Division of Household Labor and Relationship Dissolution in Denmark 2001-2009: What Can We Learn from Linked Time Use and Longitudinal Administrative Data?

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Preliminary Version – Please do not circulate

Abstract

*In this paper, we study how the gender division in actual time spent on housework is associated with relationship dissolution among cohabiting and married Danish couples. We use Danish couples' time diaries obtained from the 2001 (N=*1163*) and 2008/9 (N=2738) waves of the Danish Time Use Survey. The surveys include information on actual time spent on household chores for both spouses for one full weekday and one full weekend day. We link the surveys to longitudinal administrative population data and use Cox proportional hazard models with late-entry design to we estimate the association between division of time spent on actual household labor and later relationship dissolution risk. Our results show a U-shaped relationship between division of household labor and couples dissolution risk, and that the steepness of the U-shape has increased over time. Couples with a highly unequal distribution of household labor have higher dissolution risk, and the risk is higher in couples where men do most of the housework than in couples where women do most of the housework.*

Introduction

Dissolution of relationships affects people's economic, social, and emotional wellbeing (Amato, 2000; Leopold, 2018; Leopold & Kalmijn, 2016; Mcmanus & Diprete, 2013; Smock, Manning, & Gupta, 1999; Chung & Hunt, 2014; Hauser et al., 2016; McManus & DiPrete, 2001; Waite et al., 2009). Unsurprisingly, relationship dissatisfaction is an important predictor for relationship dissolution (ref.). Perceived and actual gendered division of household labor plays an important role in relationship satisfaction among opposite-sex couples (for an overview of research before 2000, see: Coltrane, 2000; Frisco & Williams, 2003; Greenstein, 2009; Oshio, Nozaki, & Kobayashi, 2013; Stevens, Kiger, & Mannon, 2005; Wilcox & Nock, 2006). Yet, few studies have examined how gendered division of household labor translates into increased relationship dissolution risk. Those who did, found that perception of inequity in time spent in household labor relates positively to dissolution risk (Frisco & Williams, 2003), that men's contributions to household labor implies more stable relationships (Cooke, 2006; Mencarini & Vignoli, 2017) and that common beliefs about division of household labor moderates the association between female paid employment and divorce risk (Hohmann-Marriott, 2006). Yet, no study has used measures of actual division of time used on housework between partners to examine how actual division of time spent correlates with the risk of later relationship dissolution. Furthermore, at least in Northern Europe, division of household labor has moved toward equity in recent decades (e.g., Dribe & Stanfors, 2009; Evertsson & Nermo, 2007), but it is unknown whether the relationship between division of household labor and union dissolution risk has changed as well.

In this study, we examine how within-couple division of actual time spent on household labor predicted relationship dissolution across a decade in Denmark. To obtain information on actual time used on housework, we use detailed time diaries obtained from the 2001 and 2008/9 waves of the Danish Time Use Survey that included information for both spouses for one full weekday and one full weekend day (Bonke, 2002; Bonke and Fallesen, 2010). To capture longer term developments in relationship stability, we link the two survey waves to administrative population data that allowed us to follow all surveyed couples for five years after they participated in the survey. Using late-entry Cox proportional hazard models, we estimate the association between division of time spent on actual household labor and later relationship dissolution risk. Our results show that there exists a U-shaped relationship between division of household labor and couples' dissolution risk, and that the steepness of the U-shape has increased over time. Couples with a highly unequal distribution of household labor had a substantially higher dissolution risk, even when conditioning on length of the relationship and labor market activities. Couples where men

do most of the housework have higher dissolution risks than couples where women do most of the housework.

Our study offers four substantial contributions to the literature on the division of household labor and relationship stability. First, we use time diary information on the actual time spent on housework for both partners, leading to more precise measures than previous studies have been able to. Second, we circumvent issues of selective attrition often found in longitudinal surveys by linking the cross-sectional survey information on time use to longitudinal administrative data on relationship stability. Third, we demonstrate that the association between the division of household labor and relationship dissolution risk strengthened over time. Last, as Denmark is one of the more gender egalitarian societies to date (Esping-Andersen, Boertien, Bonke, & Garcia, 2013), our results provides a reference point to contrast other societies against.

Theoretical background

Division of household labor and relationship stability

The extant literature acknowledges three dominant theories that can be used to deduce why the division of household labor affects relationship stability (Cooke, 2006). First, specialization theories as were constructed in economics (Becker, 1981) and sociology (Parsons, 1953), predict that relationship stability is improved by a couple's mutual dependence. Anything that poses a threat to the benefits from specialization, increases the risk of divorce (Becker, 1985). Women's employment reduces women's dependence on men (Oppenheimer, 1997). In turn, men's participation in the household is assumed to decrease gains from specializing in paid labor, therefore also increasing dissolution risks (Cooke, 2006).

Second, bargaining models assume that the division of labor (both paid and unpaid) is the result of a negotiation process between spouses that leads to a unique equitable distribution (Cooke, 2006). Increased relative bargaining power through alternatives to the relationship, for instance women's greater economic independence, allow them to bargain for a more favorable distribution of household labor (Breen & Cooke, 2005). Opposite to the specialization models, bargaining theories then predict a lower divorce risk when male participation in the household increases (Cooke, 2006).

Third, additional predictions can be made from gender role theory. On the one hand, division of domestic work is related to the perception of certain tasks being typically male or female (Berk, 1985; Shaw, 1988). Deviating from normative gender roles in the division of household labor has been found to be related to higher relationship instability, but only in couples with differing attitudes and expectations about these

roles (DeMaris, 2007; Oláh & Gähler 2014). On the other hand, gender theory also hypothesizes that relationship instability increases when women outearn men (Schwarz & Gonalons-Pons, 2006). If we extend this reasoning to the division of household labor, keeping in mind the role of homogenous gender attitudes, we can assume that men have ex ante preferences to do part of the housework, but that there are thresholds in how large a share they are willing to take up. Unlike for income, where parity is a clear point when women threaten men's gender role of breadwinners, these thresholds are not likely to be equality but rather dependent on society's and the individual's views on gender egalitarianism. The more egalitarian, the closer the share of housework that men are willing to do is to 50%, independent of resources.

Concerning evidence for these theories, few studies have ventured into the sphere of relationship dissolution. Based on event-history analysis of panel surveydata, Cooke (2006) found a positive linear relationship between husband's contributions to household labor and relationship instability in West-Germany, but a quadratic one in the United States. As husband's contributions to housework increased, the risk of divorce decreased, but only until men did 30% of the housework and women earned 30% of the household income. This finding for the U.S. is consistent with the theoretical approach we suggest, that there are thresholds for how much work men do before divorce risks rise. Linking these results to policy, Cooke (2006) argued that the male breadwinner model is most stable in West-Germany as it is institutionally supported, while the U-shaped relationship is found in the United stated because there is no support. Based on panel data, Ruppanner et al. (2018) found a positive relationship between sharing housework and relationship dissolution in Sweden. Apart from these two, no other empirical studies on the relationship between performed household labor and dissolution exist to date.

Other studies provide only circumstantial evidence. Mencarini & Vignoli (2017) found that a decline in Italian women's time availability was related to increased dissolution risks only when men's contributions in housework were limited. Itturate & Dominguez-Fulgueraz (2018) found only partial support for their hypothesis that an equal sharing of the entire workload (both paid and unpaid) was beneficial for union stability. Additional clues can also be obtained by looking at research into relationship satisfaction. Most empirical studies find positive associations between the proportion of household labor performed by men and marital satisfaction (for overviews, see: Coltrane, 2000; Lachance-Grzela & Bouchard, 2009). An important caveat is that unhappy couples do not necessarily terminate their relationship. "*Everyone knows of very unhappily married couples who continue to stay together for a variety of reasons."* (Gottman & Levenson, 1992, p. 222).

As was argued by Cooke (2006), welfare states might have an important influence on the relationship between the division of household labor and relationship dissolution. It is therefore important to provide some background on the setting of our research: Denmark.

The Danish context

- Gender egalitarianism
- High female labour force participation
- Extensive childcare arrangements
- …

Measuring housework

There is much debate on how housework should be measured. These discussions mainly focus on three topics: absolute versus proportional measures, the inclusion of care for children, and the use of survey or time diary data. First, as mentioned above, gender theories predict that the division of household labor reflects gender ideologies, i.e. how individuals define for themselves what is 'male' or 'female' (Davis & Greenstein, 2009). When couples hold more traditional male-breadwinner beliefs, the division of chores will therefore be reflect this and vice versa. However, Greenstein (2000) found that these predictions generally only hold when using relative measures of housework – the proportion of work done by the male/female partner, rather than absolute measures – total amount of time spent on household labor. He therefore argued that proportional measures more likely capture equity aspects and are therefore preferred (Greenstein, 2000).

Second, scholars disagree on whether or not taking care of children should be measured as housework. Coltrane and Adams (2005) explicitly distinguish between the two by analyzing the effect of interaction with children on father's percentage of housework performed. The argument here is that the nature and predictors of both differ substantially (Lachance-Grzela & Bouchard, 2009).

Third, previous studies have shown a discrepancy in the measurement of time spent in housework between questionnaire-based and time diary methods (Lachance-Grzela & Bouchard, 2009). The aforementioned double-counting of simultaneous activities is one of the proposed explanations for the alleviated reports of time spent on housework in questionnaires as opposed to time-diaries (Bianchi et al., 2000; Kan, 2006). However, time-diaries usually only ask respondents to indicate their primary activities, making them fit to analyse the hours spent on housework, but not necessarily the workload (Bianchi et al. 2000). Lachance-Grzela & Bouchard (2009) argued that time-diary information should be

preferred over questionnaires because of their accuracy and the ability to construct absolute as well as relative measures of housework.

In this research, we used time-diary data combined linked to administrative data. In this way we overcome issues of selective attrition that panel surveys suffer from. Next, we followed Greenstein (2000) by computing proportional measures of time spent on household labor. In addition to the described benefits, we would like to argue that they circumvent the problem of outsourcing, as they measure partner's share of the total amount of work, regardless of how big the workload actually is. Finally, in line with previous research, we do not measure time spent with children as housework.

Hypotheses

The theoretical background, empirical findings, Danish context and methodological issues allow us to test the following hypotheses. First, in view of the Danish context of gender egalitarianism and it's tradition of supporting female labor force participation, we predict that the bargaining model best predicts the relationship between the proportion of household labor performed by men and the risk of relationship dissolution. If this hypothesis holds, that relationship will be U-shaped (H1a). Because Denmark is more actively egalitarian than the United States, we expect the minimum of this U-shape (i.e. the division at which the risk of dissolution is lowest) to be closer to parity in the division of household labor for Denmark than the 30% of housework performed by men that was found for the United States (Cooke, 2006) (H1b). We also expect this relationship to be persistent after controlling for other factors that are related to dissolution risks such as the presence of children, age, and duration of the relationship (H2). Furthermore, we hypothesize that the U-shaped relationship is not affected by controlling for other factors time availability and relative resources (H3). However, since the surveyed division of household labor occurs at one point in time, but dissolution risks are observed five years afterwards, we expect the within-samples relationship to be weakening over time due to possible renegotiation of the division of housework (H4).

Data and methods

Data

TBA

Methods

We estimated semi-parametric Cox proportional hazard models to analyze how men's share of household labor predicted dissolution risk once controlling for couple specific covariates.. For a detailed discussion of these models, see Kleinbaum and Klein (2010) and Hosmer, Lemeshow, and May (2011). For n individuals, we assume the data generating model:

$$\log \mathrm{H}\left(\mathrm{t}_{\mathrm{ij}}\right) = \log \mathrm{H}_0(\mathrm{t}_{\mathrm{j}}) + \mathrm{x}_{\mathrm{ij}}\beta'$$

Where $\log \mathrm{H}\left(\mathrm{t}_{\mathrm{ij}}\right)$ is the log hazard of relationship dissolution at time t for individual i, $\log \mathrm{H}_0(\mathrm{t}_{\mathrm{j}})$ is the unspecified general baseline log hazard function, and β' is a vector of regression coefficients for the covariates, x_{i}. The baseline hazard, which determines the general shape of the hazard function, corresponds to an observation where all covariates are 0.

These estimations yield cumulative hazard functions for all values of the covariates where the ratio of these functions is constant in time, for instance:

$$\frac{\mathrm{H}_0(\mathrm{t}_{\mathrm{j}})\mathrm{e}^{\beta_1}}{\mathrm{H}_0(\mathrm{t}_{\mathrm{j}})} = \mathrm{e}^{\beta_1},$$

Interpretation of these hazard ratios is similar to that of odds ratios in logistic regression. The hazard function is based on relationship duration at the time of the survey. We use fractional polynomials so as to not impose a rigid functional form (see Cleves, Marchenko, and Gould (2016, p. 184ff.) for a detailed discussion of fractional polynomials). Parameter estimates are then interpreted as a deviation from this baseline.

The model rests on a set of assumptions. First, it assumes that there are as many log hazard functions as there are combinations of values that all covariates can have. Second, it assumes that each of these log hazard functions has an identical general shape. Third is the assumption of proportional hazards, which means that the log hazard functions are equidistant in time, so that the ratio of the hazard functions remains constant over time, i.e. that these log hazard functions are parallel.

Results

Bivariate associations

Tables 1 and 2 show the descriptive statistics for the 2001 and 2008/9 surveys separately, as well as subdivided by whether or not the respondent experienced a dissolution during the 5 year period following the survey.

Table 1
Descriptive statistics for the first observation year of the 2001 sample and subdivided by whether or not relationship dissolution was experienced during the 5 year observation window.

	Full sample		Ever dissolved			
			No		Yes	
N	1163		1037		126	
	mean	sd	mean	sd	mean	sd
Length of relationship	12.175	5.578	12.676	5.384	8.056	5.465
Age of male	44.287	12.63	45.312	12.449	35.849	10.86
Age of female	41.953	12.096	42.953	11.912	33.722	10.37
Male working Fulltime[a]	0.715	0.425	0.712	0.428	0.744	0.402
Female working Fulltime[a]	0.699	0.41	0.695	0.413	0.726	0.383
Male retired	0.066	0.249	0.074	0.262	0.000	0.000
Female retired	0.034	0.18	0.037	0.188	0.008	0.089
Male annual salary[b]	37.098	26.182	37.244	26.306	35.893	25.204
Female annual salary[b]	25.99	17.365	26.02	17.523	25.744	16.062
Children in the household	0.467	0.499	0.474	0.5	0.405	0.493
Male education: Lower	0.298	0.457	0.287	0.452	0.389	0.488
Male education: High school	0.349	0.477	0.353	0.478	0.317	0.467
Male education: University	0.353	0.478	0.36	0.48	0.294	0.457
Female education: Lower	0.258	0.438	0.253	0.435	0.301	0.459
Female education: High school	0.429	0.495	0.432	0.496	0.405	0.493
Female education: University	0.313	0.464	0.315	0.465	0.294	0.457
Educational homogamy	0.361	0.481	0.364	0.481	0.341	0.476
Share of HH-work by male	0.407	0.266	0.406	0.264	0.412	0.283

Note: [a]Working Fulltime is measured as the proportion of the year the respondent held fulltime employment. [b]Annual salary is measured in 1000 EUR

Table 2
Descriptive statistics for the first observation year of the 2008/9 sample and subdivided by whether or not relationship dissolution was experienced during the 5 year observation window.

	Full sample		Ever dissolved			
			No		Yes	
N	2738		2269		469	
	mean	sd	mean	sd	mean	sd
Length of relationship	19.472	14.41	20.859	13.814	12.763	15.336
Age of male	50.523	13.083	50.971	12.691	48.354	14.652
Age of female	48.19	12.745	48.616	12.382	46.132	14.204
Male working Fulltime[a]	0.641	0.461	0.646	0.461	0.617	0.463
Female working Fulltime[a]	0.633	0.441	0.639	0.439	0.605	0.447
Male retired	0.167	0.373	0.163	0.369	0.188	0.391
Female retired	0.109	0.312	0.107	0.309	0.122	0.327
Male annual salary[b]	39.335	39.668	39.627	40.429	37.921	35.757
Female annual salary[b]	29.597	23.632	29.665	23.322	29.266	25.108
Children in the household	0.432	0.496	0.429	0.495	0.450	0.498
Male education: Lower	0.264	0.441	0.257	0.437	0.296	0.456
Male education: High school	0.435	0.496	0.438	0.496	0.42	0.494
Male education: University	0.301	0.459	0.305	0.461	0.284	0.451
Female education: lower	0.286	0.452	0.275	0.447	0.335	0.472
Female education: High school	0.359	0.48	0.36	0.48	0.356	0.479
Female education: University	0.355	0.479	0.365	0.482	0.309	0.463
Educational homogamy	0.554	0.497	0.536	0.499	0.638	0.481
Share of HH-work by male	0.422	0.311	0.408	0.294	0.491	0.376

Note: [a]Working Fulltime is measured as the proportion of the year the respondent held fulltime employment. [b]Annual salary is measured in 1000 EUR

Figure 1
Fitted lowess and quadratic curves with 95% confidence intervals of the probability of dissolution in the next five years from survey response by the share of housework performed by male partner.

2001 2008/9

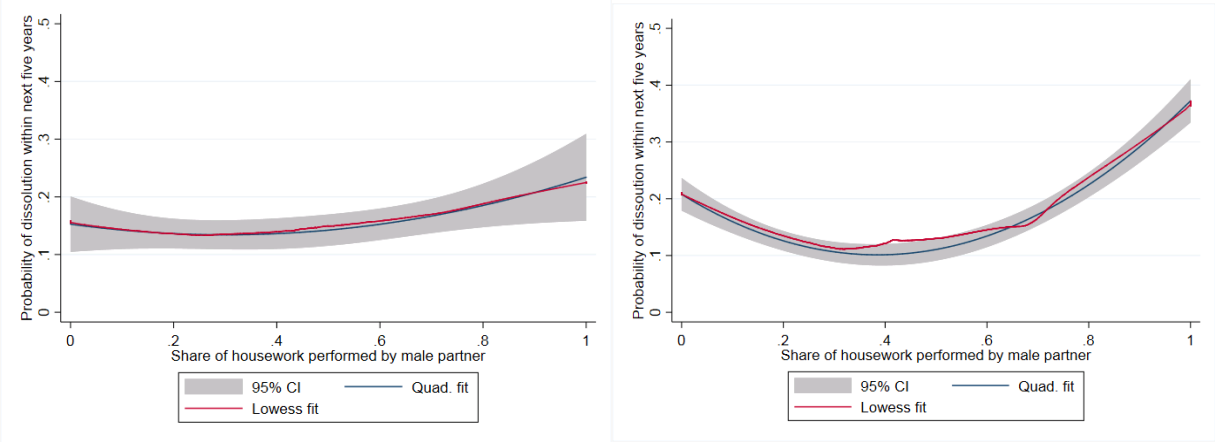

Figure 1 shows the associations between the proportion of housework performed by the male partner and the relationship dissolution risk during the five years following the respective surveys. We report results both from a fitted quadratic curve with confidence intervals and a flexible lowess curve to test for forms not captured by polynomials. For both survey years the lowess curve closely resembles the quadratic fitted curve, indicating that the quadratic form is a good fit of the actual response. The curve-linear slope is steeper for the 2008/09 sample than for the 2001 sample. For both years, dissolution risks are lowest if women spent slightly more time on housework than men, and highest when men account for all the time spent on housework. The calculated minima show that dissolution risks were lowest when men performed 37.5% of the total time spent on housework for the 2001 sample and when they performed 39.9% of the housework in the 2008/9 sample. Conditional on the significance of the quadratic function in the full models, this confirmed the second part of our first hypothis, that the minimum of a U-shaped relationship would be closer to parity in Denmark than it was in the United States (H1b).

Multivariate results

Table 3 shows the parameter estimates for three models for each of the two survey waves and their respective 5-year follow-up period. The first model includes only a fractioned polynomial baseline hazard of relationship dissolution and our main indicator of interest, the quadratic function of the share of household work performed by men. Although the shape of this quadratic indicator reflects what was theoretically expected, the parameter estimates are not significant. The same model for the 2008/9 sample did yield parameters that were significant at the 0.001-level. This confirmed our first hypothesis (H1a), that the relationship between share of household work performed by men and dissolution hazards is U-Shaped, but only for the 2008/9-sample.

The second model controlled for other indicators that have been found to be associated with both the risk of relationship dissolution and the division of household labor. For the 2001 sample, only the indicator of educational homogamy was significant. The hazard of dissolution during the five observation years was around 2.6 times (= $1/e^{-0.951}$) lower for couples who were both higher educated. Although still not significant, the parameter estimates for the share of household work by men did not alter substantially. The same goes for the 2008/9 sample, although here there were several other significant associations. Female annual salary was associated with a higher divorce hazard and female fulltime employment was associated with a lower divorce hazard. These results confirmed our hypotheses, that the U-shaped relationship between the male share in the household work and relationship dissolution is robust after

controlling for sociodemographic characteristics (H2), and indicators of time-availability and relative resources (H3).

Finally, the third model allowed for the relationship between share of male household work and dissolution do vary during the 5-year observation period. These interactions were small and not significant in the 2001-sample, but were far larger and highly significant for the 2008/9-sample. Furthermore, in the latter sample, the signs of these parameters are opposite to those of the main effects. This indicates that the estimated relationship decayed during the observation period, with the U-shape becoming less and less outspoken over the course of the 5-year follow up period, which confirmed our last hypothesis (H4).

Sample	2001			2008/9		
Model	1	2	3	1	2	3[a]
Age of male		-0.018 (0.022)	-0.018 (0.022)		-0.003 (0.009)	-0.005 (0.009)
Age of female		-0.031 (0.023)	-0.031 (0.023)		0.004 (0.010)	0.001 (0.010)
Male, share of full time work [b]		-0.561^{+} (0.304)	-0.567^{+} (0.304)		-0.076 (0.147)	-0.093 (0.147)
Female, share of full time work[b]		-0.360 (0.380)	-0.356 (0.380)		-0.323* (0.151)	-0.306* (0.152)
Male retired		n.a.	n.a.		-0.099 (0.209)	-0.068 (0.210)
Female retired		0.085 (1.070)	0.084		-0.005 (0.260)	-0.001 (0.260)
Male annual salary[c]		0.003 (0.004)	0.003 (0.004)		-0.002 (0.002)	-0.002 (0.002)
Female annual salary[c]		0.015^{+} (0.008)	0.015^{+} (0.008)		0.007** (0.002)	0.006** (0.002)
Children in the household		-0.323 (0.203)	-0.324 (0.203)		-0.079 (0.089)	-0.136 (0.089)
Male education: Lower		-	-		-	-
Male education: High school		0.276 (0.376)	0.277 (0.377)		0.197 (0.168)	0.224 (0.168)
Male education: University		-0.186 (0.486)	-0.187 (0.486)		0.006 (0.249)	0.036 (0.249)
Female education: Lower		-	-		-	-
Female education: High school		0.504 (0.329)	0.506 0.329)		0.000 (0.192)	0.074 (0.193)
Female education: University		0.364 (0.429)	0.365 (0.429)		-0.249 (0.237)	-0.224 (0.237)
Ed. homogamy: High school		-0.951* (0.483)	-0.954* (0.483)		-0.123 (O.254)	-0.189 (0.254)
Ed. homogamy: University		-0.432 (0.624)	-0.431 (0.624)		0.162 (0.338)	0.094 (0.339)

Education Male > Female		-0.859	-0.860		0.073	0.029
		(0.620)	(0.620)		(0.344)	(0.344)
Education Female > Male		-0.853	-0.855		-0.065	-0.080
		(0.644)	(0.644)		(0.303)	(0.303)
Share of HH-work by male	-1.437	-1.513	-1.390	-1.778***	-1.697***	-6.783***
	(0.972)	(1.757)	(1.564)	(0.421)	(0.430)	(1.027)
Share of HH-work squared	1.731+	1.757+	1.520	2.219***	2.149***	4.948***
	(1.030)	(1.058)	(1.670)	(0.409)	(0.418)	(1.003)
Interaction observation time[d]			-0.167			5.214***
			(1.626)			(0.932)
Interaction squared[d]			0.323			-5.505***
			(1.734)			(0.919)
Number of couples			1163	2736	2736	2736
Time at risk			5499	12791	12791	12791
Test of linkage-function($\beta_{\hat{y}^2} = 0$)	p=.856	p=.479	p=.445	p=.317	p=.311	p=.442
Test of proport. haz. assump	p<.751	p=.743	p=.781	p<.001	p<.001	p=.124
∂y/∂[Share of HH-work by male]	0.412	0.431	0.457[e]	0.401	0.395	0.460

Notes: Linkage function tested using linktest command in Stata. All models include four fractional polynomials of relationship length obtained from the fp command in Stata. [a]Model specification further include dummy for relationship length = 0 (first year of relationship), and the dummy interacted with observation time to meet the proportional hazard assumption. [b]Full time work measured as the share of year an individual receives salary for at least 37 hours. [c]Salary measured in 1,000€. [d]Interaction is share of household work interacted with log(time at risk). [e]Calculated at time = 1.

Model fit statistics + proportional hazard assumption

Discussion

The combination of increased female labor force participation and changing attitudes towards gender equality has led to a renegotiation of the way couples divide household labor. Inability to reach a consensus has been shown to be associated with more instable relationships (Coltrane, 2000; Frisco & Williams, 2003; Greenstein, 2009; Oshio et al., 2013; Stevens et al., 2005; Wilcox & Nock, 2006). Both marriage and cohabitation have been found to be positively related to various indicators of individual wellbeing (Elwert & Tegunimataka, 2016; Fincham & Beach, 2010; Frey & Stutzer, 2010; Light, 2004; Waite & Gallagher, 2002; Williams, Sassler, & Nicholson, 2008). Since relationship dissolution has widely been found to be negatively related to the same issues (Chung & Hunt, 2014; Hauser, Burkhauser, Couch, Bayaz-Ozturk, & Tech, 2016; McManus & DiPrete, 2001; Waite, Luo, & Lewin, 2009), it is important to uncover how the division of housework and relationship stability are related.

In our analysis of the association between the division of household labor and dissolution risks in Denmark, we found that the risk of dissolving a relationship during the 5 years following the surveys is

lowest when men account for around 40% of the total time spent on routine household tasks. Three theoretical principles dominate the research into how household labor is divided. First, the *time availability* hypothesis states that those with the most free time do most of the work. Through time diaries, we were able to use detailed information on one's time spent on a number of tasks and the administrative data allowed us to control for working hours. Second, the *relative resources* hypothesis describes how bargaining power is gained through the individual's personal resources. We controlled for this hypothesis by adding personal earnings of both the husband and the wife. Third, the *gender ideology* hypothesis articulates that a more egalitarian division of housework is sought after by women who subscribe to non-traditional gender roles. Since the study is set in Denmark, which is generally considered one of the most gender egalitarian countries in the world, we observed differences in the association between the division of household labor and dissolution risks for two waves of the Danish Time Use Survey, namely in 2001 and 2008/9 and evaluate it over time.

Furthermore, the results were robust for the addition of both sociodemographic variables related to relationship dissolution such as education level and the presence of children. The relationship appears to strengthen over time as the results for the 2009/9 survey are more outspoken than those for the 2001 survey. We also control for a decreasing association between the survey and the five consecutive years following that survey. This decaying function was confirmed for the 2008/9 survey.

These findings are in line with what was expected based on earlier research (Cooke, 2006; Frisco & Williams, 2003; Hohmann-Marriott, 2006; Mencarini & Vignoli, 2017), but from more detailed data. They inform us that even in one of the most gender egalitarian societies such as Denmark, relationships are not the most stable when housework is shared at almost parity. One possible explanation is that the division of household labor follows the same gendered pattern as wives' earnings, but with a lower minimum. Previous research has found that relationship stability improves when women earn more money, but that it deteriorates from the moment women outearn their spouses (Schwartz & Gonalons-Pons, 2016). The same might be possible for household labor. Men are willing to take up some of the work that was traditionally seen as women's work, but only up until a certain threshold. In other words, men's view of what share of housework is considered equitable is lower than that of women. Since relationships are most stable when men perform around 40%, this conversely means that the women do not perceive this division as unfair.

Although we use refined data, there are still some notable limitations to our study. First, the number of relationship dissolutions in the 2001 sample is low at 126 events, especially when compared to the 469

events in the 2008/9-sample. This might explain why the estimated relationship is more outspoken and significant in the latter sample. Second, we are unable to account for the outsourcing of household labour. On the one hand this could be considered problematic, but on the other hand, since our information stems from diaries, we do observe the total amount of work that was performed at that household. If some of the housework is then done by third parties, this would not show up in total amount of housework performed. Third, we only have data on one day of the week and one day in the weekend. It might then be that those particular days are not accurate representations of a typical day. We performed a robustness check where we interact the indicator for share of household work by men with a dummy that indicates whether the respondent answered that it was in fact a typical day, which did not alter our results.

Fourth, although we control for several confounders, we are not able to make causal claims due to possible endogeneity issues. Omitted variable bias is indeed a possibility. For instance, long- (or even short-) term illness or disability is related to both one's share of household work and the risk of dissolution. As a robustness test, we exclude couples where one spouse contributes all the housework. Doing so does lower our estimates and makes several insignificant but does not change the direction of the parameters nor the overall interpretation. All couples in our data have reported full diaries for both spouses. The survey may have sampled couples on extreme days, but the having one spouse do all housework should on average be indicative of a very skewed diversion of household labor. Another robustness check where we leave out all couples where one of the spouses performs 100% of the housework also did not significantly alter our estimates, but this is not to say that this or other omitted variables would not influence the results.

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Amato, P. R. (2000). The Consequences of Divorce for Adults and Children. *Journal of Marriage and Family*, *62*(4), 1269–1287. https://doi.org/10.1111/j.1741-3737.2000.01269.x

Dribe, M., & Stanfors, M. (2009). Does parenthood strengthen a traditional household division of labor? Evidence from Sweden. *Journal of Marriage and Family*, *71*(1), 33–45. https://doi.org/10.1111/j.1741-3737.2008.00578.x

Esping-Andersen, G., Boertien, D., Bonke, J., & Gracia, P. (2013). Couple Specialization in Multiple

Equilibria. *European Sociological Review*, *29*(6), 1280–1294. https://doi.org/10.1093/esr/jct004

Evertsson, M., & Nermo, M. (2007). Changing Resources and the Division of Housework: A Longitudinal Study of Swedish Couples. *European Sociological Review*, *23*(4), 455–470. https://doi.org/10.1093/esr/jcm018

Leopold, T. (2018). Gender Differences in the Consequences of Divorce: A Study of Multiple Outcomes. *Demography*, *55*(3), 769–797. https://doi.org/10.1007/s13524-018-0667-6

Leopold, T., & Kalmijn, M. (2016). Is Divorce More Painful When Couples Have Children? Evidence From Long-Term Panel Data on Multiple Domains of Well-being. *Demography*, *53*(6), 1717–1742. https://doi.org/10.1007/s13524-016-0518-2

Lindahl, M., Palme, M., Sandgren-Massih, S., & Sjögren, A. (2014). A Test of the Becker-Tomes Model of Human Capital Transmission Using Microdata on Four Generations. *Journal of Human Capital*, *8*(1), 80–96. https://doi.org/10.1086/674104

Mcmanus, P. A., & Diprete, T. A. (2013). Losers and winners: The financial consequences of seperation and divorce for men. *American Sociological Review*, *66*(2), 246–268. Retrieved from https://www.jstor.org/stable/2657417

Smock, P. J., Manning, W. D., & Gupta, S. (1999). The Effect of Marriage and Divorce on Women's Economic Well-Being. *American Sociological Review*, *64*(6), 794. https://doi.org/10.2307/2657403

Berk, S. F. (1985). Dividing It Up. In *The Gender Factory* (pp. 125-165): Springer.

Chung, M. C., & Hunt, L. J. (2014). Posttraumatic stress symptoms and well-being following relationship dissolution: Past trauma, alexithymia, suppression. *Psychiatric Quarterly, 85*(2), 155-176.

Cleves, M., Marchenko, Y. V., & Gould, W. (2016). *An introduction to survival analysis using Stata*: College Station, Tex., Stata Press 2016

3 ed.

Coltrane, S. (2000). Research on household labor: Modeling and measuring the social embeddedness of routine family work. *Journal of Marriage and Family, 62*(4), 1208-1233.

Cooke, L. P. (2006). "Doing" gender in context: Household bargaining and risk of divorce in Germany and the United States. *American journal of Sociology, 112*(2), 442-472.

Elwert, A., & Tegunimataka, A. (2016). Cohabitation Premiums in Denmark: Income Effects in Immigrant–Native Partnerships. *European Sociological Review, 32*(3), 383-402.

Fincham, F. D., & Beach, S. R. (2010). Marriage in the new millennium: A decade in review. *Journal of Marriage and Family, 72*(3), 630-649.

Frey, B. S., & Stutzer, A. (2010). *Happiness and economics: How the economy and institutions affect human well-being*: Princeton University Press.
Frisco, M. L., & Williams, K. (2003). Perceived housework equity, marital happiness, and divorce in dual-earner households. *Journal of Family Issues, 24*(1), 51-73.
Greenstein, T. N. (2009). National context, family satisfaction, and fairness in the division of household labor. *Journal of Marriage and Family, 71*(4), 1039-1051.
Hauser, R., Burkhauser, R. V., Couch, K. A., Bayaz-Ozturk, G., & Tech, C. C. (2016). Wife or Frau, Women Still Do Worse: A Comparison of Men and Women in the United States and Germany after Union Dissolutions in the 1990s and 2000s.
Hohmann-Marriott, B. E. (2006). Shared beliefs and the union stability of married and cohabiting couples. *Journal of Marriage and Family, 68*(4), 1015-1028.
Hosmer, D. W., Lemeshow, S., & May, S. (2011). *Applied survival analysis*: Wiley Blackwell.
Kleinbaum, D. G., & Klein, M. (2010). *Survival analysis* (Vol. 3): Springer.
Light, A. (2004). Gender differences in the marriage and cohabitation income premium. *Demography, 41*(2), 263-284.
McManus, P. A., & DiPrete, T. A. (2001). Losers and Winners: The Financial Consequences of Separation and Divorce for Men. *American Sociological Review, 66*(2), 246-268.
Mencarini, L., & Vignoli, D. (2017). Employed Women and Marital Union Stability: It Helps When Men Help. *Journal of Family Issues, 39*(5), 1348 - 1373.
Oshio, T., Nozaki, K., & Kobayashi, M. (2013). Division of household labor and marital satisfaction in China, Japan, and Korea. *Journal of Family and Economic Issues, 34*(2), 211-223.
Schwartz, C. R., & Gonalons-Pons, P. (2016). Trends in Relative Earnings and Marital Dissolution: Are Wives Who Outearn Their Husbands Still More Likely to Divorce? *The Russell Sage Foundation journal of the social sciences : RSF, 2*(4), 218-236.
Shaw, S. M. J. F. r. (1988). Gender differences in the definition and perception of household labor. 333-337.
Stevens, D. P., Kiger, G., & Mannon, S. E. (2005). Domestic labor and marital satisfaction: How much or how satisfied? *Marriage & Family Review, 37*(4), 49-67.
Waite, L. J., & Gallagher, M. (2002). *The case for marriage: Why married people are happier, healthier and better off financially*: Broadway Books.
Waite, L. J., Luo, Y., & Lewin, A. C. (2009). Marital happiness and marital stability: Consequences for psychological well-being. *Social Science Research, 38*(1), 201-212.
Wilcox, W. B., & Nock, S. L. (2006). What's love got to do with it? Equality, equity, commitment and women's marital quality. *Social forces, 84*(3), 1321-1345.
Williams, K., Sassler, S., & Nicholson, L. M. (2008). For better or for worse? The consequences of marriage and cohabitation for single mothers. *Social forces, 86*(4), 1481-1511.