined early marriage rates among Syrian refugees in Jordan and Lebanon (Abdulrahim et al. 2017; Cherri et al. 2017; Higher Population Council 2017; UNICEF 2014), but substantial data challenges limit 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, or did not account for changes in composition between the national Syrian population pre-conflict and the population of Syrian refugees in Jordan. Studies often report the percentage of registered marriages of Syrian refugees in Jordan that were to girls under age 18 and find that this figure was higher than in Syria or rising (UNICEF 2014). For instance, one estimate of early marriages among Syrians in Jordan from 2013 using data on marriages in shari'a courts found that

[7] Authors' calculations combining and 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).

a quarter of registered marriages were early marriages (aged 15-17) (UNICEF 2014). This represented an increase from 12% of registered marriages in 2011 and 18% in 2012 (Save the Children 2014).

This kind of analysis, the proportion of marriages that are early, which divides marriages under 18 by all registered marriages in a year and compares this to Syria pre-conflict, ignores several types of compositional differences. The Syrians in Jordan are a select group, from areas that had higher rates of early marriage and fertility pre-crisis (Central Bureau of Statistics et al. 2008; UNHCR 2018a). Registered marriages are also only a subset of marriages to refugees. Using 2015 Population Census data, estimates are that 44% of Syrian marriages in 2015 were early marriages (Higher Population Council 2017). However, the Population Census data 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.

Furthermore, although the Population Census trend statistics overcome selection into 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 would rise simply because there were more individuals under age 18. Additionally, the Population Census statistics use new marriages in a particular year as a denominator, rather than the full population of women. For example, 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.

Sieverding, Abdulrahim, and Berri (2018), using the JLMPS 2016 data, found that among the Syrian refugee population in Jordan, marriages formed in Syria in 2005-2008 were actually slightly more likely to be early (33%) than those 2012-2016 after arrival in Jordan (28%). However, these estimates are still as a percentage of marriages. They also found that 18% of Syrian refugee women aged 15-19 were currently married, similar to the percentage in the most common governorate of origin for Syrian refugees in Jordan (Dara'a) (18%) in the MICS 2006 (Central Bureau of Statistics et al. 2008).[8] Previous studies have not calculated the probability of a girl marrying before age 18, the underlying statistic of concern. In this paper we present a detailed analysis of *change* in marriage practices among Syrian refugees in Jordan, by assessing the probability of early marriage

[8] Authors' calculations combining and governorate-level percentage of women aged 15-19 married from MICS 2006 (Central Bureau of Statistics et al. 2008) weighted by governorates of origin from registered Syrian refugees in Jordan (UNHCR 2018a) yield a fairly similar rate as well (14%).

in the population of Syrian women in Jordan, and comparing different measures of early marriage rates.

2.2.2. Drivers of early marriage among Syrian refugees in Jordan

The drivers of early marriage globally are multiple, and include sociocultural norms that favor early marriage, girls' relative powerlessness, poverty, lack of educational opportunities, and weak enforcement of minimum age laws (Ali and Gurmu 2018; Kalamar, Lee-Rife, and Hindin 2016; Lee-Rife et al. 2012; Marcus and Page 2014). In contexts of conflict and forced displacement, these drivers may be exacerbated, and others may emerge. Given the high rates of early marriage – by pre-conflict national standards – 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 arrival in Jordan. In interviews, Syrian refugee women in Lebanon claimed the most common age to get married was 14-15 (Cherri et al. 2017).[9] Likewise in a study of Syrian refugees in Jordan that targeted 3% of registered refugees in each governorate (N=613) in 2013 (UN Women 2013), half of respondents identified the most common age of marriage in their community as being before age 18. The majority (65%) also stated that they believed the average marriage age remained the same (23% thought it decreased and 10% increased), while also noting there were generally fewer marriages. Early marriage being part of customs and traditions was actually the most prevalent reason for agreeing with different rationales for early marriage (UN Women 2013).

The existing literature has also identified a number of drivers of early marriage among Syrian refugees in Jordan and other neighboring host countries related to the context of displacement. Key among these are economic factors. Refugees' loss of livelihoods, difficult economic situations and lack of livelihood opportunities within Jordan, as well as other host countries, is consistently reported as a driving factor for early marriage (Spencer 2015; UNICEF 2014; Cherri et al. 2017; Mourtada, Schlecht, and Dejong 2017; DeJong et al. 2017; Higher Population Council 2017; UN Women 2013). The lack of economic opportunities places a strain on the ability of parents to provide for their households. Reducing the economic burden on families – by reducing the number of 'mouths to feed'– has been identified as a motivating factor for families to seek marriages for daughters (Save the Children 2014). In a study of early marriage among Syrian refugees in Lebanon, Bartels at al. (2018) found that fathers in particular perceived early marriage as a financial coping strategy. Once a daughter was married, her father would not need to support his daughter, rather she would have her own husband to provide for her. In focus groups with men, DeJong et al (2017) also found that while some men said that early marriage was not desirable, it was a choice made in difficult conditions.

[9] While another study with Syrian refugees in Lebanon noted some divergence in opinions on the ideal age at marriage, the study also noted that the majority of the mothers of refugee girls married at ages 14-15 (UN-ESCWA 2015).

Another major driver that has been identified in previous literature on early marriage among refugees is concerns about girls' safety from gender based violence and protection of their honor in the unfamiliar contexts of host countries (Spencer 2015; Cherri et al. 2017; Higher Population Council 2017; UNICEF 2014). In the study conducted by Bartels et al. (2018), women and young girls were more likely to perceive early marriage as a way to protect girls from harassment and gender-based violence. Furthermore, girls deciding to marry early chose this path to escape difficult conditions at home, where their parents, out of fear for their daughter's honor and reputation, limited their freedom to go outside and have a social life. Additional studies on marriage practices among Syrian refugees in Lebanon likewise found that protection and adolescent girls' honor was a main concern for parents who marry their daughters early (Kabakian-Khasholian et al. 2017; Mourtada, Schlecht, and Dejong 2017).

3. Data and Methods

We rely on a combination of data sources in an effort to understand how marriage practices, and particularly age at marriage, may have changed among the population of Syrians who are now refugees in Jordan. In addition to nationally representative household surveys from Jordan in 2016 and Syria in 2009, we draw on data from qualitative interviews with 71 Syrian refugee youth residing in Jordan in 2017.

3.1. Quantitative data and analysis

3.1.1. Surveys and sample

We primarily rely on the 2016 Jordan Labor Market Panel Survey (JLMPS) to assess changes in marriage patterns among current Syrian refugees in Jordan over time. In order to compare marriage patterns among this population with the national Syrian population pre-conflict, we supplement the JLMPS analysis with data from the Pan Arab Project for Family Health (PAPFAM) survey of 2009.[10] Both surveys are nationally representative household surveys with detailed information on individuals' demographics. Particularly important for the purposes of this paper is that the data include marital status, age at marriage, and spouse characteristics, allowing for a detailed analysis of marriage outcomes.[11] The JLMPS also includes a range of other marriage characteristics, including living arrangements upon marriage and expenditures on marriage.

The JLMPS 2016 over-sampled areas with a high proportion of non-Jordanians for its refresher sample in order to be able to provide data on the Syrian population in Jordan (as well as other

[10] For more information on the PAPFAM 2009, see League of Arab States and the Syrian Arab Republic (2011). For more information on the JLMPS 2016, see Krafft & Assaad (2018). The PAPFAM 2009 data are available on request from the Pan Arab Project for Family Health. The JLMPS 2016 data are available from the Economic Research Forum's Open Access Microdata Initiative (OAMDI) at www.erfdataportal.com

[11] In PAPFAM 2009, ever-married women record spouse information. Thus, a spouse's information may be included even when the spouse does not necessarily live in the household. On the other hand, spouse information in JLMPS 2016 comes from linked individual records for those who stated that their spouse lived in the same household at the time of the survey.

migrant groups). This sampling strategy is incorporated into the sample weights, which are used for descriptive analyses for both data sources.[12] Our JLMPS 2016 sample is limited to this sub-population of Syrians.[13] Moreover, for almost our analyses of marriage, we limit the sample for both surveys to individuals aged 15-49 in the survey year. Our sample is limited to this age range for comparability, because PAPFAM only includes marriage timing for ever-married women ages 15-49.[14] In some analyses men aged 15-49 in JLMPS 2016 are included to capture differences in marriage timing by sex for the Syrian refugee population in Jordan. This gives us a sample size of 31,302 women in PAPFAM 2009, 667 Syrian women in JLMPS 2016, and 615 Syrian men in JLMPS 2016.

3.1.2. Quantitative analysis methods

Comparing the PAPFAM 2009 and JLMPS 2016 data, we examine how the population of Syrians that had settled in Jordan as of 2016 was demographically similar to (or different from) the national population in Syria from 2009. The Syrians in Jordan over-represent certain areas within Syria (primarily those near the Syrian-Jordanian border) (Stave and Hillesund 2015; UNHCR 2017), which is important for our analyses given sub-national variation in marriage age in Syria pre-conflict (Central Bureau of Statistics et al. 2008). If the population of Syrians in JLMPS is different from the representative pre-crisis PAPFAM population, we can infer that there were selective movements across borders from Syria to Jordan.

Our key outcome of interest is age at marriage. Age at marriage is potentially censored for women whose outcomes we do not see (i.e. those who have not been 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:

$$F_a = \Pr(T_a \leq a) \qquad (1)$$

[12] 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.

[13] 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.

[14] Similarly, in JLMPS the earliest data on age of marriage is age 15 and the lowest age to analyze marital status is 12.

This statistic can be interpreted as the probability of marrying at or before (by) a certain age. We are particularly interested in the probability of early marriage, defined as marriage before age 18, so at or before age 17.

We are interested in how age at marriage has changed over time and with the conflict among the Syrian refugees in Jordan. To analyze our outcome of interest, 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. An individual, *i*, is at risk of becoming married, and thus has an observation, each year of age from age 15[15] until the age of marriage (or censoring at their age in the survey year). Therefore, 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 analyze the hazard of getting married at a particular age (h_{ia}), in relation to multiple and time-varying covariates (varying over *t*, calendar time), we use a complementary log-log model. In the model, we can account for characteristics of individuals, X_{iat}, such as education. We can also account for characteristics that change over time, such as calendar year or country of residence. These can be incorporated into a complementary log-log model for the hazard of marriage as per (Jenkins, 1995):

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

From this model we present hazard ratios. Hazard ratios are exponentiated coefficients that tell us the ratio of hazards for an individual with a particular characteristic (a one unit increase if continuous, a change in category relative to the reference if categorical). Hazard ratios greater than one mean that a covariate increases the hazard of marriage, while hazard ratios of less than one mean that a covariate decreases the hazard of marriage. We also present, graphically, predicted hazards (the predicted probability of getting married at a particular age, if one has not done so yet).

With the JLMPS we are particularly interested in assessing changes in age at marriage over time that may be related to conflict and displacement. Descriptively, we examine age at marriage for each sample by birth year cohorts (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

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

age at marriage, since those born in 1993-2002 would have been exposed to conflict and displacement starting at age 18 or younger.

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 the start of the 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.[16] Educational attainment is operationalized into three categories, less than basic, basic, and secondary and above.[17] We additionally control for family background in the form of mother's and father's education, categorized in the same manner as women's own education.

3.2. Qualitative data and analysis

We complement the quantitative analysis with analysis of 71 modified life history interviews conducted in late 2017 with Syrian refugee youth in Mafraq and Amman, the two governorates with the largest number of registered Syrian refugees in Jordan (UNHCR 2018b). Mafraq is close to the Syrian border and contains the Zaatari refugee camp, through which most refugees entered the country; although interviews were held in host communities (outside camps) only, many of the respondents had transited through Zaatari during their settlement in Jordan. In Amman, the capital of Jordan, interviews were held in Marqa, a part of Eastern Amman where there is a high concentration of refugees living in host communities.

3.2.1. Data collection

The inclusion criteria for the interviews were that respondents be aged 15-29, Syrian, and have arrived in Jordan since 2011. Our target sample size was 36 interviews in each site in order to capture a diversity of male and female youths' experiences with the transition to adulthood in a context of conflict and displacement. We adopted a purposive sampling strategy based on education, employment status and marital status; in particular, given our interest in the question of early marriage rates among Syrian refugees, among 15-19 year-olds we specifically sampled for

[16] Older and younger siblings are only available in JLMPS 2016.

[17] We harmonize education across PAPFAM and JLMPS into three categories: less than basic, basic, secondary+. In PAPFAM, no schooling and primary are categorized as less than basic; preparatory is categorized as basic; secondary, middle institute, and university+ are categorized as secondary+. In JLMPS, illiterate and read and write are categorized as less than basic; basic is basic; secondary, post-secondary, university, and post-graduate are categorized as secondary+.

variation in marital status among young women (it proved not possible to find young men in this age group who were married).

The interviews were conducted by a local team of interviewers who were trained on the study protocol and interview guide by the authors. Respondent recruitment was conducted differently in the two sites due to the challenges of accessing a dispersed population within host communities. In Mafraq, a local community service organization (CSO) provided the research team with contact information of its Syrian refugee beneficiaries, who resided in a mix of urban and rural locations around Mafraq city. The interview team contacted potential respondents using a recruitment script, screened them for eligibility, and asked if they were interested in participating; those who were we interviewed in private rooms on the CSO's premises after being consented by the interviewer. In Eastern Amman, the research team went door-to-door in six different neighborhoods of Marqa that they knew from previous work and contacts with CSOs to have substantial refugee populations. When they found a household with an eligible youth member, interviewers introduced the study, consented the potential respondent if she/he was interested in the study, and conducted the interview in the home. Within the targeted neighborhoods, snowball sampling was also used to contact additional respondents.

All respondents provided verbal consent (or assent for those aged 15-17) to participate in the study and were provided copies of the consent form. Written consent from a parent or legal guardian was obtained for respondents aged 15-17 for a minor to participate in the study, prior to obtaining assent from the respondent her or himself. Parents and guardians were also provided copies of the consent form, and interviewers offered to read the consent form to parents if literacy was a barrier. Permission to tape record the interview was sought from respondents and their consenting parent or guardian.[18] In appreciation for their time, participants were given approximately 10 USD equivalent of phone credits, and transportation costs were covered for those in Mafraq who had to travel to the interview location. Ethical approval for the qualitative study was obtained from the Institutional Review Board (IRB) at the American University of Beirut and the local data collection partner obtained data collection permissions from the Jordanian Department of Statistics and Ministry of Interior.

3.2.2. Interview guide and data analysis

Interviews were conducted following a modified life history approach that asked respondents about their experiences with education, employment, marriage, and use of healthcare services in each location of residence since arrival in Jordan. The guide was semi-structured, and gave interviewers flexibility to ask relevant sets of questions depending on the respondent's life transitions since arrival in Jordan. This interview structure was adopted after pretesting indicated

[18] No respondents refused tape recording.

that a chronological structure was easier for respondents to follow than a thematic one, particularly given the high level of mobility among the refugee population.[19]

We began the interview 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, respondents were then probed about key life transitions, such as school entry or dropout, employment changes, and marriage, and asked relevant sets of questions. For those who had married since their arrival to Jordan, the questions covered the decision-making process around marriage, how the respondent met the spouse and the process of agreeing on the marriage, and how the respondent reflected on the decision to marry in retrospect. For the respondents who had not gotten married yet, they were asked about their desired age at marriage and reasons for that desired age. At the end of the interview, all respondents were posed a set of more general questions about the situation of Syrian refugees in Jordan, which included questions about marriage customs in Jordan as opposed to those in Syria, challenges to getting married for refugees in Jordan, and overall perceptions of change in marriage customs among Syrians due to conflict and displacement.

The interviewers transcribed the interviews verbatim in their original language (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 life history 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 rely on this more narrative approach to the analysis in particular for our discussion of the cases of young women who married early (before age 18) after their arrival to Jordan.

We also coded interviews thematically in Dedoose. 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. We revised the codebook continuously as we coded additional interviews, meeting during the earlier stages of coding to review the codebook, confirm common understandings of codes, and revise when needed. Our thematic analysis in this paper focuses on code groups related to decisions about marriage, drivers of early marriage, feelings about marriage, desired age at marriage, customs of age at marriage in

[19] The interview guide was written in the Syrian dialect of Arabic and pretested with Syrian refugees living in informal settlements in the Bekaa (a region in Lebanon with a high concentration of refugees). After modifying for the life history approach, the interview guide was piloted another time in Lebanon by the authors and a last time in Jordan by the interview team, resulting in minor modifications before fielding.

Syria, change in marriage customs after displacement, living arrangements upon marriage, 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.

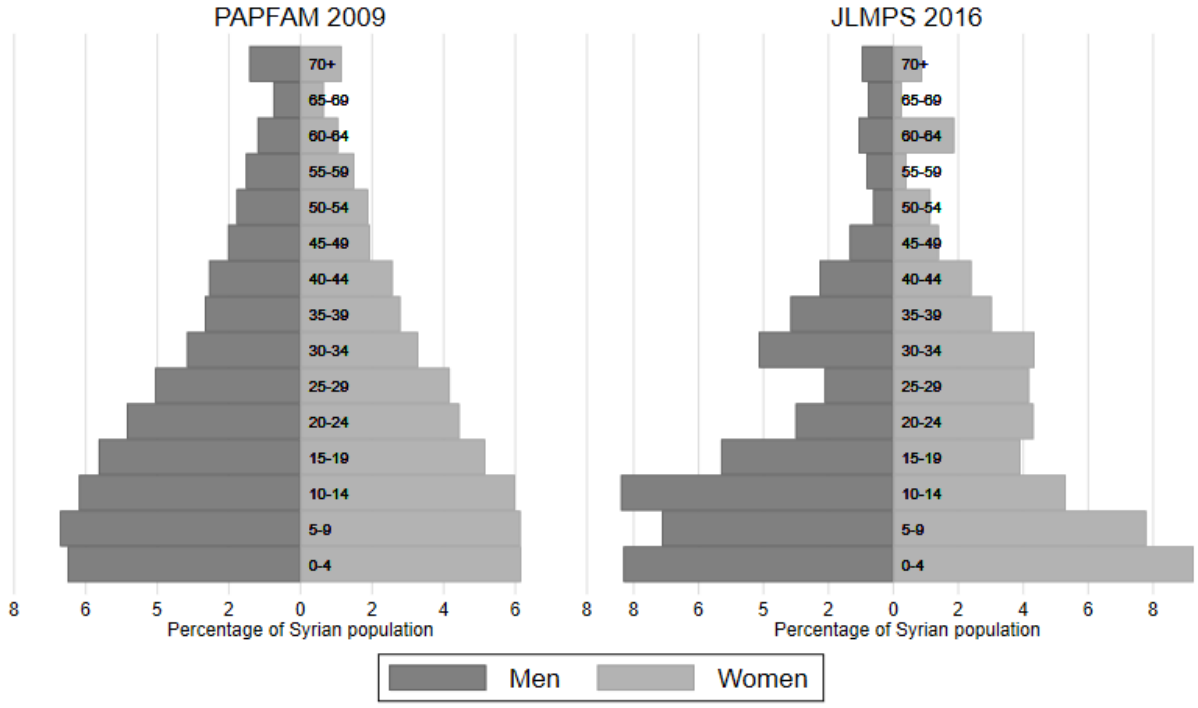
4. Results

In this section, we first present our results on the characteristics of the Syrian refugee population in Jordan as compared to the national Syrian population pre-conflict, which demonstrate the selectiveness of the refugee population in terms of their socioeconomic background. We then analyze the timing of marriage descriptively (Section 4.2), focusing in particular on differences in the rate of early marriage across our two surveys and across different cohorts captured in both surveys. In this section we also discuss the characteristics of the qualitative sample with regards to marriage and their perceptions of common age at marriage in their communities. In Section 4.3 we turn to the multivariate models of marriage timing and its relation to conflict, and in Section 4.4 to the qualitative evidence on the drivers of early marriage in a displacement setting. Finally, we discuss other marriage outcomes, such as consanguinity and marriage customs, among the refugee population in Section 4.5.

4.1. Characteristics of Syrians in Jordan compared to the national Syrian population

The Syrian population in Jordan is particularly young in comparison to the population in Syria pre-conflict. Figure 1 shows the population structure of Syrians in PAPFAM 2009 and JLMPS 2016. Young people make up a larger percentage of the Syrian population in Jordan in 2016 than the national population in Syria in 2009. Children (0-14) make up 37% of the population in PAPFAM 2009 compared to 46% of the Syrian population in JLMPS 2016. Consequently, in Jordan 2016, there are low percentages of Syrian adults (20+) relative to the Syrian population in PAPFAM 2009. In particular, there are relatively few men aged 20-29, which may affect the marriage market for young women as well.

Figure 1. Population pyramid (percentage of Syrian population), by sample



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

The Syrians who fled to Jordan are not a representative group of all Syrians. Thus, although we make comparisons to national results from the 2009 PAPFAM in Syria, we know we have a selected population from Syria. Among other differences, the refugee population is less educated than the national Syrian population. Table 1 shows that the majority of the Syrian women aged 15-49 in Jordan have less than basic education. In JLMPS 2016, 70% of women have less than basic education, compared to 49% in PAPFAM 2009. Consequently, there are fewer Syrian women in JLMPS 2016 that had basic (13%) and secondary or above (16%) levels of education. In PAPFAM 2009 nearly a quarter (24%) of all women had basic education and a quarter (28%) had secondary or above.

Marital status for women aged 15-49 differed between the two samples (Table 1). Among Syrian women in the JLMPS, 28% were single and 65% were married. In PAPFAM, 41% were single and 57% of women were married. The percentage of Syrian women who had been divorced/separated or widowed was higher in the JLMPS 2016 as compared to PAPFAM 2009 (3-4% compared to 1%), which may be a result of the conflict. Consistent with the different population pyramids in Figure 1, the distribution of birth cohorts shows a disproportionately young sample of women in the JLMPS 2016 relative to PAPFAM 2009. In sum, there are several differences between the Syrian populations surveyed in JLMPS 2016 and PAPFAM 2009 that have important implications for analyzing age at marriage and early marriage. These differences include

that Syrian women in Jordan are less educated and that younger cohorts are over-represented in the population of Syrians in Jordan.

Table 1. Characteristics of women aged 15-49 at time of survey (percentage of sample)

	PAPFAM 2009	JLMPS 2016
Educational attainment		
Less than basic	49	70
Basic	24	13
Secondary and above	28	16
Marital status		
Single	41	28
Married	57	65
Divorced/Separated	1	3
Widowed	1	4
Birth cohort		
1990-1994	21	25
1985-1989	18	27
1980-1984	17	18
1975-1979	13	13
1970-1974	12	13
1965-1969	10	3
1960-1964	9	0
Sample size	31,294	491

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

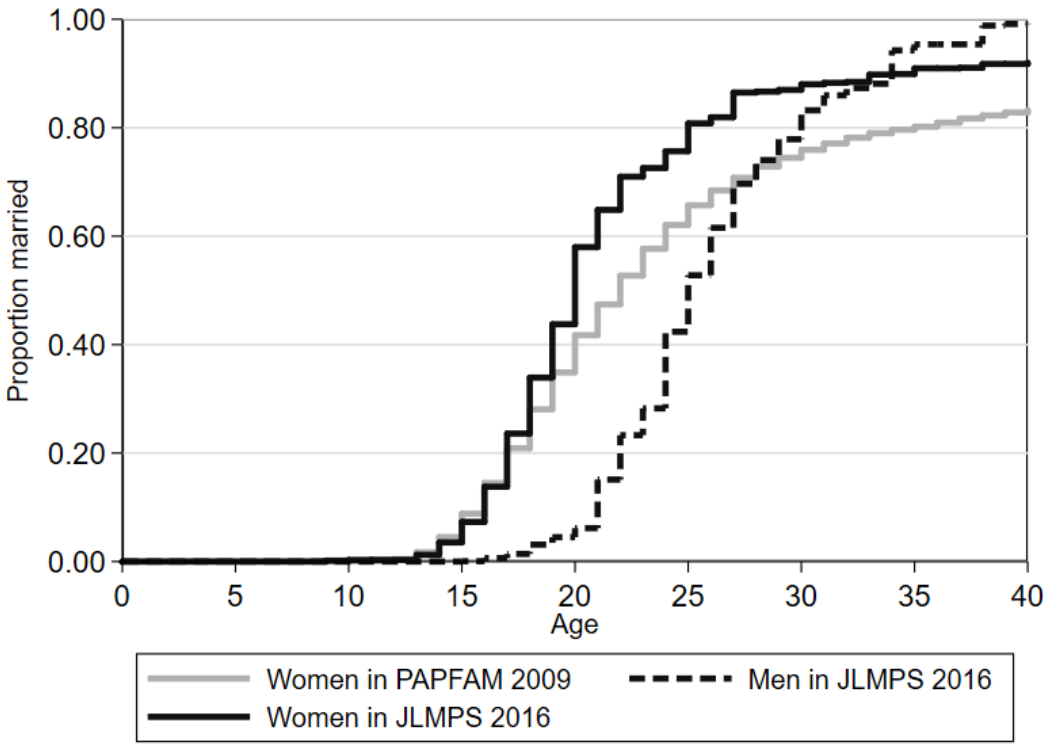
4.2. Patterns of marriage age

The proportion of Syrian women in Jordan in 2016 who were married at early ages (i.e. before the age of 18) was very similar to the proportion who married early in the national Syrian population in 2009 (Figure 2, examining women aged 15-49 in the survey year). 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 5% before age 15. In JLMPS 2016, 24% married before age 18 and 4% before age 15. Yet although rates of early marriage are 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. Marriage was not universal among Syrian women in either context; 17% of women remained unmarried at age 39 in PAPFAM 2009, compared to 8% of

women remaining unmarried at age 39 in JLMPS 2016.[20] 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.

For comparison, Figure 2 also shows the proportion of Syrian men married by age among those aged 15-49 in the JLMPS (PAPFAM 2009 does not include ages at marriage for men). At the median, Syrian men in Jordan in JLMPS 2016 were married five years later than their female counterparts (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 their 20s. Syrian men in Jordan in 2016 were almost universally married, which may be due to the expansive nature of the population pyramid and the five-year age gap between spouses; there are more women five years younger for every man. Additionally, there may have been differential migration of single men to different locations, such as Europe, whereas married men may have selected into neighboring countries.

Figure 2. Proportion married by age, 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

[20] Data on age at marriage are retrospective and asked of ever-married individuals, including individuals who at the time of the survey may have been widowed, divorced, or separated. Thus, increases in widowhood or separation are not contributing to the non-universality of marriage.

As an initial investigation into the evolution of age at marriage among the refugee population, Figure 3 shows the Kaplan-Meier failure estimates by (aggregated) birth cohorts for women aged 15-49 at the time of survey. Cohorts are shown for birth years 1967-1976, 1977-1992, and birth years 1993-2002.[21] In PAPFAM 2009, the proportion of women married at each age had decreased slightly for early ages over time and substantially at older ages. For the 1967-1976 birth cohort, the median age at marriage was 21 and in the following cohort, with birth years 1977-1992, 23 was the median age of marriage.

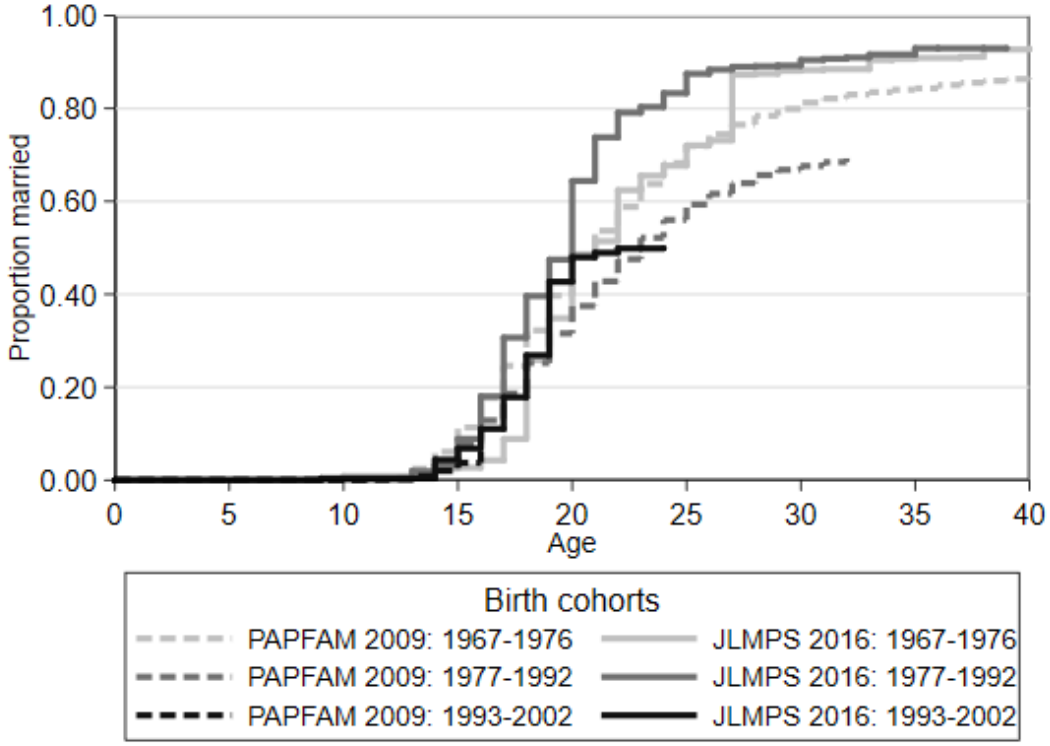
Patterns of the timing of marriage in JLMPS 2016 could be reflective of either select movements into Jordan or consequences of the conflict and displacement. Individuals in the 1967-1976 birth cohort, whose age at marriage was unlikely to be affected by the conflict, had the same 25th percentile, median, and 75th percentile of age at marriage across the two data sources (ages 18, 21, and 27). Among this oldest cohort, 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 surveys. 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 between the same cohorts.

Among the youngest cohort (born 1993-2002) in JLMPS 2016, whose marriage timing would be most likely disrupted by conflict and displacement, the 25th percentile was age 18, very similar to older cohorts.[22] 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 the Syrians in Jordan over time, but that the Syrian refugee population in Jordan is a selected group, who had earlier ages at marriage among women prior to the Syrian conflict as compared to the national population.

[21] Women with birth years 1967-1976 were aged approximately 33-42 at the time of PAPFAM 2009 and were aged 40-49 at the time of JLMPS 2016. Women with the birth years 1977-1992 were aged 17-32 at the time of PAPFAM 2009 and aged 24-39 at the time of JLMPS 2016. Women born in 1993-2002 were aged 15-16 in the PAPFAM (since the sample starts at age 15) and were aged 15-23 at the time of JLMPS 2016.

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

Figure 3. Proportion married by age and cohort, aged 15-49 at time of survey



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

Differences in marriage patterns between PAPFAM 2009 and JLMPS 2016 could be due to selective movements into Jordan among Syrian women, or to increased (or decreased) pressure over when to marry and whom to marry as consequences of the ongoing war and/or displacement. To investigate these possibilities, and the role of calculation methods in obtaining different rates of early marriage, Table 3 shows two panels; the panel A looks at *all* women aged 15-39[23] and accounts for censoring, and panel B examines only *ever-married* women aged 15-39 (and thus does not account for censoring).

In columns 1 and 2 in Table 3, we compare women with birth years 1977-1992 (i.e. the women in PAPFAM 2009 who were 19-34 years old and the women in JLMPS 2016 who were 24-39 years old). It is among this cohort (all of whom would have turned 18 prior to the Syrian conflict) where, in Figure 3, 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 of Table 3 that a higher percentage of Syrian women in the 1977-1992 cohort in JLMPS 2016 were married before the age of 18 (31%) compared to the national

[23] We analyze women ages 15-39 in order to focus on comparisons between the 1977-1992 birth cohort and the 1993-2002 cohort.

population in Syria in 2009 (19%), further demonstrating the selectiveness of the refugee population on age at marriage. Turning to the younger cohort, Column 3 of Table 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, than in the preceding cohort, with 18% married before age 18 (compared to 31% previously). This suggests, descriptively, that early marriage has been falling during the conflict period among those Syrians who fled to Jordan.

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

In panel B of Table 3, we analyze the data akin to how other statistics 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 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 emphasizes the importance of calculating statistics that *do* account for censoring (including those not yet married, as in panel A) to understand the evolution of early marriages, 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 the panel A indicated a decrease in the chance of marrying early among the population, even though more of the marriages that do happen are to women under age 18 as shown in the panel B.

Even though it is more accurate to measure early marriage rates among a population with methods that account for censoring, it is interesting to know whether early marriage rates among the ever-married differ by exposure to displacement and/or conflict (Table 4). Such an analysis is akin to the Population Census statistics that calculated the percentage of newly formed marriages in a year in which the bride was under 18 (Higher Population Council 2017). Due to the JLMPS sample size, we cannot examine individual years with much precision, but we can look at timing around displacement and conflict. Among ever-married women in JLMPS 2016, 12% were married during (i.e. the year of) or after the year of arrival in Jordan (8% of marriages occurred after the year of arrival in Jordan). Although year of arrival varied among women in the sample, in the majority of cases this indicates women who married since 2013. Among the women who got married during or after displacement to Jordan, 30% were women who were married under the age of 18. Using this method of calculating marriages under age 18 among those who married thus produces much higher rates of early marriage, and more similar rates to those found in the Population Census statistics (Higher Population Council 2017).

Table 3. Percentage of all marriages that were after displacement or conflict, or during and after displacement and the percentage of these marriages that were early (i.e. before the age of 18), ever-married women aged 15+ in Jordan in 2016

Displacement	N	Percentage of all marriages	Percentage of these marriages that are early
Married after year of displacement	70	8	29
Married during (year of) or after displacement	101	12	30
Total N	622		

Note: This table breaks down marriages in ways that are not mutually exclusive. The percentages are weighted. Year of displacement is synonymous to the year of arrival in Jordan in this analysis.
Source: Authors' calculations based on JLMPS 2016

The experiences of the qualitative sample were consistent with the JLMPS in indicating that early marriage among women was a common practice among much of the current Syrian refugee population in Jordan from the time prior to the conflict. Table 5 shows the characteristics of the qualitative sample, including marital status. Only four of the men were married, three of whom were in the 24-29 age group and one in the 19-23 age group, and all had married after age 18. Among the women respondents, in contrast, 19 had ever been married (five of those in the 24-29 age group were widowed by the time of the interview). About half of those in the 19-23 age group were married and six of the 17 in the 15-18 year old age group. None of the married respondents, men or women, were attending school at the time of the interview.

Table 4. 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
Source: Qualitative study data

Of note is that, in our qualitative data, all of the marriages that occurred among female respondents, while still in Syria, were at or prior to the age of 18 years. 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. Among the women who married before age 18 in Syria prior to the conflict, this was seen as a typical age at marriage, driven by customs and traditions.

"*I married willingly, but I was a child. They told me you would get married, I did not know who the person was nor what to expect. I made the choice to marry but I was not mature at the time to think right… I was 13 going on 14*." 28-year-old widowed woman married at 13 in Syria.

"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 16 in Syria.

Some respondents in the younger age groups, most of whom had not yet married themselves, also mentioned customarily early ages at marriage in their communities. Notably, many of the respondents also mentioned that for young men, typical ages at marriage in their communities were in the early 20s and some male respondents themselves expressed the desire to get married around age 20.

"*In our community in Syria, if a girl does not get married by the age of 19, people would call her a spinster and no one would want to marry her. I was 18 and my father was disapproving of how I turned down many suitors, so I had to marry … it was not normal to delay marriage in our customs."* 20-year-old young woman married at 18 in Jordan.

"*Men should be married by the age of 25, after which they would be too old for marriage… and girls by 18 maximum*." 15-year-old single young man, out of school, and working.

"*I will marry at 18 or 19 because these are the ages at marriage in Syria.*" 15-year-old single young man, out of school, searching for work.

However, although some respondents saw early marriage as a widespread or accepted practice, their views on the customary age at marriage in their communities are not generalizable to the Syrian population as a whole, or to the refugee population as a whole. Within our sample there was diversity in views on early marriage; other male and female respondents, as discussed further below, said that they preferred to delay marriage until their late 20s. One respondent specifically mentioned that early marriage is not practiced in all areas of Syria, and is different between regions in Syria, whereas others criticized early marriage and described it as a practice driven by ignorance.

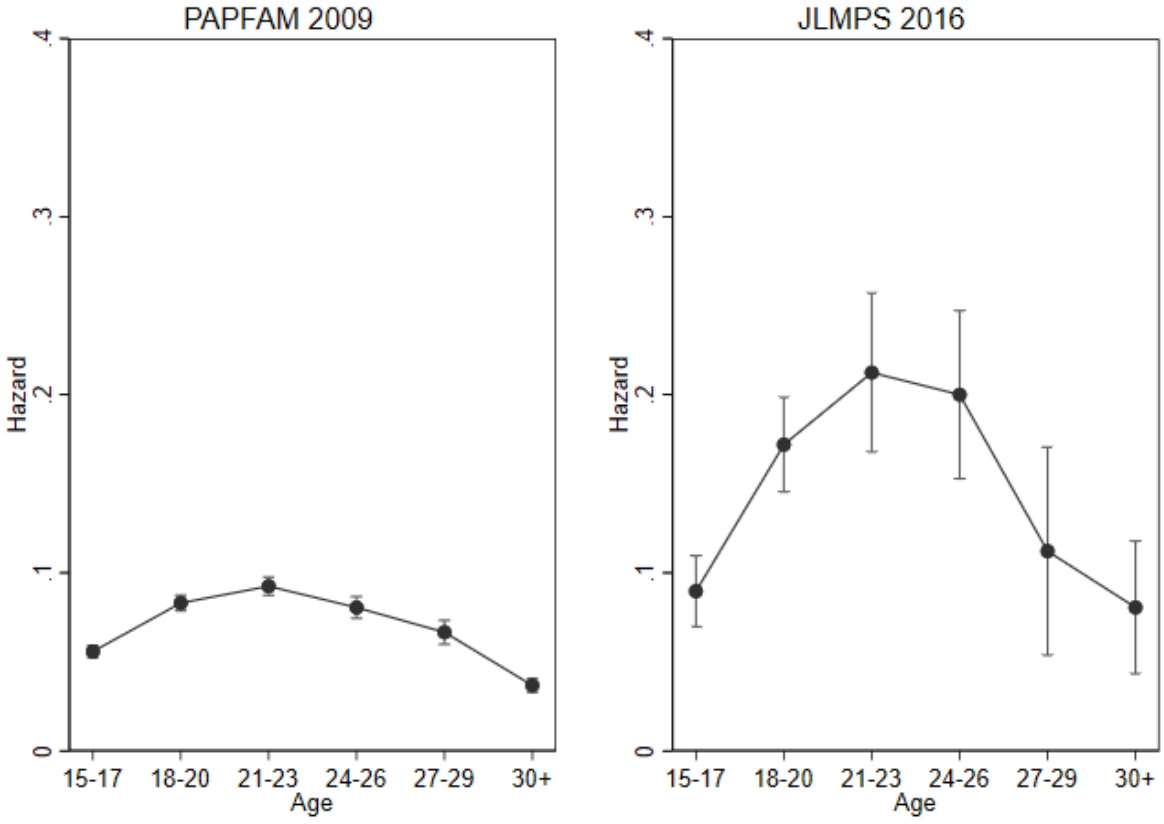
"*Residents of Daraa used to marry girls at 16 or 17 and boys at 22 or 23 years; and in Jordan they [residents of Daraa] are marrying girls as early as 11 and boys at 17! The groom is a child, and the bride wearing a shawl and a dress, she better be given a doll to play with. They break my heart."* 22-year-old single young woman, out of school, not working.

"*In Syria, the custom of early marriage is still present, girls as young as 14 or 16 are married, and this is [due to] ignorance.*" 22-year-old single young woman, out of school, not working.

4.3. Marriage timing in relation to conflict and displacement

All the results presented so far have been descriptive in nature and did not account for sampling variability. 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 at the time of marriage. This allows us to further explore potential change in early marriage due to conflict and displacement, which we also address through the qualitative data. In Figure 4 we show the baseline hazards of marriage at each age for women aged 15-49 at the time of the survey from the multivariate model (as well as 95% confidence intervals). The hazard peaks for the 21-23 age group in both PAPFAM 2009 and JLMPS 2016. While these hazards have similar shapes in both samples, the hazard is nearly twice as high for the JLMPS 2016 sample. The higher hazard means that—as we observed descriptively—marriage among the JLMPS sample occurs earlier and is more universal. The confidence intervals in JLMPS 2016 are also larger due to the statistical noise induced by the smaller sample size.

Figure 4. Baseline hazards of marriage at each age, women aged 15-49 at time of survey



Notes: Bars indicate 95% confidence intervals.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

The differences between the JLMPS 2016 and PAPFAM 2009 hazards could be due either to selection of particular Syrians into Jordan or due to the effects of conflict and displacement. To disentangle these effects, we estimate models that control for both baseline hazards (which will capture different probabilities for the reference group, which is pre-conflict) and calendar time effects. In a model with no other covariates (only a baseline hazard), we estimate the hazard ratios for each year by sample (Figure 5, Table 6).[24] When we omit the year 2000 for the single year models, we see that the hazard ratios of marriage decrease over time for women in PAPFAM from 0.939 in 2001 (insignificant) to 0.536 in 2008 (significant after 2005). This means that the hazard of marriage was falling over time in Syria pre-conflict.

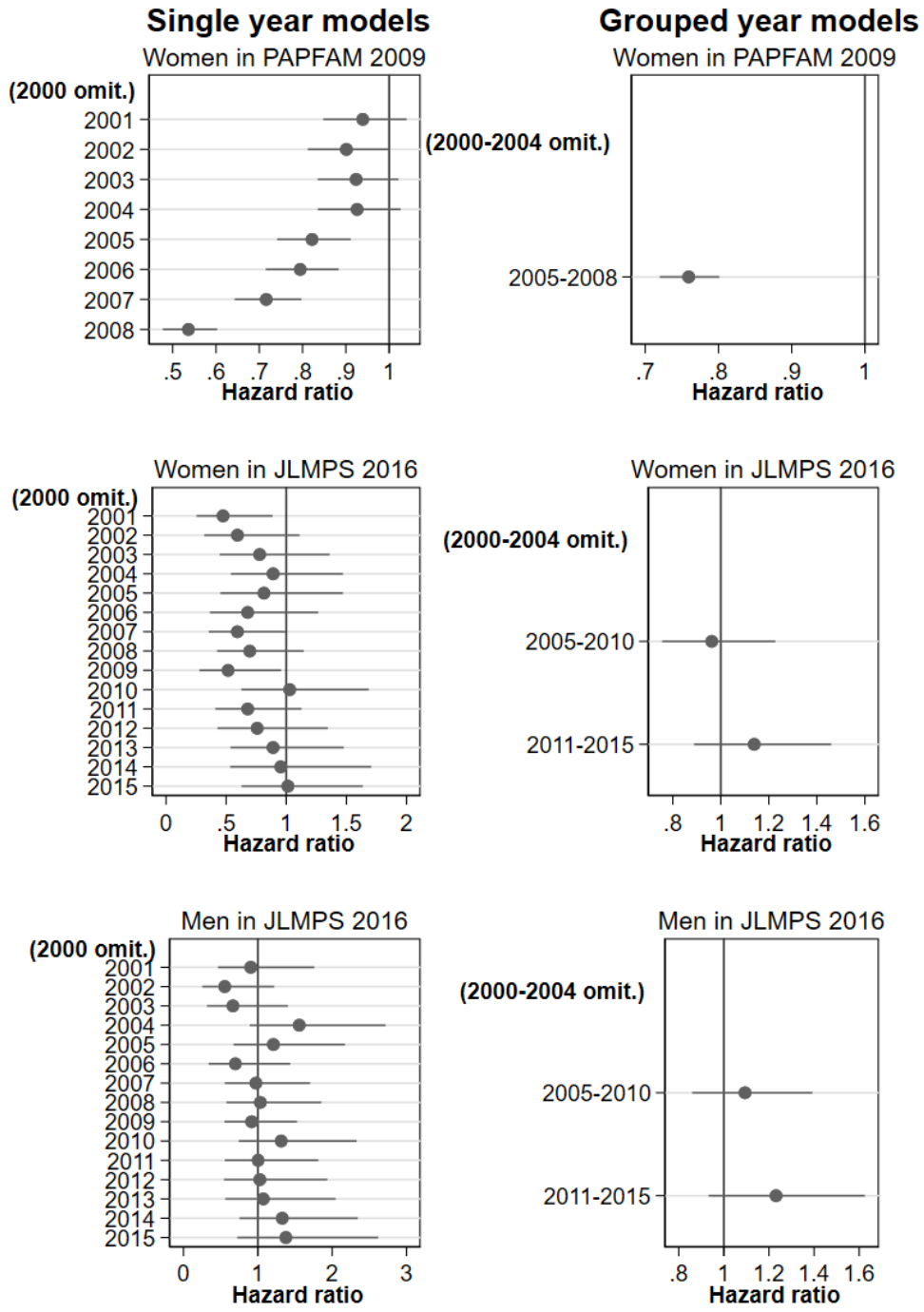
For women in the JLMPS 2016, the hazard ratio fluctuates between 0.474 (2001) and 1.028 (2010) between 2001 and 2015. Among women, some of the same decline in the hazard of marriage from 2005-2008 seen in the PAPFAM 2009 is reflected in the JLMPS 2016, but it is only consistently statistically significant in PAPFAM. This difference is consistent with the descriptive results that suggest that marriage outcomes in the refugee population were diverging somewhat from the national trends in the immediate pre-conflict period.

Similarly, Figure 5 shows our grouped year model with no covariates. We tested and aggregated the results into three periods based on similar hazards: 2000-2004 (reference), 2005-2011 (PAPFAM only includes 2005-2008), and 2011-2015 (not available for PAPFAM). The hazard ratio in JLMPS 2016 was 0.962 for 2005-2010, but insignificant, although higher than the significant 0.759 hazard ratio in PAPFAM 2009 over the 2005-2008 time period. This result again shows that while the hazard of marriage was declining nationally in Syria pre-conflict, it was relatively constant in pre-conflict Syria for the Syrians in Jordan per the JLMPS 2016. However, in 2011-2015 the hazard ratios for women in the JLMPS are higher, 1.139, although still not significantly different from 2000-2004. The higher hazards mean that women would be marrying earlier and more universally, although the differences are not significant.

For comparison, we also show the hazard ratios for marriage among Syrian men from the JLMPS. The hazard ratios for Syrian men in JLMPS 2016 fluctuate above and below 1 but never reach significance. Note that Syrian men in JLMPS 2016 have much larger confidence intervals than Syrian women in JLMPS 2016, in part due to their smaller numbers and later ages at marriage.

[24] PAPFAM 2009 is a partial year of data (fielded mid-2009), we drop 2009 and only have data from 2002-2008. JLMPS 2016 was fielded from 2016 into the beginning of 2017 so we drop 2016 and 2017 as partial years.

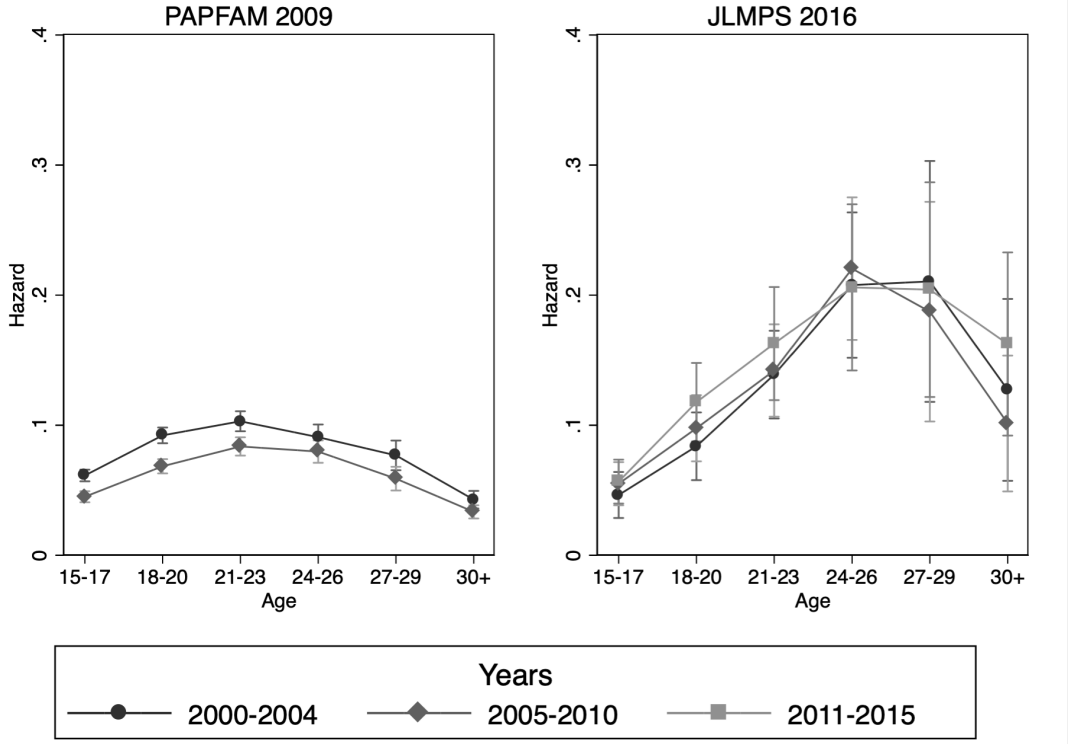
Figure 5. Hazard ratios for single and grouped year models, aged 15-49 at time of survey



Notes: Bars indicate 95% confidence intervals. See appendix Table 6 for the coefficients for single year models and the grouped year models.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

Figure 6 (and Table 7) shows a model of predicted hazard ratios with complete interactions between age groups and the year categories. This allows us to see if there were different time trends in marriage at different ages, for example, higher hazards of early marriage. The model controls for education.[25] The model has been transformed from hazard ratios into predicted hazards in Figure 6. In PAPFAM 2009, there had been a clear shift to reduced hazards, leading to later ages at marriage, from 2000-2004 to 2005-2008. Results 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 higher hazard in 2011-2015 at ages 21-23, a similar hazard to 2000-2004 at ages 24-26, and slightly higher hazards in 2011-2015 at older ages in 2011-2015 compared to earlier periods. However, none of the JLMPS 2016 predicted hazards are actually significantly different over time.

Figure 6. Hazards of marriage, differences over time, women aged 15-49 at time of survey

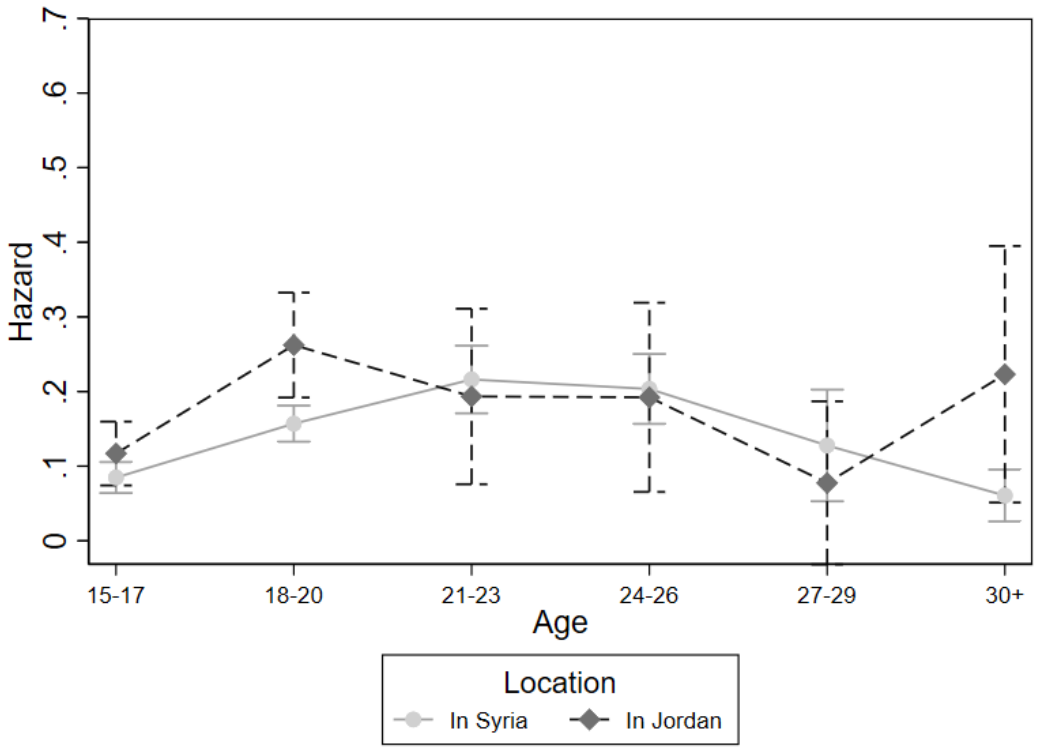


Notes: Bars indicate 95% confidence intervals. See appendix Table 6Table 7, specification 1, for the PAPFAM and JLMPS coefficients. Model controls for education.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

[25] Unlike JLMPS 2016, PAPFAM 2009 data does not include many time-invariant controls. When we additionally control for mother and father's education, and number of older and younger siblings by sex in JLMPS (not shown) the hazards and the confidence intervals are similar. Therefore, for comparability, we only control for education in Figure 6.

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 7). 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, 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.

Figure 6. 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 6Table 7, specification 2, for the coefficients.
Source: Authors' calculations based on PAPFAM 2009 and JLMPS 2016

4.4. Drivers and experiences of early marriage in a displacement context

Although the quantitative results do not indicate a structural change in early marriage patterns among the Syrian refugee population in Jordan, the qualitative results did suggest additional drivers for early marriage in a displacement context. Among female respondents who had married early after arrival to Jordan, the drivers for marrying at young ages stemmed in part from traditions emanating from Syria. However, difficult economic conditions exacerbated by displacement and lack of security were more prominent causes for early marriage in Jordan. The respondents' discussions of their decisions to marry indicated that parents and in some cases young women

themselves sought financial and physical protection from hardship, referred to as *sutra*,[26] 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.

"*I decided to marry before I turned 18 because it is my right to have sutra, a man would be responsible to protect me and provide a livelihood.*" 16-year-old young woman married at 15 in Jordan.

Respondents' discussions of the process of their marriage indicated that the majority of the marriages that occurred in Jordan were arranged; although the interviews did not probe as many details about marriages that occurred in Syria, this seemed to be the case for those married prior to the conflict as well. From the interviews, the way marriages occurred was typically that whenever a young man was ready to get married, he or his parents would pay a visit to the girl's house and inquire about marriage. In the cases in the qualitative sample, the potential groom's family saw the girl at a common occasion such as a wedding, the families were neighbors, or the future couples' parents were related by kinship or an old friendship, but in none of the cases did the respondent know her eventual husband prior to this introduction. It was the parents' decision for girls to get married whenever a suitor visited the family, although the girls' consent was sought. In some cases, respondents noted that their parents did not pressure them into marrying, but they also did not oppose the idea of their daughter marrying at this point in time.

Young women recounting the process of their marriage arrangements illustrate some of the ways in which insecurity in a displacement context created additional drivers for early marriage. One 19-year-old young woman was married after she arrived to Jordan, at the age of 17. As she explained, the groom's parents had spotted her at a wedding and inquired about her parents and their address. Shortly after, they visited her parents' house and proposed.

"We were at a wedding when his family saw me. They took information about me from other people attending the wedding. They came asking for an engagement, although they said it was going to be a casual visit." 19-year-old young woman married at 17 in Jordan.

This young woman expressly did not want to get married and favored continuing school instead since she had passed the ninth grade and was moving on to the 10th. However, she knew her parents were facing financial hardships, and her mother influenced her decision, saying that marriage was for *sutra* and to make sure that her daughters were safe.

[26] *Sutra* is a notion that has its origins in Islam and has widespread among people of the Middle East. In general terms, *sutra* means acquiring security in life and protection from adversity (UNICEF 2014).

"We got engaged… 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 on the proposal." 19-year-old young woman married at 17 in Jordan.

This young woman said that if she had been in Syria, her parents would not have married her at that age; rather she would have continued her education.

Another young woman was aged 16 at the time of the interview and married at age 14 in Jordan. Although she noted that some relatives told her parents that she was too young to wed, her mother responded that the groom would be a good husband for her daughter as both families were relatives from the same hometown in Syria. Furthermore, her father was in favor of the marriage because he said it would protect his daughter in the unfamiliar setting of Jordan.

"*Some relatives said to my mother I was too young to wed, but she told them that we would not find a better husband and family. They are our relatives, my mother-in-law's family knows my mother and father, and we know them as well. My parents asked if I wanted him or not, I did because I thought it would be better than school."* 16-year-old young woman married at 14 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.

Although her parents were encouraging the marriage, she said, as with the previous respondent, that she would not have married at this age in Syria. The respondent also noted that she did not oppose the marriage when her parents asked her, as she thought it would be a better option than school, as she did not like school.

In another case, one 18-year-old young woman was married at 16 after arriving in Jordan. She explained how her father's relative visited her parents for coffee and unexpectedly proposed. This respondent was still in secondary school at the time and was hesitant to marry because she would have to leave her schooling. She said that her parents did not oblige her to marry, but she overheard their conversations about how the potential groom was from an excellent family, and that he had other positive attributes. Eventually, she decided that a girl's fate is to be with a husband.

"*I was very hesitant in the beginning because I must leave school if I chose to marry, and at the same time I heard that he was a good catch, from an excellent family. I got confused. Then I thought, eventually a girl belongs to her husband's house. My father did not oblige me and left me the choice; he was alright with me not agreeing to marry him as there were other men available. My mom did not interfere at all."* 18-year-old young woman married at 16 in Jordan.

Although she said that no one pressured her to get married at the time, as with the other respondents this young woman situated her decision within the context of being outside her home country.

"*Many things have changed from Syria to Jordan, if the girl wanted to pursue her education and get a job later, it was normal in Syria. Unlike here, she stays idle at home for one, two, or three years maybe. Marriage became better because even if you took a doctorate here [in Jordan] you would not be able to work. So better to get married. It was not the case in Syria; we were not coerced to get married.*" 18-year-old young woman married at 16 in Jordan.

In the interview, this young woman expressed her regret at having married and said that if she could make the decision again, she would have continued school instead. She mentioned the difficulty of having household responsibilities, quarrels with her husband, and having a child to take care of, in addition to having curtailed her education.

"*I was deprived from education and will never be able to fulfill my dreams. I will not allow my daughters to marry early. I regret leaving school to marry. I blamed my mom for agreeing and not stopping me from marriage*.", 18-year-old young woman married at 16 in Jordan.

Many of the other young women who married before 18 in Jordan similarly expressed some sort of regret for having to make this choice and said they would have preferred to postpone marriage to their 20s. In particular, marrying early meant that girls that were at school needed to drop out and give up on their other ambitions.

"*My husband encouraged me to keep going to school. [But] the students knew I was married so they told the administration, who then asked me to leave. I was very sad. They were concerned I would negatively affect other students' manners*." 20-year-old young woman married at 16 in Jordan.[27]

"*I desired to continue my education and become a physician, but not anymore. I am married now; I must take care of my husband and my household*." 16-year-old young woman married at 15 in Jordan.

Girls who regretted early marriage also mentioned the responsibilities of marriage, including bearing the responsibilities of housework, taking care of the children, their husband and sometimes their in-laws. A couple of girls were also not physiologically ready to bear children.

"*I suffered a lot in the beginning; I consulted many doctors all of whom did not allow me to have a relationship with my husband. They said my internal organs were not in full shape. Even when I got pregnant I bled throughout the whole pregnancy*." 20-year-old young woman married at 18 in Jordan.

However, a few of the respondents who had gotten married early were content with their marriage, which they expressed in terms of having a good relationship with their husbands.

[27] Jordanian law does not prevent married or pregnant girls from enrolling at school, but there are widely held opinions that it is inappropriate for a married girl to attend mainstream school, and marriage and household duties often impede school attendance (UNICEF 2014).

4.5. Other marriage outcomes and patterns

Differences in other marriage outcomes between Syria and Jordan among the refugee population, such as marriage costs, spouse characteristics, or living arrangements might show whether conflict and/or displacement have had other impacts on marriage practices beyond marriage age. Table 5 examines marriage outcomes for marriages that took place in 2006-2010 (pre-conflict) and 2011-2016 (during conflict and after displacement) across PAPFAM 2009 and JLMPS 2016. Marriage outcomes include consanguineous marriages (spouses being related in any way prior to marriage), whether the newly married couple lived in a nuclear household (the couple only) upon marriage, as opposed to living with the husband's family or another joint family arrangement, and the husband-wife age gap. We also examine costs of marriage including brideprice (*mahr*), jewelry, furniture, housing, marriage celebrations, and total costs.

There were fairly similar outcomes over 2006-2010 for the two marriage outcomes - consanguineous marriages and spousal age gap – available in both the PAPFAM 2009 and JLMPS 2016. The percentage of marriages that were consanguineous was 37% in PAPFAM 2009 and 42% in JLMPS 2016 for marriages formed in 2006-2010. Age gaps favored older husbands (an average of six years older in PAPFAM 2009, four years older in JLMPS 2016 over 2006-2010). In contrast, there were some clear shifts in marriage characteristics in the JLMPS 2016 comparing marriages pre-conflict and post-conflict. While 42% of marriages in 2006-2010 were consanguineous, this dropped to 23% in 2011-2016. This may be due to the disruption and displacement of kin networks. The husband-wife age gap rose from 4 years on average (2006-2010) to 6 years (2011-2016), although the six years is similar to the age gap at the national level in Syria pre-conflict in PAPFAM 2009.

Table 5. 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

The percentage of newly married couples that lived in nuclear households was 64% for marriages formed in Syria in 2006-2010, according to JLMPS 2016, and fell to 56% in 2011-2016; this may be a function of families' ability to afford independent housing in Jordan post-conflict. In fact, although total costs of marriage dropped between 2006-2010 and 2011-2016,[28] the reported cost of housing increased slightly, likely due to higher housing costs in Jordan. The qualitative respondents expressed different opinions on housing customs and costs after their arrival to Jordan. On the one hand, most of the young women who had married in Jordan were residing with their in-laws after marriage. The respondents mentioned that this was common in Syria also, where newly married couples would reside with the groom's parents or build a story above the groom's parents' house. Either way, the expectation in Syria was that houses would be owned, and renting was not an option.

"*We resided in his parents' house; it is very customary for us."* 17-year-old young woman married at 15 in Syria.

"*I wouldn't object to living with my in-laws. In Syria, we would share a two story house or we would live in proximate houses, not completely separate."* 19-year-old young woman married at 17 in Jordan.

"In our customs, when I first got married we had a separate room in my in-laws house. He [my husband] sold the other house he had and bought lands and built a two room house for us." 29-year-old widowed woman, married at 16 in Syria.

On the other hand, young men in the qualitative sample – nearly all of whom were still single – discussed housing as one of the costs that made marriage difficult in their situation in Jordan. Young men noted that marriage expenses become more cumbersome if the young man is also responsible for his natal family's household expenses and many young men were working to support their parents and siblings. With such expenses to meet, and given the difficult financial situation of their families in Jordan and limited employment opportunities, many said they could not afford marriage related costs such as brideprice and an additional household to support.

[28] Marriage costs are presented in nominal Jordanian dinar. Past research suggests individuals partially update for inflation when asking retrospective costs (Assaad, Krafft, and Yassin 2018). Additionally, individuals would have had to convert from Syrian pounds to Jordanian dinars. Thus, results over time should be viewed with some caution in interpretation.

"*Currently, supporting my parents is my priority. Nowadays, girls have so many demands that I cannot fulfill. It would be an additional burden to 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, out of school, working.

"*The hardest thing in marriage is money, I already have expenses, and work opportunities are few, I can barely make ends meet*. *I am postponing marriage for 4 to 5 years*." 24-year-old young man, out of school, searching for a job.

"Housing is problematic; the young man needs to rent a house for the bride. And if at the same time, he is taking in charge his parents' housing expenses, that's two households to spend on." 16-year-old young woman, at school.

"*I was living in my own house in Jordan, but I couldn't afford it, so I moved in with my parents*." 29-year-old man, married in Jordan at 27, out of school, working.

A number of the unmarried male respondents mentioned these financial challenges in relation to their inability to marry; all of male qualitative respondents mention a desired age at marriage before 30, and some of those in the two older age groups (19-23 and 24-29) said they were postponing marriage due to lack of resources.

Thus, although the data from the JLMPS 2016 indicate that marriage costs have declined for the Syrian refugee population, and particularly costs related to brideprice, jewelry, furniture, and marriage celebrations, these figures must also be taken within the context of the precarious livelihoods refugee youth faced. Among the qualitative respondents, opinions were correspondingly mixed about how customs around marriage costs had changed among Syrians since their arrival to Jordan. Many young men, as noted, above, complained of their inability to meet high marriage costs and sometimes of what they saw as unrealistic financial demands by young women's families given their situation.

"A father might ask for a very high mahr, 2,000 JD worth of gold, and other things. He would ask for a separate house for his daughter also. I am blue-collar worker and get paid 250 JD a month. How would I afford his daughter's housing expenses? I pay my parents' housing expenses too. We Syrians are not taking into consideration each others' situation, we are refugees here for a couple more years maybe. I have my circumstances, I am the only one carrying the burden of our household expenses, I pay the electricity bills, water bills, and everything needs money. I cannot spend on an additional household." 23-year-old single young man, out of school, working.

Other respondents, however, said that marriage costs had gone down and noted that refugee families made concessions for the difficult economic situations of potential grooms.

"*We Syrians are cooperative when it comes to marriage. I did not pay an unusual amount. My marriage expenses here were less than it would have been in Syria, it was much curtailed because we did not have the means*." 29-year-old man, married in Jordan at 27, out of school, working .

"*We [girl's family] did not ask for much. Even the mahr was small, clothing was just the necessary, in total around 300. Whenever I wanted to buy something, I used to take from my own resources. We knew that their financial situation was average, even ours, we are not poor yet not well off."* 19-year-old young woman married at 17 in Jordan.

"*Marriage expenses in Jordan are less, mahr is a bit less. In Syria, they ask for more. Here they sympathize with the groom's situation. Not everything would be made available to the bride in Jordan, while in Syria, she would have a fully furnished house. Here she might live with the in-laws and have a room and the mahr is very low*." 28-year-old widowed woman married at 13 in Syria.

Although there was considerable disagreement among the qualitative respondents about trends in brideprice payments, the fact that the JLMPS 2016 shows declines in the brideprice and jewelry costs may also affect or reflect 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

A number of studies have reported high and apparently rising rates of early marriage among Syrian refugees in Jordan (Higher Population Council 2017; Save the Children 2014; Spencer 2015; UN Women 2013; UNICEF 2014), as well as in other contexts such as Lebanon (Cherri et al. 2017; Mourtada, Schlecht, and Dejong 2017; Abdulrahim et al. 2017). However, these studies suffered from challenges with data composition (either unrepresentative data or lack of accounting for the selectiveness of the refugee population) as well as the use of different measures of early marriage that are not comparable. The results of our study suggest that these methodological shortcomings have resulted, in the case of Jordan, in an overestimation of the degree to which early marriage practices have changed among the population of Syrians who are now refugees in the country.

Previous studies of early marriage among Syrians in Jordan often compared statistics such as the percentage of women married early in Syria pre-conflict to the percentages of registered marriages in Jordan in a year that were early (Save the Children 2014; Spencer 2015; UNICEF 2014). However, these methods do not create comparable statistics. The statistic we are fundamentally interested in is the probability that a woman will marry early, which uses as its numerator early marriages and as its denominator all women. Alternative measures of early marriage are potentially biased by important limitations. Studies relying on registered marriages may be biased by (changing) patterns in which marriages are registered. Measures dividing early marriages by all marriages in a year may be biased by changing patterns in age at marriage, as well as the share of women who are of various ages, a particular concern given that the Syrian refugee population is very young. Further, studies that calculate early marriage with a denominator of ever-married

women are inherently biased because women who marry early are over-represented among ever-married women. All of these biases can, additionally, vary over time, obscuring any time trends on top of inaccurate levels.

To the best of our knowledge, ours is the first paper to directly assess *change* in early marriage and age at marriage for the same population of Syrian refugees – those who were displaced to Jordan. Furthermore, our paper is the first to calculate the probability of early marriage using survival analysis and accounting for censoring (and thus all women). Our results suggest that young ages at marriage have been common among the Syrian refugee population in Jordan since prior to their displacement. The Syrian refugee population in Jordan is a selected group, which had earlier ages at marriage among women prior to the Syrian conflict as compared to the national population. Early marriage has, descriptively, declined slightly across cohorts. The multivariate models suggest only small and insignificant differences in the hazard of early marriage over time. Likewise, differences in early marriage rates were insignificant comparing when refugees were still in Syria to after their arrival in Jordan. 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 sample. We also demonstrated how other approaches to calculating early marriage, such as among ever married women or among recent marriages, using our same sample, provide different (and biased) statistics that are more in line with those estimated by previous studies.

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 populations in Jordan and Lebanon (UNICEF 2017). Consistent with studies in both Jordan (Spencer 2015; 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 in Jordan since prior to the conflict, poverty and security concerns have created additional drivers for early marriage in a context of displacement. Our findings also highlight the need to better understand these drivers within the context of broader changes in marriage practices among the Syrian refugee population. While conflict and displacement may create incentives to marry and marry early, they may also create barriers to marriage. For young refugee men, among whom marriage has been addressed very little in the literature, the burden of supporting their natal families and struggle to achieve the economic pre-requisites for marriage in a context of displacement created a sense that marriage was more difficult to achieve, although they continued to have quite young desired ages at marriage.

One potential outcome of these countervailing forces for earlier and delayed marriage is diminished standards of living at marriage, and thus lower marriage costs. 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 said that marriage expenditures and expectations had declined (DeJong et al. 2017) There is also evidence from our data in Jordan of more extended family residence at marriage and fewer consanguineous marriages. 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.

How these incentives and barriers to (early) marriage continue to evolve as Syrians' displacement continues will be an important area for future research, along with more detailed work to understand the countervailing dynamics of the potential desire of women's families to marry early versus the ability of men to accumulate needed economic resources for marriage. In the long term, there is a need for longitudinal research to understand how changes in marriage customs, as well as marriage ages, may continue to evolve and impact women and their families. As displacement continues, will marriage ages shift, or will marriage customs change? As this paper illustrated, having sufficient longitudinal or retrospective data from a representative population will be a critical prerequisite to such research. Additionally, research on what interventions are most effective to prevent early marriage and to ameliorate the negative consequences of early marriage for those women who were already married early, particularly in a context of conflict and displacement, is crucial.

References

Abbasi-Shavazi, Mohammad Jalal, Hossein Mahmoudian, and Rasoul Sadeghi. 2018. "Family Dynamics in the Context of Forced Migration." In *Demography of Refugee and Forced Migration*, edited by Graeme Hugo, Mohammad Jalal Abbasi-Shavazi, and Ellen Percy Kraly. International Studies in Population. Springer International Publishing. //www.springer.com/gp/book/9783319671451.

Abdulrahim, S., J. DeJong, R. Mourtada, and H. Zurayk. 2017. "Estimates of Early Marriage among Syrian Refugees in Lebanon in 2016 Compared to Syria Pre-2011." *European Journal of Public Health* 27 (suppl_3). https://doi.org/10.1093/eurpub/ckx189.049.

Ali, Fatma Romeh M., and Shiferaw Gurmu. 2018. "The Impact of Female Education on Fertility: A Natural Experiment from Egypt." *Review of Economics of the Household* 16 (3): 681–712. https://doi.org/10.1007/s11150-016-9357-6.

Assaad, Ragui, Caroline Krafft, and Shaimaa Yassin. 2018. "Comparing Retrospective and Panel Data Collection Methods to Assess Labor Market Dynamics." *IZA Journal of Development and Migration* 8 (17): 1–34.

Bartels, Susan Andrea, Saja Michael, Sophie Roupetz, Stephanie Garbern, Lama Kilzar, Harveen Bergquist, Nour Bakhache, Colleen Davison, and Annie Bunting. 2018. "Making Sense of Child, Early and Forced Marriage among Syrian Refugee Girls: A Mixed Methods Study in Lebanon." *BMJ Global Health* 3 (e000509): 1–12. https://doi.org/10.1136/bmjgh-2017-000509.

Central Bureau of Statistics, Pan-Arab Project for Family Health/League of Arab States, UNICEF, and United Nations Children's Fund. 2008. "Syrian Arab Republic Multiple Indicator Cluster Survey 2006."

Cetorelli, Valeria. 2014. "The Effect on Fertility of the 2003–2011 War in Iraq." *Population and Development Review* 40 (4): 581–604.

Cherri, Zeinab, Julita Cuesta, Jose M. Rodriguez-Llanes, and Debarati Guha-Sapir. 2017. "Early Marriage and Barriers to Contraception among Syrian Refugee Women in Lebanon: A Qualitative Study." *International Journal of Environmental Research and Public Health* 14 (8): 16.

Cultural Orientation Resource Center. 2014. "Refugees from Syria."

DeJong, Jocelyn, Farah Sbeity, Jennifer Schlecht, Manale Harfouche, Rouham Yamout, Fouad M. Fouad, Seema Manohar, and Courtland Robinson. 2017. "Young Lives Disrupted: Gender and Well-Being among Adolescent Syrian Refugees in Lebanon." *Conflict and Health* 11 (Suppl 1): 26–34. https://doi.org/10.1186/s13031-017-0128-7.

Higher Population Council. 2017. "Policy Brief: Child Marriage in Jordan." Amman: Higher Population Council.

Kabakian-Khasholian, Tamar, Rima Mourtada, Hyam Bashour, Faysal El Kak, and Huda Zurayk. 2017. "Perspectives of Displaced Syrian Women and Service Providers on Fertility Behaviour and Available Services in West Bekaa, Lebanon." *Reproductive Health Matters* 25 (sup1): S75–86. https://doi.org/10.1080/09688080.2017.1378532.

Kabbani, Nader S., and Noura Kamel. 2007. “Youth Exclusion in Syria: Social, Economic, and Institutional Dimensions.” 4. *Middle East Youth Initiative Working Paper*. https://doi.org/10.2139/ssrn.1088037.

Kalamar, Amanda M., Susan Lee-Rife, and Michelle J. Hindin. 2016. “Interventions to Prevent Child Marriage Among Young People in Low- and Middle-Income Countries: A Systematic Review of the Published and Gray Literature.” *Journal of Adolescent Health* 59 (3): S16–21. https://doi.org/10.1016/j.jadohealth.2016.06.015.

Krafft, Caroline, and Ragui Assaad. 2017. “Employment’s Role in Enabling and Constraining Marriage in the Middle East and North Africa.” 1080. *Economic Research Forum Working Paper Series*. Cairo, Egypt.

———. 2018. “Introducing the Jordan Labor Market Panel Survey 2016.” 1186. *Economic Research Forum Working Paper Series*. Cairo, Egypt.

Krafft, Caroline, Maia Sieverding, Colette Salemi, and Caitlyn Keo. 2018. “Syrian Refugees in Jordan: Demographics, Livelihoods, Education, and Health.” 1184. *Economic Research Forum Working Paper Series*. Cairo, Egypt.

League of Arab States, and Syrian Arab Republic. 2002. “The Family Health Survey in the Syrian Arab Republic 2002.”

———. 2011. “The Family Health Survey in the Syrian Arab Republic - 2009 (Arabic).” Cairo, Egypt.

Lee-Rife, Susan, Anju Malhotra, Ann Warner, and Allison McGonagle Glinski. 2012. “What Works to Prevent Child Marriage: A Review of the Evidence.” *Studies in Family Planning* 43 (4): 287–303.

Marcus, Rachel, and Ella Page. 2014. “Economic Strengthening Activities in Child Protection Interventions: An Adapted Systematic Review.” London, UK: ODI.

Mourtada, Rima, Jennifer Schlecht, and Jocelyn Dejong. 2017. “A Qualitative Study Exploring Child Marriage Practices among Syrian Conflict-Affected Populations in Lebanon.” *Conflict and Health* 11 (Suppl 1): 53–65. https://doi.org/10.1186/s13031-017-0131-z.

Parsons, Jennifer, Jeffrey Edmeades, Aslihan Kes, Suzanne Petroni, Maggie Sexton, and Quentin Wodon. 2015. “Economic Impacts of Child Marriage: A Review of the Literature.” *The Review of Faith & International Affairs* 13 (3): 12–22. https://doi.org/10.1080/15570274.2015.1075757.

Save the Children. 2014. “Too Young to Wed: The Growing Problem of Child Marriage Among Syrian Girls in Jordan.”

Sieverding, Maia, Nasma Berri, and Sawsan Abdulrahim. 2018. “Marriage and Fertility Patterns among Jordanians and Syrian Refugees in Jordan.” 1187. *Economic Research Forum Working Paper Series*. Cairo, Egypt.

Singerman, Diane. 2007. “The Economic Imperatives of Marriage: Emerging Practices and Identities Among Youth in the Middle East.” 6. *Middle East Youth Initiative Working Paper*.

Solon, Gary, Steven J Haider, Jeffrey Wooldridge, David Autor, Raj Chetty, John Dinardo, Todd Elder, et al. 2013. "What Are We Weighting For?" 18859. *NBER Working Paper Series*.

Spencer, Danielle. 2015. "'To Protect Her Honour': Child Marriage in Emergencies – the Fatal Confusion between Protecting Girls and Sexual Violence." 1. *CARE Gender and Protection in Humanitarian Contexts: Critical Issues Series*.

Stave, Svein Erik, and Solveig Hillesund. 2015. "Impact of Syrian Refugees on the Jordanian Labour Market." International Labour Organization.

UN Women. 2013. "Inter-Agency Assessment: Gender-Based Violence and Child Protection Among Syrian Refugees in Jordan, With a Focus on Early Marriage." Amman, Jordan: UN Women.

UN-ESCWA. 2015. "Child Marriage in Humanitarian Settings in the Arab Region: Dynamics, Challenges and Policy Options." New York, NY.

UNHCR. 2017. "Syrian Refugees in Jordan by Origin (Sub - District Level) as of End of December 2016."

———. 2018a. "Situation Syria Regional Refugee Response." 2018. http://data2.unhcr.org/en/situations/syria/location/36.

———. 2018b. "Syrian Refugees in Jordan by Origin (Governorate Level) by End of September 2018."

UNICEF. 2005. "Early Marriage: A Harmful Traditional Practice: A Statistical Exploration." New York, NY: UNICEF.

———. 2014. "A Study On Early Marriage in Jordan 2014." Amman: UNICEF.

———. 2017. "Child Marriage in the Middle East and North Africa."

United Nations. 2001. "We the Children: End-Decade Review of the Follow-up to the World Summit for Children." New York, NY: UNICEF.

Williams, Nathalie E., Dirgha J. Ghimire, William G. Axinn, Elyse A. Jennings, and Meeta S. Pradhan. 2012. "A Micro-Level Event-Centered Approach to Investigating Armed Conflict and Population Responses." *Demography* 49 (4): 1521–46. https://doi.org/10.1007/s13524-012-0134-8.

Yount, Kathryn M., Alice Ann Crandall, and Yuk Fai Cheong. 2018. "Women's Age at First Marriage and Long-Term Economic Empowerment in Egypt." *World Development* 102: 124–34. https://doi.org/10.1016/j.worlddev.2017.09.013.

Appendix: Tables

Table 6. Discrete time hazard model (hazard ratios) for single and grouped year models, aged 15-49 at time of survey

	Single year models			Grouped year models		
	(1)	(2)	(3)	(4)	(5)	(6)
	Women in PAFAM 2009	Women in JLMPS 2016	Men in JLMPS 2016	Women in PAFAM 2009	Women in JLMPS 2016	Men in JLMPS 2016
Ages 15-17 omit.						
18-20	1.509***	2.012***	2.943**	1.510***	2.015***	2.989**
	(0.053)	(0.279)	(1.154)	(0.053)	(0.279)	(1.170)
21-23	1.706***	2.519***	10.849***	1.706***	2.540***	10.793***
	(0.068)	(0.399)	(4.100)	(0.068)	(0.390)	(4.065)
24-26	1.484***	2.357***	21.948***	1.479***	2.334***	22.064***
	(0.074)	(0.390)	(7.118)	(0.074)	(0.386)	(7.153)
27-29	1.225**	1.194	24.573***	1.219**	1.242	24.477***
	(0.076)	(0.363)	(8.935)	(0.076)	(0.374)	(8.782)
30+	0.671***	0.893	18.422***	0.668***	0.887	18.528***
	(0.042)	(0.260)	(7.158)	(0.041)	(0.255)	(7.088)
Year (2000 omit.)						
2001	0.939	0.474*	0.906			
	(0.049)	(0.151)	(0.307)			
2002	0.901	0.594	0.555			
	(0.048)	(0.190)	(0.223)			
2003	0.924	0.778	0.666			
	(0.047)	(0.222)	(0.254)			
2004	0.926	0.891	1.557			
	(0.049)	(0.228)	(0.443)			
2005	0.822***	0.814	1.210			
	(0.043)	(0.245)	(0.361)			
2006	0.795***	0.679	0.698			
	(0.043)	(0.216)	(0.257)			
2007	0.716***	0.594*	0.975			
	(0.039)	(0.155)	(0.278)			
2008	0.536***	0.696	1.035			
	(0.032)	(0.176)	(0.308)			
2009		0.516*	0.918			
		(0.163)	(0.239)			
2010		1.028	1.314			
		(0.259)	(0.383)			
2011		0.679	1.004			
		(0.175)	(0.303)			

	Single year models			Grouped year models		
	(1)	(2)	(3)	(4)	(5)	(6)
	Women in PAFAM 2009	Women in JLMPS 2016	Men in JLMPS 2016	Women in PAFAM 2009	Women in JLMPS 2016	Men in JLMPS 2016
2012		0.758	1.027			
		(0.222)	(0.332)			
2013		0.890	1.073			
		(0.230)	(0.354)			
2014		0.954	1.329			
		(0.283)	(0.385)			
2015		1.013	1.377			
		(0.248)	(0.452)			
Years (2000-2004 omit.)						
2005-2010				0.759***	0.962	1.094
				(0.021)	(0.119)	(0.135)
2011-2015					1.139	1.231
					(0.144)	(0.174)
N obs.	93835	2656	3229	93835	2656	3229

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

Table 7. Discrete time hazard model of marriage, women aged 15-49 at time of survey

	Spec. 1		Spec. 2
	Women in PAFAM 2009	**Women in JLMPS 2016**	**Women in JLMPS 2016**
Ages 15-17 omit.			
18-20	1.529***	1.803*	1.965***
	(0.072)	(0.475)	(0.312)
21-23	1.703***	3.078***	2.832***
	(0.092)	(0.657)	(0.504)
24-26	1.483***	4.604***	2.643***
	(0.100)	(1.208)	(0.467)
27-29	1.244*	4.454***	1.611
	(0.111)	(1.322)	(0.571)
30+	0.673***	3.086**	0.706
	(0.060)	(1.115)	(0.251)
Ed. (illit omit.)			
Basic	0.904**	1.115	0.970
	(0.035)	(0.151)	(0.170)
Secondary+	0.517***	0.598***	0.566***
	(0.018)	(0.067)	(0.091)
Years (2000-2004 omit.)			
2005-2010	0.686***	1.164	
	(0.039)	(0.278)	
2011-2015		1.104	
		(0.280)	
Age and years int.			
18-20 # 2005-2010		1.041	
		(0.381)	
21-23 # 2005-2010		0.921	
		(0.261)	
24-26 # 2005-2010		0.984	
		(0.356)	
27-29 # 2005-2010		0.813	
		(0.342)	
30+ # 2005-2010		0.610	
		(0.266)	
18-20 # 2011-2015		1.246	
		(0.412)	
21-23 # 2011-2015		1.140	
		(0.309)	
24-26 # 2011-2015		1.014	

	Spec. 1		Spec. 2
	Women in PAFAM 2009	Women in JLMPS 2016	Women in JLMPS 2016
		(0.368)	
27-29 # 2011-2015		1.056	
		(0.427)	
30+ # 2011-2015		0.999	
		(0.421)	
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)
Have younger sisters			1.254*
			(0.142)
Have younger brother			0.993
			(0.123)

	Spec. 1		Spec. 2
	Women in PAFAM 2009	**Women in JLMPS 2016**	**Women in JLMPS 2016**
N obs.	83977	5849	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