

Daughters and Divorce

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- In 2008, Dahl & Moretti published a study of U.S. census data, documenting a 'demand for sons' among American couples.
- Parents with first-born boys aged 0-12 were found:
 - Less likely to be divorced
 - More likely to legitimize their children by marriage
 - More likely to have a shotgun wedding
 - To have less children in total
- The probability of living in a divorced household was shown to be 0.5 p.p. (3.1%) higher for 0-12yr old first-born girls.

- D&M's study became very controversial (mainly outside of economics). Multiple studies attempted to explain the presented disparities, focusing particularly on the disproportion of divorce rates.
- D&M theorized about potential pathways, but did not have good controls to assess the relevance of the competing theories.
- Other studies using US survey data had rich set of controls, but lacked the sample size of census data. Also, survey responses may be subject to recall bias.

- We revisit this question, investigating the effect of children's gender on divorce risks of Dutch couples.
- We use an administrative dataset which alleviates problems with sample selection and statistical power.
- The structure and richness of the data allows us to explore the heterogeneity of the divorce effects.
- Our focus on the Netherlands provides us with results that are likely to be more relevant outside of the United States, particularly in the European context.

- Multiple studies linked marital stability to the gender of children in the household
(Morgan et al. 1988, Ananat and Michaels 2008; Bedard and Deschênes 2005; Dahl and Moretti 2008; Mammen 2008).
- The theories attempting to explain the result span economic, sociologic, psychologic, and even evolutionary arguments.
- Lundberg (2005) distinguishes between theories based on:
 - 1) **preferences of parents**
 - 2) **costs faced by the parents**

- We use administrative records of the Netherlands (population of NL ~16 million). The data track residents living in NL between 1995 and 2015.
- The data contain individual marriage and cohabitation histories, personal & spousal id's and a battery of background characteristics.
- We can link children to their legal parents, starting with children born in 1965. We observe their sex, birth years, and birth months.

	Sons	Daughters	Diff.	P-val.
Father's age at birth of the first-born	32.16	32.16	-0.00	0.724
Mother's age at birth of the first-born	29.54	29.54	0.00	0.987
<i>Immigration background</i>				
Father Native	76.93%	76.85%	0.08%	0.314
Father Immigrant	23.07%	23.15%	-0.08%	0.540
Mother Native	75.05%	75.01%	0.04%	0.586
Mother Immigrant	27.95%	24.99%	-0.04%	0.628
<i>Father's education</i>				
Lower than High School	2.22%	2.24%	-0.02%	0.584
High-school	24.64%	24.62%	0.02%	0.818
University	23.93%	23.89%	0.04%	0.598
Record missing	49.20%	49.25%	-0.05%	0.624
<i>Mother's education</i>				
Lower than High School	2.56%	2.58%	-0.02%	0.492
High-school	26.38%	26.44%	-0.06%	0.432
University	26.06%	25.97%	0.09%	0.260
Record missing	45.00%	45.01%	-0.01%	0.937

- We compare only FB children born past 1995, because we do not observe all pre-birth characteristics for children born in the prior years.

	Sons	Daughters	Diff.	P-val.
<i>Father's labor supply</i>				
Employed 1yr prior to birth	85.18%	85.15%	0.03%	0.684
Annual earnings 1yr prior to birth	29.78	29.79	-0.01	0.870
<i>Mother's labor supply</i>				
Employed 1yr prior to birth	84.20%	84.28%	-0.08%	0.352
Annual earnings 1yr prior to birth	21.57	21.59	-0.03	0.437
Child born out of wedlock	14.69%	14.66%	0.03%	0.633
Registered Partnership	3.68%	3.64%	0.04%	0.262
Number of siblings	1.07	1.06	0.01	0.000
Birth spacing between the first two children	2.80	2.79	0.00	0.134
Parents divorced	15.52%	15.67%	-0.14%	0.027
Number of observations	1.156.442			

- Families with first-born sons and daughters are not statistically different in any pre-birth characteristics.
- Consequent **fertility** and **divorce decisions** however prove to be dependent on child's gender.

- We estimate duration models of divorce with time-varying covariates, baseline specification controls for **duration, age & gender** of FB child, and **cohort FE**.

$$\begin{aligned}
 \Pr[DIV_{it} = 1 | \mathbf{x}_{it}] = & f \left(\alpha + \sum_{j=0}^{40} \beta_j \cdot \mathbf{1}(dur_{it} = j) + \right. \\
 & + \sum_{j=0}^{28} \gamma_j \cdot \mathbf{1}(ageFB_{it} = j) + \sum_{j=0}^{28} \delta_j \cdot \mathbf{1}(ageFB_{it} = j) \cdot \mathbf{1}(FB_i = daughter) \\
 & \left. + \sum_{y=1935}^{1984} \zeta_y^m \cdot \mathbf{1}(BY_{it}^m = y) + \sum_{y=1935}^{1984} \zeta_y^f \cdot \mathbf{1}(BY_{it}^f = y) \right)
 \end{aligned}$$

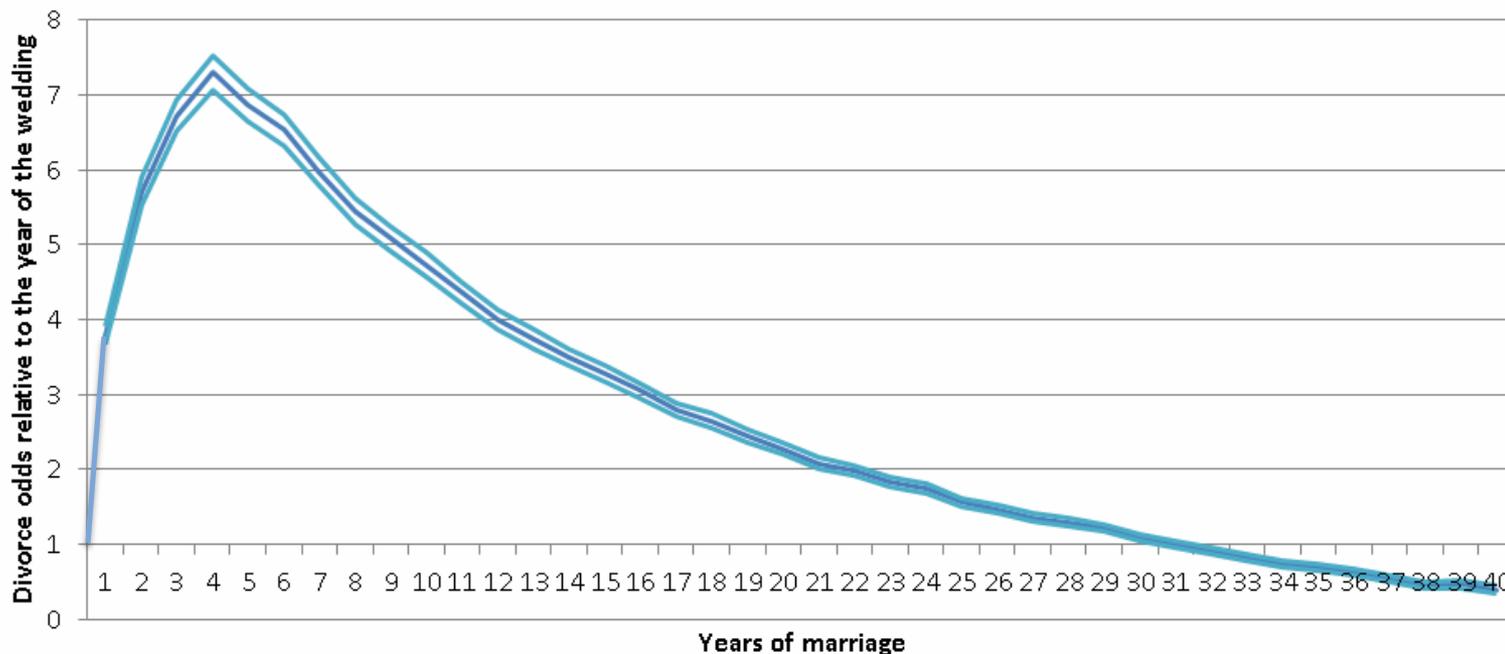
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 \end{aligned}$$

- Dummies render the specification close to non-parametric K-M estimates, with the additional flexibility of controlling for fixed characteristics, as well as coinciding time-variant processes.

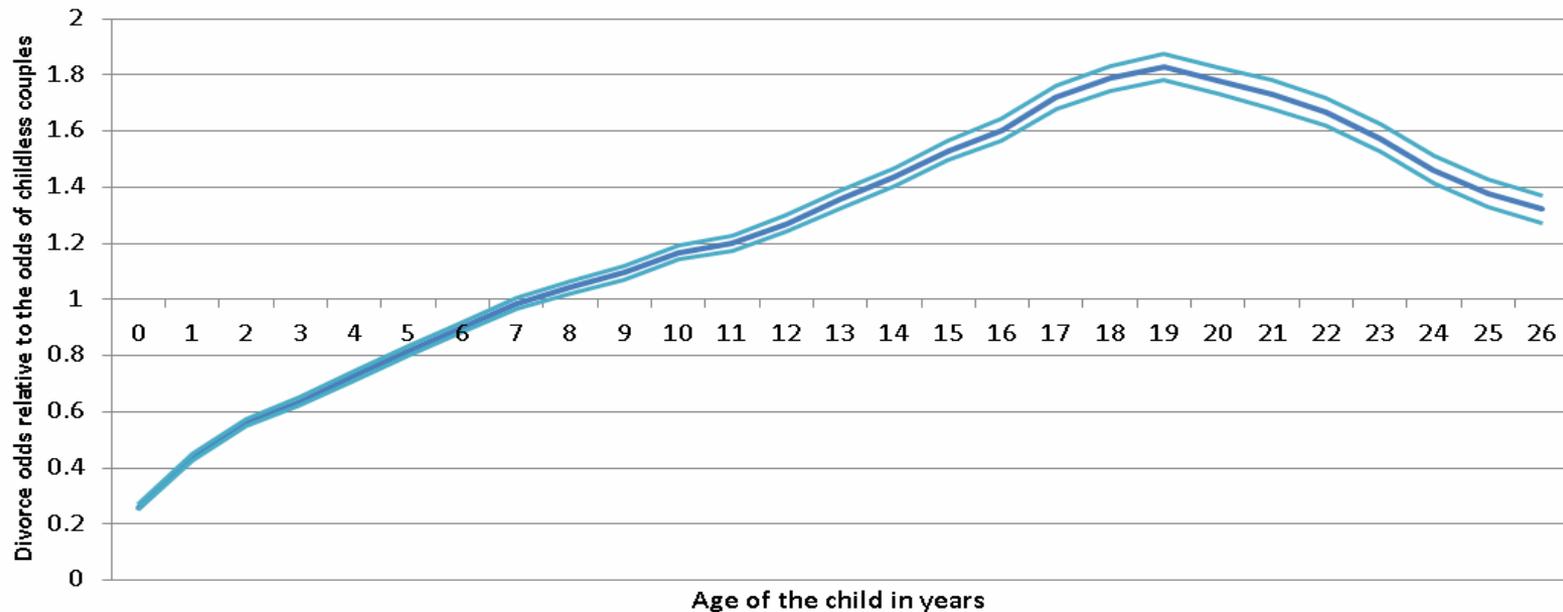
How do the risks of divorce change at different lengths of marriage?

Baseline duration dependence



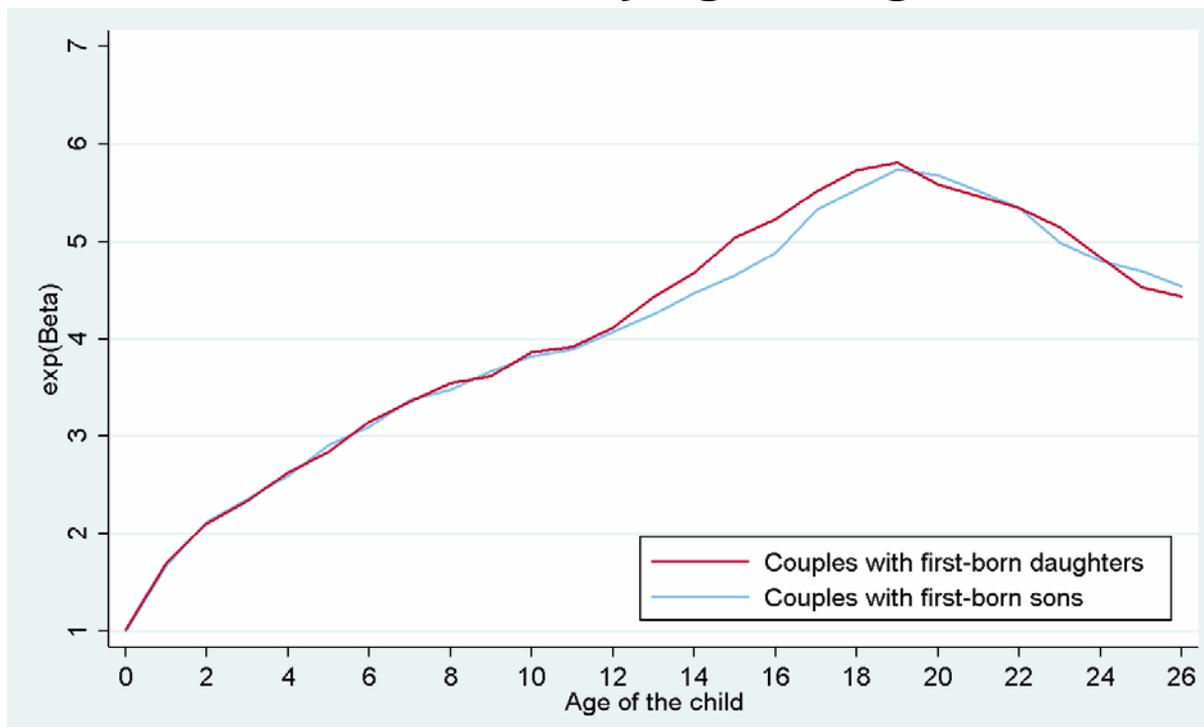
Divorce risks faced in the 5th year of marriage are 7.2 times higher than the risks faced in the 1st year of marriage.

Divorce odds as a function of age of the first born



- First-born’s age is found to be a mediating factor when the child is young, and it gradually turns into a risk factor, with the divorce odds being highest when the child reaches adulthood.

Conditional hazard of divorce by age and gender of the first-born



- FB girls **are** associated with higher risk during their teenage years.
- This effect is statistically significant with $P < 0.01$

Table : Excess age-specific hazard probabilities of first-born daughters

Model specification	Age 0-12	Age 13-18	Age 19-26	N
Baseline, full sample	1.003 (0.004)	1.052*** (0.007)	0.998 (0.007)	40,019,779

- the excess divorce risk for families with teenage daughters is $100 \times (1.052 - 1) = 5.2\%$.

- This result goes against the theory of son preference, since son preference would predict divorce risks to be elevated over the whole span of daughter's life (or at the very least throughout her early childhood)
- We look for evidence of particular mechanisms in subsample analyses, estimating our model for various subgroups of population.

Model specification	Age 0-12	Age 13-18	Age 19-26	N
<i>Immigration background and homogeneity</i>				
Both <u>spouses</u> native	1.005 (0.005)	1.044*** (0.007)	0.986* (0.008)	32,064,766
Both <u>spouses</u> immigrants	0.995 (0.013)	1.071*** (0.022)	1.061*** (0.024)	4,783,187
Father native, mother immigrant	1.009 (0.018)	1.100*** (0.032)	1.055 (0.039)	1,835,276
Mother native, father immigrant	0.992 (0.017)	1.132*** (0.034)	1.042 (0.037)	1,333,397

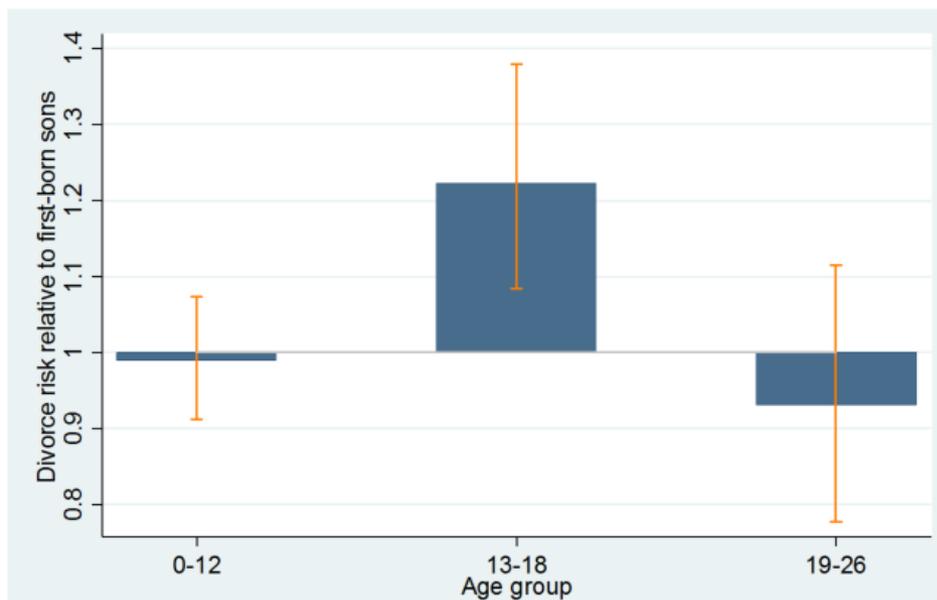
- Couples with immigrant or blended background are subject to higher teenage effects than native couples.
- The effects for blended families are particularly high, which suggests that the mechanism may be related to differences in cultural/gender norms of the parents.

Model specification	Age 0-12	Age 13-18	Age 19-26	N
<i>Sibship, husband</i>				
No sisters	1.003 (0.011)	1.082*** (0.024)	0.974 (0.054)	4,348,835
At least one sister	1.002 (0.008)	0.998 (0.017)	0.996 (0.041)	7,468,241
<i>Sibship, wife</i>				
No brothers	1.005 (0.010)	1.045** (0.023)	1.005 (0.063)	4,036,813
At least one brother	1.006 (0.007)	1.043** (0.018)	1.004 (0.039)	7,570,055

- Fathers who grew up with sisters face no teenage daughter penalty in divorce risks. Father who did not are in trouble.
- No comparable effect for mothers w/ & w/o brothers.

- In light of this evidence, it seems that the relationship of the father and his daughter lies at the very core of the divorce disparity.
- This is supported by a separate analysis of a Dutch household survey (LISS).
 - Fathers with teenage girls report significantly worse quality of family relationships, and indicate that they are having more disagreements with their partner regarding raising of their children.
 - Teenage girls report significantly worse quality of relationship with their fathers, but not with their mothers

- To strengthen external validity, we estimate our model using CPS-MFS 1980-1995 data for the United States.



- The effect is present also here, much larger in magnitude than the Dutch effect, and much larger than the effect found by Dahl & Moretti.

Table A5a: Overview of gender effects on marital stability found by earlier studies – published papers analyzing divorce

Study	Land	Dataset	Age cutoff	Baseline div. rate (boys)	Absolute Effect	Relative Effect	Statistically significant	Notes.
Dahl and Moretti 2008	USA	Census '60-'80	12 yrs	12.5%	0.16 p.p.	1.3%	✓	First-born girl effect
Leigh 2009	AUS	Census '81-'01	12 yrs	14.5%	0.02 p.p.	0.1%	<u>insig.</u>	1 boy vs 1 girl
Andersson and Woldmichael 2001	SWE	Admin. '71-'95	15 yrs of marriage	n/a	n/a	1.0%	<u>insig.</u>	1 boy vs 1 girl
Ananat and Michaels 2008	USA	Census '80	16 yrs	17.2%	0.63 p.p.	3.7%	✓	First-born girl effect
Bedard and Deschênes 2005	USA	Census '80	17 yrs	20.0%	0.80 p.p.	4.0%	✓	First-born girl effect
Dahl and Moretti 2008	USA	CPS '80-'95	None	32.0%	1.03 p.p.	3.2%	✓	First-born girl effect, Relatively old sample
Diekmann and Schmideiny 2004	INTL	FFS '95	None	17.6%	1.06 p.p.*	6.0%*	partially <u>insig.</u>	1 boy vs 1 girl, average of country-specific effects.
Morgan et al. 1988	USA	CPS '80	None	39.9%	2.83 p.p.*	7.1%	✓	1 boy vs 1 girl

*denotes own back-of-the-envelope calculations based on the provided results and descriptive statistics

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problems with teenage daughter

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- We find that families with girls are indeed more likely to divorce than families with boys.
- The effect however only manifests in the teenagehood.
- Supporting evidence is found in several datasets and across several populations.
- It seems that at the core of this disparity lies the relationship between the father and the daughter.
- The fathers who are likely to hold stronger gender norms face with higher teenage daughter penalties.

- Although such beliefs may be hard to change, we do show that fathers who grew up with sisters are not subject to the same divorce disparities as fathers who did not have a female sibling.
- This leads us to suggest that a greater exposure of young boys to the problems faced by girls when growing up may well improve the family well-being and attenuate the disparities of divorce rates for future generations.

Thank you for your attention!

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