The Effects of Civil War and Forced Migration on Intimate Partner Violence among Syrian Refugee Women in Jordan

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Motivation

- Intimate Partner Violence (IPV) is a major public health problem and a violation of women's human rights.
- Nearly 27% of women aged 15-49 report experiencing physical or sexual violence by an intimate partner (WHO, 2018).
- Higher prevalence in developing countries, particularly in the Middle East.
- Physical and emotional trauma linked to poor physical, mental, sexual, reproductive health.
- Decreased employment stability, higher job turnover, lower wages, increased work distraction, and absenteeism.
- Significant economic costs, including healthcare, social services, and legal expenses, impacting future human capital.

Research Question

How does the experience of civil war and forced displacement affect the prevalence of physical IPV among Syrian refugee women in Jordan?
What factors contribute to the observed patterns?

Related Literature

1. Positive relationship between conflict & IPV:
   Clark et al. 2010; Falb et al. 2013; Gupta et al. 2012; Kelly et al. 2018; Saile et al. 2013.
   Several studies exploit regional variation in conflict intensity to estimate the causal effect of conflict on IPV. (Ekhator et al., 2022; Gutierrez & Gallegos, 2016; Noe & Rieckman, 2013; La-Mattina, 2015; Ostby, 2016)
2. IPV prevalence is high among forcibly displaced communities.
   (Horn, 2010; Poteyeva & Wasileski, 2016; Rothkegel et al., 2008; Szczepanikova, 2005; Sharma et al., 2020; Wirtz et al., 2014)
   Few studies using quantitative data. (Columbia: Keating et al., 2021; Calderon et al., 2011)

- Previous works:
  - relied on qualitative research/small-sample case studies due to data limitations
  - only show associations
  - lacked information on the timing of IPV
  - the lack of focus on potential mechanisms that contribute to the change in IPV
- Our study:
  - uses nationally representative data
  - empirical analysis incorporating information on the timing of violence
  - in the context of the world's largest refugee crisis
  - uncovers the underlying mechanisms driving the observed changes in IPV rates

Background Information on Syrian Refugees in Jordan

- Syrian civil war started in 2011.
- Over 5.4 million Syrians living as refugees in neighboring countries.
- 656,722 registered Syrian refugees in Jordan (UNHCR, 2018)
- Almost 9 % of the native population (second highest share in the world)
- Most arrived in 2012 and 2013.
- One-fifth live in camps; the rest in host communities.
- Very young population, 48% under the age of 17.
- Balanced gender distribution.
- Over 85% live below the poverty line.

Data

- 2017-18 Jordan Population and Family Health Survey implemented by the Jordan Department of Statistics from early October 2017 to January 2018.
- Representative of Syrian women in Jordan.
- Domestic Violence Module includes many questions on women's safety to obtain data on women's experience of emotional, physical, and sexual violence.
- Module administered in complete privacy: Less than 1% of women not interviewed due to privacy concerns.
- 681 Syrian ever-married women in ages 15-49 who started living in Jordan as of 2011.
- Two complementary data sets: the 2009 Syria Family Health Survey and the 2006 Syria Multiple Indicators Survey.

Data in Duration Format

An illustration of the data structure

- Key variable: Timing of the first physical IPV event in years after marriage
  ▸ List of Events ▸ Histogram: Years Until the First Event
- We construct retrospective event histories for ever-being exposed to IPV.
- The event history starts at the age when the women got married and ends at the age of first physical IPV event.

Woman ID	Survey Age	Marriage Age	Age of First Exposure	Arrival Year
111111	32	25	30	2013

Woman ID	Survey Age	Marriage Age	Age of First Exposure	Arrival Year	Age	Waiting Time	Year	Exposed	Post-war Syria	In Jordan
111111	32	25	30	2013	25	0	2010	0	0	0
111111	32	25	30	2013	26	1	2011	0	1	0
111111	32	25	30	2013	27	2	2012	0	1	0
111111	32	25	30	2013	28	3	2013	0	0	1
111111	32	25	30	2013	29	4	2014	0	0	1
111111	32	25	30	2013	30	5	2015	1	0	1

When the data are put into the person-age format, there are 7,607 observations for 681 women.

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111111	32	25	30	2013	28	3	2013	0	0	1
111111	32	25	30	2013	29	4	2014	0	0	1
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Estimation

We estimate the following discrete time hazard model with a piece-wise constant baseline specification (Jenkins, 2005).

$$logit(h_i(t)) = b(t) + X_i\beta + v_i \qquad (1)$$

t: years since marriage

$h_i(t)$: the discrete-time hazard function

$b(t)$: baseline hazard function

X_i: set of control variables

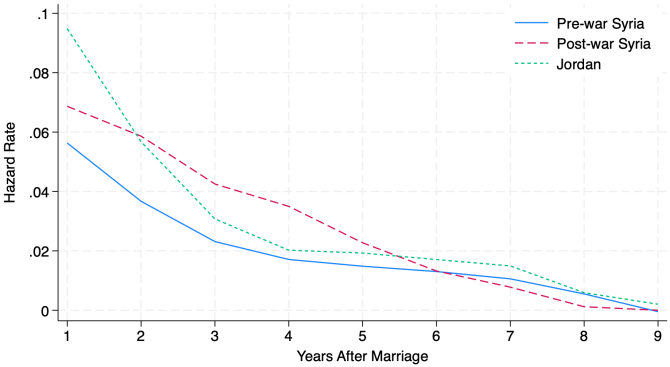
v_i: time-invariant unobserved heterogeneity

$$logit(h_i(t)) = \tau_0 + \sum_{j=1}^{k} \tau_j D_j + \beta_1 (postwarSyria)_{it} + \beta_2 (inJordan)_{it} + Z_{it}\Gamma + v_i + e_{it} \qquad (2)$$

- Key variables of interests:
  β_1: the difference between exposure probabilities in post-war Syria & pre-war Syria
  β_2: the difference between exposure probabilities in Jordan & pre-war Syria

Descriptive Statistics

Hazard Rates of IPV Exposure for Three Periods



Main Results

The Effect on IPV Hazard Rates

	(1)	(2)	(3)	(4)	(5)	(6)
In Jordan	0.378*	0.905**	0.405*	0.670*	0.393*	0.683**
	(0.223)	(0,368)	(0.221)	(0,344)	(0.221)	(0.320)
Postwar Syria	0.465*	0.882**	0.458	0.698*	0.444	0.707*
	(0.282)	(0,409)	(0.281)	(0,375)	(0.282)	(0.361)
Marginal Effects - in Jordan	0.006	0.024**	0.007*	0.015	0.007	0.015*
	(0.004)	(0.010)	(0.004)	(0.009)	(0.004)	(0.008)
Marginal Effects - Postwar Syria	0.008	0.025*	0.008	0.017	0.008	0.017*
	(0.006)	(0.013)	(0.006)	(0.011)	(0.006)	(0.010)
Unobserved Heterogeneity	No	Yes	No	Yes	No	Yes
Baseline Hazard	Piecewise Constant	Piecewise Constant	Cubic Polynomial	Cubic Polynomial	Cubic Polynomial	Cubic Polynomial
Baseline Hazard varies by Marriage Age	No	No	No	No	Yes	Yes
Mean	0.015	0.015	0.015	0.015	0.015	0.015
Observations	7,607	7,607	7,607	7,607	7,607	7,607
Number of Women	681	681	681	681	681	681

Eliminating Potential Compositional Effects and Reducing Recall Bias

	(1)	(2)	(3)	(4)
	A) Compositional Selection	B) Recall Bias		
	Married before the civil war began	Age $\leq$ 30 at survey time	Married for less than 15 years at survey time	Married for less than 10 years at survey time
In Jordan	0.824	1.298**	1.338**	1.764**
	(0.512)	(0.653)	(0.557)	(0.834)
Postwar Syria	0.857*	0.949	1.336**	1.811**
	(0.464)	(0.670)	(0.535)	(0.769)
Marginal Effects				
In Jordan	0.021	0.032**	0.041**	0.056**
	(0.014)	(0.016)	(0.017)	(0.024)
Postwar Syria	0.023	0.027	0.046**	0.069**
	(0.014)	(0.021)	(0.019)	(0.030)
Unobserved Heterogeneity	Yes	Yes	Yes	Yes
Mean	0.013	0.023	0.024	0.032
Observations	6,748	2,031	3,257	1,828
Number of Women	462	323	452	336

Extensions of the Baseline Model

	(1)	(2)	(3)	(4)
	Extension 1		Extension 2	
In Jordan	0.831**	1.924***	0.974***	1.360***
	(0.341)	(0.658)	(0.336)	(0.496)
In Jordan # Years in Jordan	-	-	-0.225**	-0.258*
	-	-	(0.106)	(0.148)
In Jordan # Log(Years after Marriage)	-0.470*	-0.658*	-	-
	(0.262)	(0.381)	-	-
Postwar Syria	0.679	1.518**	0.474*	0.783**
	(0.418)	(0.762)	(0.282)	(0.395)
Postwar Syria # Log(Years after Marriage)	-0.247	-0.490	-	-
	(0.324)	(0.482)	-	-
Unobserved Heterogeneity	No	Yes	No	Yes
Mean	0.015	0.015	0.015	0.015
Observations	7,607	7,607	7,607	7,607
Number of Women	681	681	681	681

▸ Differences by Years After Marriage ▸ Differences by Years in Jordan ▸ Coefficients with and without Unobserved Heterogeneity

Understanding The Rise in IPV

Worsening Economic Conditions

- Previous studies suggests that economic distress can contribute IPV:
  - Male unemployment increases the likelihood of experiencing physical violence (Clerici & Tripodi, 2021; Schneider et al., 2016).
  - IPV falls in cash transfers (Bobonis et al.,2013; Heath et al.,2020; Hidrobo et al.,2016; Lees et al.,2021; Roy et al,2024).
- In Jordan, compared to the pre-war situation, there has been an increase in poverty among refugee families, evidenced by declining employment rates and family assets. Comparison of Wealth Distributions

	Pre-war Syria	Jordan
A) Employment Levels		
Married Men (aged 18-59)	0.93	0.71
Married Women (aged 18-49)	0.16	0.03
B) Asset Holdings		
House Ownership	0.93	0.08
Number of Rooms in the House	3.13	2.86
Has Car	0.17	0.08
Has Washing Machine	0.95	0.92
Has Airconditioner	0.16	0.07
Has Computer	0.22	0.13

Understanding The Rise in IPV

Worsening Economic Conditions

A) Husbands' Employment Outcomes by Educational Attainment

	Husbands with Low Educational Attainment			Husbands with High Educational Attainment		
Age	Pre-war Syria	Jordan	*Loss*	Pre-war Syria	Jordan	*Loss*
20-24	0.91	0.56	*38%*	0.87	0.79	*9%*
25-29	0.95	0.77	*19%*	0.94	0.85	*9%*
30-34	0.97	0.77	*20%*	0.97	0.85	*13%*
35-39	0.97	0.69	*29%*	0.97	0.84	*13%*
40-44	0.92	0.53	*42%*	0.96	0.67	*30%*
45-54	0.83	0.47	*44%*	0.86	0.60	*31%*

- Low educated husbands suffer a more significant loss of employment.

Understanding The Rise in IPV

Worsening Economic Conditions

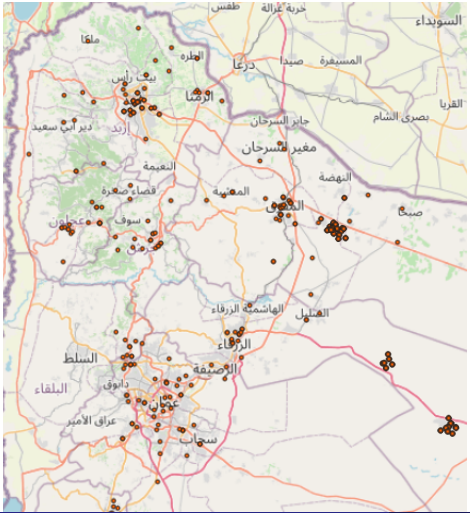
	(1)	(2)	(3)	(4)
	Husbands with Low Educational Attainment		Husbands with High Educational Attainment	
in Jordan	0.835**	1.648***	-0.010	0.559
	(0.340)	(0.596)	(0.295)	(0.553)
Post-war Syria	0.746*	1.326**	0.098	0.721
	(0.433)	(0.634)	(0.390)	(0.618)
Marginal Effects				
In Jordan	0.017**	0.042**	-0.001	0.017
	(0.008)	(0.016)	(0.004)	(0.017)
Postwar Syria	0.016	0.037*	0.001	0.023
	(0.011)	(0.020)	(0.006)	(0.020)
Unobserved Heterogeneity	No	Yes	No	Yes
Mean	0.018	0.018	0.015	0.015
Observations	2,799	2,799	4,808	4,808
Number of Women	253	253	428	428

IPV rises more among wives of low educated men (the group who experience greater job loss).

▸ Robustness Check with Women Married Before the War

Understanding The Rise in IPV

Effect of Social Networks: Geographical Data as a Proxy of Social Support



- Previous research has shown social support is crucial in protecting against IPV (Wright, 2015; Dias et al, 2019).
- A strong connection between the lack of social support and elevated IPV victimization rates (Muruthi et al., 2023).
- GPS locations of refugee clusters are available in 2017-18 JPFHS.
- We measure the density of nearby Syrian households around each surveyed woman to assess local social support availability.

Understanding The Rise in IPV

Effect of Social Networks

	(1)	(2)	(3)	(4)
in Jordan	0.684***	0.692***	1.172***	1.330***
	(0.248)	(0.262)	(0.451)	(0.444)
Post-war Syria	0.474*	0.477*	0.738*	0.914**
	(0.280)	(0.280)	(0.417)	(0.426)
in Jordan # 2km Radius Syrian Household Density	-1.167**		-1.875*	
	(0.525)		(1.131)	
in Jordan # 5km Radius Syrian Household Density		-3.781*		-4.529
		(2.202)		(3.762)
Unobserved Heterogeneity	No	No	Yes	Yes
Mean	0.016	0.016	0.016	0.016
Observations	7,607	7,607	7,607	7,607
Number of Women	681	681	681	681

- Syrian women in less dense refugee areas in Jordan are at a greater risk of IPV, highlighting the importance of social support networks.

Understanding The Rise in IPV

The Effect of Change in Marriage Patterns: Marriage Age

- We investigate the effect of the war & forced migration on marriage outcomes.
  ▸ Marriage Hazard Rates
- Compared to prewar Syria levels, the marriage hazard rate is 6.1 pp higher (62% increase from the mean level of 0.099) in postwar Syria and 8.3 pp higher in Jordan (84% increase) ▸ The Effect on Marriage
- Previous studies find a strong association between **child/early marriage** and increased IPV rates. (Ahinkorah et al.,2022; Coll et al.,2023; Hayes & Protas, 2022; Kidman, 2017)
- Using age-specific effects, we estimate the predicted hazard (and survival) rates at each age and calculate the mean age at marriage in three cases: ▸ The Effects by Age

The mean age at marriage decreases from 20.0 in prewar Syria to 18.4 in postwar Syria, and 17.7 in Jordan.

- The fall in the average marriage age might contribute to the elevated IPV rates, as suggested in the literature.

Understanding The Rise in IPV

The Effect of Change in Marriage Patterns: Cousin Marriages

1. Several studies suggest a lower likelihood of IPV in **cousin marriages**.
   (Campbell & Mace, 2022; Weimer, 2019; Hamamy & Alwan, 2016)

   The relatively higher increase in non-cousin marriages, associated with a relatively higher risk of violence, could potentially contribute to the rise observed in IPV hazard rates.
2. Another factor associated with an increased risk of IPV is **polygamy**.
   Brazil (Kiss et al., 2012), Kenya (Lawoko et al., 2007), Ethiopia (Sharma et al., 2020), and Nigeria (Onuh et al., 2018), Mali (Heath et al., 2020)
3. **The age and education gap between spouses** is associated with a higher risk of IPV (power imbalance, a lower bargaining power for the woman).
   India (Chaurasia et al., 2021), Columbia (Jones & Ferguson, 2009), Nigeria (Oyediran & Feyisetan, 2017), US (Cunradi et al., 2002), Malawi (Bonnes, 2016)

Understanding The Rise in IPV

The Effect of Change in Marriage Patterns: Polygamy & Age/Education Disparities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cousin Marriage	Non-cousin Marriage	Polygamous Marriage	Not Polygamous Marriage	Men 5 or more years older	Men fewer than 5 years older	Men with higher education	Men with equal or lower education
In Jordan	0.242**	1.003***	0.055	0.836***	0.525***	1.233***	0.479***	0.833***
	(0.107)	(0.066)	(0.319)	(0.060)	(0.076)	(0.176)	(0.116)	(0.065)
Postwar Syria	0.401***	0.655***	-0.540	0.629***	0.355***	0.865***	0.478***	0.562***
	(0.138)	(0.097)	(0.487)	(0.085)	(0.109)	(0.146)	(0.156)	(0.094)
Marginal Effects								
In Jordan	0.009**	0.076***	0.000	0.081***	0.031***	0.071***	0.012***	0.068***
	(0.004)	(0.006)	(0.002)	(0.007)	(0.006)	(0.013)	(0.003)	(0.006)
Postwar Syria	0.015**	0.047***	0.000	0.060***	0.021***	0.048***	0.013***	0.045***
	(0.006)	(0.008)	(0.002)	(0.010)	(0.007)	(0.010)	(0.005)	(0.009)
Mean	0.033	0.066	0.005	0.093	0.056	0.043	0.023	0.075
Observations	14,584	14.584	13,611	13,611	13,624	13,624	13,610	13,610
Number of Women	1,786	1.786	1.682	1.682	1,684	1,684	1,683	1,683

- The relatively higher increase in non-cousin marriages, (associated with a relatively higher risk of violence), could potentially contribute to the rise observed in IPV hazard rates.
- Noteworthy increase observed in non-polygamous marriages: Polygamy cannot be identified as a factor that explains the observed increase in IPV.
- No evidence of a greater power imbalance between spouses in marriages occurring in Jordan compared to those formed in pre-war Syria. ▸ Robustness Check - Change in Age Differences

Conclusion

- Civil war and refugee status increase the risk of IPV, with the most substantial impact observed in the initial years after marriage.
- The rise in IPV after the refugees' arrival in Jordan diminishes over time.
- The main explanation for the increased IPV is the worsening economic situation, as indicated by decreasing assets and employment rates among refugee households.
- We show the increase in IPV hazard rates is more pronounced for sub-populations for which the decline in household economic conditions are more acute:
  Husbands with lower education, experiencing more employment losses, are more likely to engage in IPV.
- Lower refugee density around a woman, indicating reduced social support from nearby Syrian community members, is linked to increased intimate partner violence.
- Both the civil war and forced migration increase the incidence of non-cousin marriages at the expense of cousin marriages—both of which are associated with a higher risk of IPV.
- We observe no changes in age and education gaps between spouses or in polygamous marriages, which could also contribute to the observed increase in IPV.

Motivation

Variables	Women Not Exposed to Physical IPV	Women Ever Exposed to Physical IPV	p-value of t-test
Experienced any control behavior	0.75	0.94	0.00
Husband jealous if woman talks with other men	0.73	0.87	0.00
Husband accuses woman of unfaithfulness	0.03	0.15	0.00
Husband does not permit woman to meet female friends	0.08	0.33	0.00
Husband tries to limit woman's contact with family	0.06	0.27	0.00
Husband insists on knowing where woman is	0.27	0.67	0.00
Experienced any emotional violence	0.08	0.69	0.00
Ever been humiliated by husband	0.05	0.49	0.00
Ever been threatened with harm by husband	0.00	0.17	0.00
Ever been insulted or made to feel bad by husband	0.05	0.59	0.00
Decision Making: Contributes to the Decision			
Woman can decide on her health care	0.87	0.81	0.18
Woman can decide on large household purchases	0.72	0.60	0.01
Woman can decide on what to do with money husband earns	0.68	0.56	0.03

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Data

The Question

"How long after you first got married with your (last) husband did (this/any of these physical violence actions) first happen? (Write in number of years)"

The list of physical domestic violence events covered in the data:

- Ever been pushed, shook or had something thrown by husband
- Ever been slapped by husband
- Ever been punched with fist or hit by something harmful by husband
- Ever been kicked or dragged by husband
- Ever been strangled or burnt by husband
- Ever been threatened with knife/gun or other weapon by husband
- Ever had arm twisted or hair pulled by husband

Although IPV often includes sexual, psychological (emotional) violence and control behaviors, we only focus on physical IPV in this study, because the survey question regarding the timing of the violence only accounts for the acts of physical violence.

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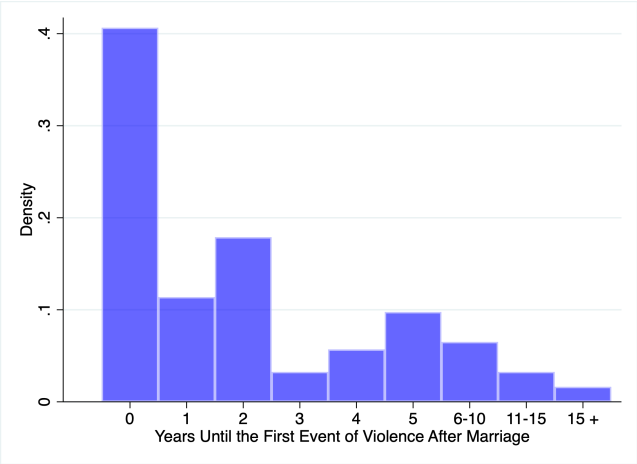
Descriptives

Distribution of Years Between Marriage and First Physical IPV Exposure



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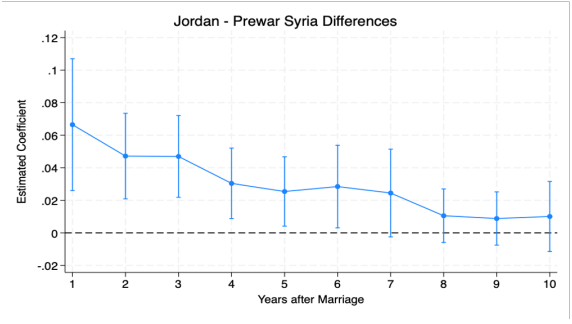
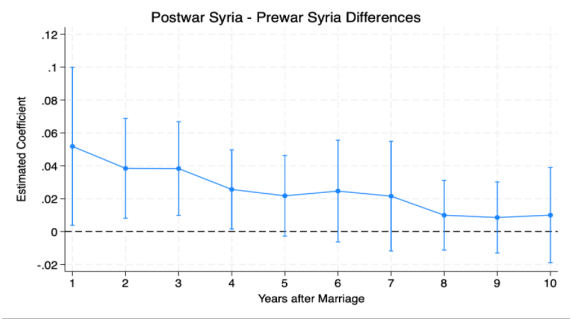
Extensions of the Baseline Model

Post-war Syria & Pre-war Syria Differences by Years After Marriage





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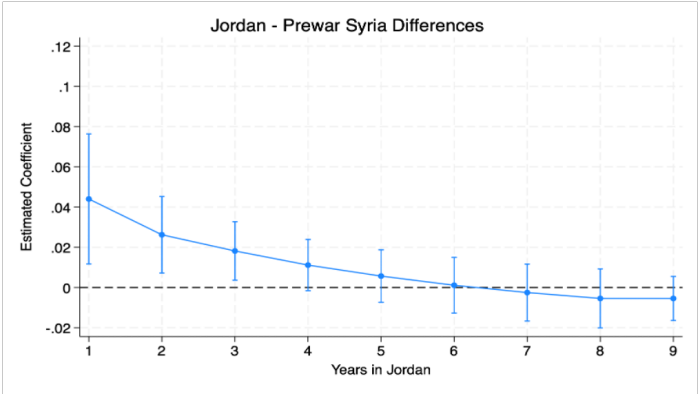
Extensions of the Baseline Model

Post-war Syria & Pre-war Syria Differences by Years in Jordan



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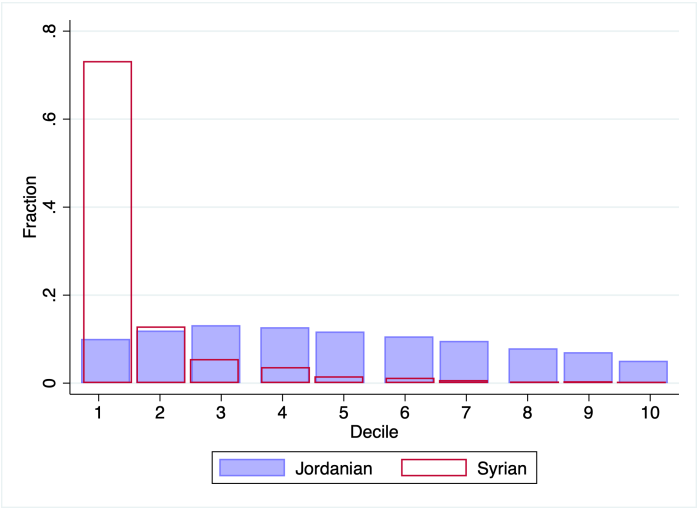
Wealth Distribution of Syrians and Jordanian Natives



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The Effect on IPV by Husband's Educational Attainment

Robustness Check with Women Married Before the War

	(1)	(2)	(3)	(4)
	Husbands with Low Educational Attainment		Husbands with High Educational Attainment	
in Jordan	1,116	1.539*	0.108	0.202
	(0.734)	(0.923)	(0.534)	(0.609)
Post-war Syria	1.343***	1.720**	0.193	0.276
	(0.501)	(0.771)	(0.518)	(0.606)
Marginal Effects				
In Jordan	0.021	0.037	0.001	0.005
	(0.020)	(0.026)	(0.007)	(0.015)
Postwar Syria	0.028*	0.046*	0.003	0.007
	(0.016)	(0.026)	(0.008)	(0.016)
Unobserved Heterogeneity	No	Yes	No	Yes
Mean	0.013	0.013	0.013	0.013
Observations	2,481	2,481	4,267	4,267
Number of Women	173	173	289	289

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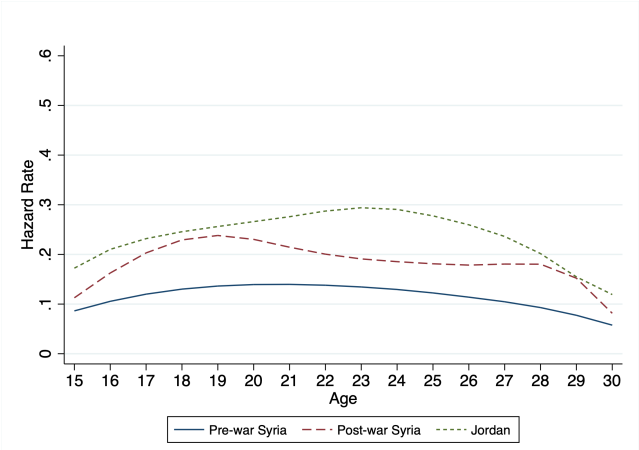
Understanding The Rise in IPV

Hazard Rates of Marriage by Age



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Understanding The Rise in IPV

Increase in Marriage Rates by Age

	(1)	(2)	(3)	(4)
	Sample 1		Sample 2	
In Jordan	0.818***	0.818***	0.984***	0.984***
	(0.076)	(0.057)	(0.087)	(0.086)
Postwar Syria	0.610***	0.610***	0.626***	0.626***
	(0.101)	(0.082)	(0.102)	(0.105)
Marginal Effects - in Jordan	0.083***	0.083***	0.107***	0.107***
	(0.009)	(0.007)	(0.013)	(0.012)
Marginal Effects - Postwar Syria	0.061***	0.061***	0.065***	0.065***
	(0.012)	(0.010)	(0.013)	(0.013)
Unobserved Heterogeneity	No	Yes	No	Yes
Mean	0.099	0.099	0.094	0.094
Observations	14,584	14,584	16,231	16,231
Number of Women	1,786	1,786	1.897	1.897

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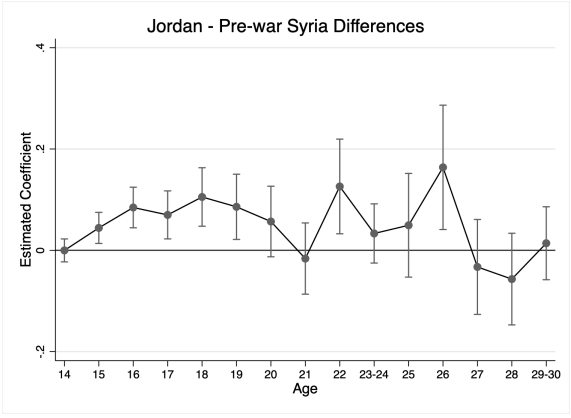

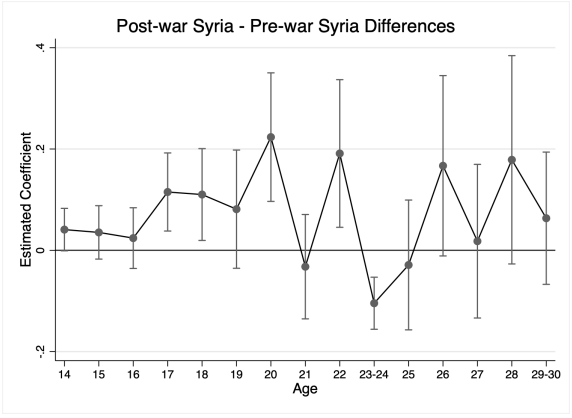

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Robustness Check - Change in Age Differences

	(1)	(2)	(3)	(4)
	Men 3 or More Years Older Than the Woman	Men Less Than 3 Years Older Than the Woman	Men 10 or More Years Older Than the Woman	Men Less Than 10 Years Older Than the Woman
In Jordan	0.695***	0.932***	0.478***	0.829***
	(0.065)	(0.111)	(0.134)	(0.063)
Postwar Syria	0.449***	0.827***	0.515***	0.558***
	(0.096)	(0.151)	(0.178)	(0.092)
Marginal Effects - in Jordan	0.055***	0.028***	0.009***	0.072***
	(0.006)	(0.004)	(0.003)	(0.006)
Marginal Effects - Postwar Syria	0.034***	0.025***	0.010***	0.047***
	(0.008)	(0.006)	(0.004)	(0.009)
Unobserved Heterogeneity	Yes	Yes	Yes	Yes
Mean	0.074	0.024	0.017	0.082
Observations	13,624	13,624	13,624	13,624
Number of Women	1.684	1.684	1.684	1.684

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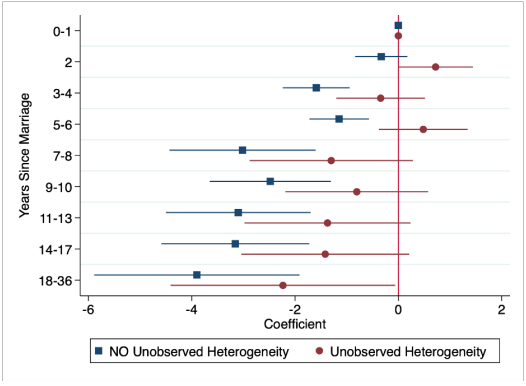
Estimated Coefficients of Years Since Marriage Intervals with and without Unobserved Heterogeneity



- Jenkins (2005) reports that the model without unobserved heterogeneity will overestimate the degree of negative duration dependence in the true baseline hazard.
- The baseline hazard function without unobserved heterogeneity demonstrates much higher negative duration dependence.

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