Till mess do us part: Married women's market hours, home production, and divorce

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Till mess do us part: Married women's market hours, home production, and divorce*

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Abstract

Part time jobs facilitate the conciliation of work and family life. But they entail reduced returns to experience and translate into lower own income in case of divorce. Given non-trivial divorce risks, why do married women work so little? Using micro data for Germany, we show married mothers' market hours (hours dedicated to housework) to be positively (negatively) related to separations. We then propose a dynamic life-cycle model of mothers' labor force participation, home production, and endogenous divorce which we calibrate to German data. Making divorce exogenous or ruling out divorce leads to an overestimation of the share of married mothers working full time and an underestimation of their housework and child care time, particularly among medium and highly educated women. Carrying out three policy experiments (increasing alimony, eliminating joint taxation, subsidizing child care) we highlight how couples' considerations of divorce risks condition the effects of such policies on married mothers' market hours.

JEL classification: J12, J13, J22, H42

Keywords: female labor force participation, home production, divorce

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1 Introduction

Female labor force participation has increased tremendously over the past decades. In Germany, most of this increase can be attributed to a rise in part-time jobs, see left-hand graph of Figure A-1 in the Appendix and the Economist [2019]. Part-time employment facilitates women's labor market attachment because it eases the conciliation of work and family life. However, returns to part time employment are significantly lower which becomes particular pertinent in case of divorce when women are left with limited own income.[1] In the face of non-trivial divorce risks, why do married women work so little? Findings from the sociology literature show wives' double burden of employment and housework can impose a marital strain, leading to a higher divorce risk. Hence, being better prepared for the event of a divorce by working full time, could, at the same time, increase the likelihood of divorce.

The current paper investigates the role of this trade-off for married women's time allocation and divorce. Looking at data from the German Socio-Economic Panel we find more working hours of married mothers are associated with a higher risk of separation two years later. On the other hand, couples where wives spend relatively more time on housework and child care have a lower probability of separation. This suggests that above and beyond men's and women's contributions to household income, marriage stability is closely related to how husbands and wives allocate their time. Our results are robust to controlling for her employment status, income of both spouses, marriage-specific variables, as well as heterogeneity in couples' frailty; and in the case of the positive relationship between her hours in the market and separations even time-invariant couple fixed effects. However, given the potential presence of time-varying unobservables driving both, separations and women's hours worked, our empirical findings still suffer from endogeneity issues. Hence, they only provide the motivation for our theoretical model.

We propose a dynamic life-cycle model of mothers' labor force participation, home production, and divorce. Depending on the age of their children, married mothers in our model decide each period whether to stay married and how much time to allocate to market work, housework, and leisure. Part time jobs facilitate the conciliation of work and family life,

[1] Years of part time employment also provide for lower pensions, explaining in part why women in Germany are at a higher risk than men of being poor in old age, see Figure A-2 in the Appendix. In the US, divorced women above 55 are 3-10 percentage points more likely to be poor than divorced men, see Social Security Administration [2014]. In Germany employees who reduce their working hours have no right to return to full time employment. An attempt to change the German labor law accordingly failed in March 2017 - see http://www.faz.net/aktuell/wirtschaft/gesetz-von-nahles-rueckkehrrecht-aus-teilzeit-in-vollzeit-gescheitert-15029585.html.

especially when children are young. But they entail lower returns to experience, turning part time employment into a costly strategy in the event of a divorce. On the other hand if mothers dedicate more time to market work (and less time to housework and child care) the relative value of marriage might be lower, increasing the probability of divorce. We calibrate our model to German data to assess the importance of divorce considerations for female labor force participation. In our benchmark model with endogenous divorce, couples optimally assign more of her time to home production and child care and less to market work compared to models where divorce is given by an exogenous probability. This is due to two reasons: i) with more time in home production she spends less time working in the market and accumulates less human capital which lowers her own income and makes the divorce state less attractive for her, thus reducing the risk of separation, and ii) when divorce is endogenous it depends on a couple's known match quality and women in stable couples know that their risk of separation is lower, and hence they are willing to do more home production, forgoing human capital accumulation. In our calibrated model, quantitatively, the first mechanism dominates. In line with our empirical analysis, we find divorce considerations to matter most for the time allocation of medium and highly educated women.

As mentioned before, the notion that spouses' time allocation and the stability of marriage interact both ways is based on findings mainly from the sociology literature. For instance, Bittman et al [2003] show that wives do less housework when they earn more, but once they make more money than their husbands, women start increasing their share in housework. In a similar spirit, Bertrand et al [2015] find couples where wives earn more than their husbands to be unhappier and wives to do more housework to "compensate" for their higher earnings. Cooke [2006] establishes for Germany (but not for the US) that couples who deviate from the "traditional gendered" model face higher divorce risks. Closely related to our empirical analysis is the paper by Kraft and Neimann [2009] who also consider German data and estimate a higher divorce risk for couples in which the wife is the "breadwinner." In contrast, Newman and Olivetti [2015] show that US couples where the wife is a "career woman," – i.e. she has a continuous work history and has worked at least 75% of the time since marriage – are more stable compared to marriages where the wife has taken years off from work.[2]

Apart from endogenous divorce, alimony payments, joint taxation, and lack of child care

[2]As motivating evidence, the authors show a negative relationship between divorce and female labor force participation rates across US states. Figure A-3 in the Appendix replicates their graph next to one for Europe, which shows a positive relationship. Furthermore, Figure A-4 shows a negative relationship for the US when considering women's part time employment, but a positive one for full time employment.

could also explain why married women work so little. Empirical findings on the relationship between women's labor supply and alimony payments are inconclusive. Chiappori et al [2017] find Canadian women in couples to reduce their labor supply upon an unexpected increase in the generosity of alimony payments, but they find no effects for newly formed couples. Rangel [2006] estimates negative effects on women's labor supply following a similar policy in Brazil, whereas Bredtmann and Vonnahme [2019] find no labor supply effects for married women in Germany after an important reduction in alimony rights in 2008. In our model, higher alimony payments lower married and divorced women's labor supply and lead to higher divorce rates. However, if divorce were exogenous, the policy would only affect divorced women's labor supply.

Joint taxation of couples implies that average tax rates for secondary earners, typically wives, are higher reducing their incentives to work additional hours. Bick and Fuchs-Schündeln [2018] find that much of the cross-country differences in married women's market hours can be explained by differences in joint taxation of couples.[3] In a life-cycle model of education, marriage, divorce and labor force participation, Eckstein et al [2019] show that a shift from joint to individual taxation increases participation of married women but also increases marriage and reduces divorce rates because women become more educated and there is more assortative matching which is regarded as preferable by individuals. A policy experiment in our model which eliminates joint taxation increases female labor force participation along the extensive and intensive margin. However, in our model individuals' educational attainment is given, and we abstain from modeling a marriage market, and hence if divorce is endogenous, the policy also increases divorce rates, further contributing to the rise in female labor force participation.

Finally, at the core of the so-called "double burden" lies the imperfect substitutability between spouses' time dedicated to housework and child care and goods and services purchased in the market. Extensive research shows that the ability to substitute for mothers' time dedicated to child care increases labor force participation of mothers, see Del Boca and Vuri [2007] for a review. To the best of our knowledge, the only paper that studies the relationship between availability of external child care services and marriage stability is Cherlin [1977] who points to a stabilizing effect of high child care costs for marriage. In line with both findings, subsidizing home production and child care in our model increases divorce rates as well as women's labor force participation. Again, the latter effect is amplified by increased

[3] Alesina et al [2011] propose gender based taxation which would lower tax rates for the more elastic labor supply of women, increasing them for men.

divorce rates.

Our paper contributes to the important strand of literature – starting with the seminal paper by Becker et al [1977] – on mechanisms driving marital instability which tends to model the interaction between labor market outcomes and marriage decisions. Stevenson and Wolfers [2007] provide an excellent overview of this literature which tries to quantify how much of the increase in labor force participation by married women over the past decades can be accounted for by a higher divorce risk associated with unilateral divorce laws, testing also for the contribution of other forces such as a narrowing of the gender wage gap, cultural changes, improvements in home production technology, and increasing educational attainment of women.[4]

The current paper does not attempt to explain the rise in married women's labor force participation over time, but focuses on why currently despite non-trivial divorce risks married mothers work so little.[5] Hence, closely related is Chakraborty et al [2015] who document a positive (negative) cross-country relationship between divorce rates (taxes) and hours worked for women (men). The authors set up a life-cycle model to show that differences in taxes and divorce are able to explain almost half of the variation in labor supply between the US and Europe. Their focus is hence on the one-way relationship from marriage instability to hours worked, and different from the current paper, they do not model home production and divorce is exogenous. We endogeneize divorce precisely because we want to analyze a two-way relationship between labor force participation and divorce decisions. In Mazzocco et al [2013] – similar to our paper –divorce is endogenous, the value of marriage depends on home production as well as marriage quality shocks and children are assumed to live with their mothers upon divorce. Different from the current paper, these authors model bargaining between husbands and wives, but do not consider how women's decisions regarding labor

[4]On the effect of changes in US divorce laws on female employment see Stevenson [2008], Fernández and Wong [2017] or Voena [2015]. Eckstein and Lifshitz [2011] find that divorce risk can only account for a very small increase in female labor force participation while Fernández and Wong [2014] estimate a much more important role. Greenwood et al [2016] link divorce and female labor force participation to rising income inequality, concluding that technological progress in home production can account for the majority of the increase in female labor force participation and that positive assortative mating has amplified the effect of increasing skill premia on inequality. Knowles [2013] attributes the fact that despite higher female wages, non-working time of wives has remained constant to an increase in wives' bargaining power within marriage.

[5]Purely empirical papers on the topic of divorce and female labor force participation are Bargain et al [2012] who find that the introduction of divorce in Ireland led to an increase in female employment, Bremmer and Kesslering [2004] who for the US find that as more married women join the labor market, the divorce rate increases, Johnson and Skinner [1986] who establish that increased divorce risk explains one third of the increase in female labor force participation in the US, and Papps [2006] who estimates married women to increase their labor supply when facing a higher risk of divorce.

force participation, housework, and divorce interact with the age of children. We prefer to abstain from the former to keep the model tractable but consider the latter key because as children grow up the imperfect substitutability between spouses' time dedicated to housework and child care and services purchased in the market becomes less important.

The remainder of this paper is organized as follows: the next section presents our empirical analysis. Section 3 presents the model, and Section 4 describes our calibration strategy. In Section 5 we present the results of the model and discuss how divorce and employment decisions interact for different couples. We perform three counterfactual experiments in Section 6. Section 7 concludes.

2 Empirical analysis

We consider data from the German Socio-Economic Panel (SOEP), an annual household survey with information on individuals' labor force participation, marital and family status, wages, education, etc. Of particular interest to us, the survey also includes individuals' marriage spells and labor market experiences as well as information about home production, including time spent on housework (washing, cooking, cleaning) and child care.[6]

For our analysis on the relationship between wives' market hours, home production, and the probability of separation, we focus on waves 2000-2016, and we restrict our attention to married couples with children.[7] We only consider couples aged 20 to 65, with children aged 18 or younger, for whom we have information on marriage histories and who are observed at least two years before separation. Given pronounced differences between East and West Germany regarding mothers' labor force participation, divorce, and child care provision, we exclude women and men who report to have lived in East Germany in 1989.[8] Following Kraft and Neimann [2009], we exclude unemployed individuals because unemployment spells introduce

[6]We focus on time spent on these activities on "a typical work day." We do not consider time spent on errands (shopping, trips to government agencies) or repairs (on and around the house, car repairs, garden work), because we cannot clearly distinguish them from leisure activities.

[7]We only focus on marriages because other registered unions – possible between 2001 and 2017 ("eingetragene Lebenspartnerschaft") – were restricted to same-sex couples. Since 2017, marriage is the only option for any couple to register legally.

[8]In 1990 (1991 for East Germany), there were 542 and 18 slots for every 1000 children under 3 in East and West Germany respectively (see Statistisches Bundesamt [2015a]). Labor force participation rates of East German mothers of small children (0-3 years) have traditionally been very high and continue to be around 15 percentage points higher than rates for West German mothers (Bundesministerium für Familie, Senioren, Frauen und Jugend [2005].)

a different couple dynamic. We consider separations or divorces – whichever occurs first (on average, divorces occur 2-3 years after separations) – only if they happen before individuals leave the survey. These restrictions leave us with 18,771 observations for 3,384 couples; i.e. on average we observe couples 5 times (over 8 years).[9] We define a dummy variable "separated" which takes on value one in the year of separation. Couples are dropped from the sample after they separate. We observe variables related to employment, hours worked, income, and housework two years before separation, whereas all other time varying variables are observed one year before separation.

Table A1 in the Appendix provides summary statistics for our sample. On average, 0.5% of couples separate each year. The average marriage in our sample lasts for 16.5 years.[10] In 11% of couples at least one spouse has been married before. Average age at marriage is 26 (29) years for her (him). Around 82% of spouses were born in Germany, and 74% live in areas classified as urban. Around 75% of wives work, but only 17% do so fulltime, whereas 96% (93%) of husbands work (full time). Husbands who do not work are either in education or early retirees. Average real monthly gross income is 4,153€ (1,293 €) for him (her).[11] Following Blossfeld and Timm [2003] we define three educational categories (below 11 years, 11-17 years, and more than 17 years of education) which classifies around 25% (32%) and 62% (51%) of wives (husbands) as low and medium educated respectively. Around 32% of couples are home owners.[12] Regarding time use, women's share in housework and child care is around 80%. Considering time spent by both spouses (9.5 hours), on average women spend 7.6 hours on housework and child care. However, as in any time use survey, activities are not necessarily understood as mutually exclusive which implies that the sum could be larger than apparently feasible. In our empirical analysis, we make sure that our results are robust to excluding individuals who violate the 24-hour time constraint. Finally, fewer than 10% of couples hire a cleaner regularly or occasionally. We also control for observations and marriages formed after 2008 given that German alimony law changed considerably in 2008.[13]

To explore the relationship between the time women dedicate to market work, home pro-

[9] Note that each observation requires information in t, $t-1$, and $t-2$ and hence observing couples on average 5 times implies at least 8 years of observations.

[10] This is somewhat higher than the 14.9 years reported in Geisler et al [2018].

[11] Using the official DM/Euro exchange rate of 1.95583 we convert pre-2002 wage data into euros, and we use data from the Statistische Bundesamt on the German consumer price index to adjust for inflation.

[12] This is a little lower than OECD data on homeownerhship rates of 36.3% (1994) and 41.0% (2007) for Germany, see Andrews and Caldera Sánchez [2011].

[13] In particular, the generosity of alimony payments especially to ex-spouses was reduced considerably which affected even marriages formed before 2008 (except those divorced before 1977), for details see Bredtmann and Vonnahme [2019].

duction, and the probability of a marriage ending in divorce, we run the following probit regression

$$Pr(sep_t = 1|X) = \Phi(X^T\beta),$$

where $X^T = [Z_{t-1}X_{t-2}D_t]'$ and Z_{t-1} are individual controls typically included in estimations of divorce probability and measured one year before separation, including her and his age at marriage, spouses' educational attainment, residence in urban areas, his and her country of birth, the marriage not being the first one for at least one of the spouses, the presence of children of different ages, as well as a dummy variable for home ownership. In X_{t-2} we include labor market and time use variables measured two years before separation, such as indicators for full time work of husband and wife, employment status of each spouse, and labor income of husband and wife. In our second set of regressions X_{t-2} also includes total hours spent on housework and child care by the couple as well as her time share in home production, and an indicator for hiring a cleaner. D_t are marriage-duration controls.

Table 1 displays our main results. Controlling for spouses' employment status, wives working fulltime is related to a higher probability of divorce, while husbands' hours at work have no significant effect. On the other hand, wives' share in time dedicated to housework and child care displays a negative and significant relationship with the probability of separation. These results are robust to including random fixed effects to account for heterogeneity in couples' frailty, see columns (3) and (4).[14] Tables A2 to A5 in the Appendix show the full set of coefficients. Regarding other controls, absolute time dedicated to housework and child care by the couple does not seem to matter much for separations, and neither does his income or hiring a cleaner.[15] Spouses having been married before or being home owners relate to a higher probability of separation. Married couples observed after 2008 seem to be less likely to separate which could be due to a change in time trend in divorce rates after 2008, as can be observed in Figure A-1 in the Appendix. Our result on the positive relationship between her market hours and separations is robust to using a continuous measure or different intervals of hours worked in the market, see Table A7 in the Appendix. Regarding housework and child care hours, our results are also robust to using his and her absolute hours dedicated to home production, see Table A8 in the Appendix. We also make sure that excluding individuals

[14] We also run linear regression models with couple fixed effects. The positive and significant coefficients on her full time employment remain robust, while coefficients on house work and child care have the expected signs but are not significant; see Table A6 in the Appendix.

[15] In some specifications her income relates positively to separations but only as long as we do not control for hours of housework and child care, which is in line with Bertrand et al [2015] 's finding that wives who earn more than their husbands do more housework to "compensate" for their higher earnings.

who violate the 24-hour time constraint does not significantly affect our results (see Table A9 in the Appendix).

Table 1: Risk of separation and wife's hours worked in the market and at home

	(1)	(2)	(3)	(4)
She works fulltime, $_{t-2}$	0.302	0.242	0.913	0.709
	(0.097)***	(0.101)**	(0.259)***	(0.273)***
He works fulltime, $_{t-2}$	0.202	0.247	0.596	0.738
	(0.22)	(0.223)	(0.616)	(0.624)
Her share hwk and child care, $_{t-2}$		-.397		-1.061
		(0.201)**		(0.536)**
Couple's hours, housework & child care $_{t-2}$		-.011		-.029
		(0.008)		(0.022)
She is employed, $_{t-2}$	0.047	-.010	0.165	0.008
	(0.104)	(0.108)	(0.292)	(0.299)
He is employed, $_{t-2}$	-.149	-.131	-.386	-.352
	(0.266)	(0.267)	(0.742)	(0.742)
Number of observations	18,771	18,771	18,771	18,771
Number of couples		3,384		3,384
Times observed (min)		1		1
Times observed (max)		15		15
Times observed(average)		5.547		5.547

SOEP data: 2000-2016. The dependent variable is "Separation or divorce in t". The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. Columns (1) and (2) are estimated by probit models and columns (2) and (4) by random fixed effects cloglog models. All columns include a polynomial of degree six for duration and the full set of controls (see last columns of Tables A2 to A5 in the Appendix).

To obtain a sense of magnitude, in Table 2 we report the marginal effects of her housework and market hours on the probability of separation. For working mothers, going from part to full time increases the probability of divorce by 0.27-0.36%, between two-thirds and half the baseline probability. Increasing her share in housework and child care from 0 to 100% decreases divorce probabilities by around 0.45%, a reduction of 85%. Marginal effects for couples where the wife does not work are very similar. Results are particularly strong for couples where both spouses have a medium level of education. In these couples which have a higher rate of separation (0.6%), women are more likely to work, to work fulltime and to work more hours compared to couples where both have low education. On the other hand, in couples where both spouses have high levels of education women are also more likely to work full time, but household income is 70% higher compared to that of medium educated couples. This allows highly educated couples to outsource part of home production; almost 40% of them hire a cleaner compared to only 7% of medium educated couples.

Couples where wives do more housework and child care are less likely to separate, whereas wives' additional hours in the market are related to a higher probability of separation. This might explain why so many married women only work part time, even though it is costly in terms of future earnings, In Appendix A.3 we show that returns to part time experience are significantly lower than returns to full time experience, while each year not working

Table 2: Marginal effects of wife's hours worked in the market and at home on separations

	All couples		Couple type: Education of Husband and Wife					
			High		Medium		Low	
Both work								
She works fulltime$_{t-2}$	.0036 (.0011)***	.0027 (.0011)**	.0025 (.0012)**	.0018 (.001)*	.0045 (.0015)***	.0034 (.0014)**	.0031 (.0012)**	.0024 (.0011)**
Her share hwk & child care$_{t-2}$	-	-.0045 (.0023)**	-	-.0029 (.0018)	-	-.0056 (.0028)*		-.0039 (.0022)*
She does not work								
She works fulltime$_{t-2}$	.0032 (.0014)**	.0028 (.0014)**	.0038 (.0031)	.0018 (.0011)	.0065 (.005)	.0035 (.0017)**	.0027 (.0013)**	.0024 (.0013)*
She is employed$_{t-2}$	.0005 (.001)	-.0001 (.0013)	.0006 (.0014)	-.00008 (.0008)	.0010 (.002)	-.00015 (.0016)	.0004 (.0008)	-.0001 (.0011)
Her share hwk & child care$_{t-2}$	-	-.0046 (.0026)*	-	-.0030 (.0020)	-	-.0057 (.0033)*		-.0040 (.0025)
Mean failure rate:	.0053		.0037		.0061		.0045	

SOEP data: 2000-2016. The marginal effects are estimated from probit regressions (see last columns of Tables A2 and A3 in the Appendix). They are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. High education refers to ISCED levels 5 & 6, medium education to ISCED 3 & 4, and low education to ISCED 1 & 2.

reduces hourly wages.[16] In particular, using a slightly different sample of married and single women with and without children from the SOEP for years 2011-2016, we estimate women's annual returns to experience for fulltime jobs at 3.5,% whereas each year spent not working is associated with 0.6% lower wages. Returns to part time experience, vary between -0.3% when using hourly wages and controlling for selection and 1.2% when using monthly wages. Overall our estimates are in line with findings in literature. For West German women, Wolf [2002] estimates zero returns to years of part time experience and between 1.5-2.3% for years of full time experience, while Beblo and Wolf [2000] do not estimate any differences in returns when assuming that part time employment generates half the effective experience acquired in full time jobs. These authors also find wage penalties for years of non-employment which strongly depend on their timing.[17]

Although in our data we observe individuals two years before separation and thus four to five years before divorce, and we also control for random fixed effects, we cannot rule out that other and potentially time-varying unobservable factors jointly determine decisions on hours worked, home production, child care, and divorce. Nevertheless, the empirical relationships between market hours, time dedicated to home production and child care, and divorce, together with lower returns to working part time give rise to a set of interesting questions:

[16] Our conjecture that market work is costly because time spent on home production and child care has to be reduced, potentially lowering the value of marriage ignores the possibility of adjusting leisure time instead. However, conditional on age of youngest child we observe hardly any variation in mother's leisure time independently of her market hours.

[17] For the US, Ferber and Waldfogel [1998] find returns for women of 5.3% (2.6%) for years of full (part) time experience.

Why in the face of non-trivial divorce risks do married women work so little? How are decisions regarding market hours and home production conditioned on divorce? In order to answer these questions we build a model economy.

3 Model

Our model economy is populated by men and women. At the beginning of adulthood, women and men live in couples, and they have one child (children make no decisions). One period is equivalent to three years and periods are indexed by the age of the child, a. Rather than distinguishing between younger and older individuals, we differentiate individuals by their child's age. We follow individuals until their child is 18 years old; i.e. for 6 periods, each lasting 3 years. Households receive utility from consumption of a market good and a home-produced good which requires time inputs and purchased market goods. If women work, they have to pay for child care which may be subsidized by the government. Every period, adult men spend a fixed fraction of their time at work whereas women divide their time between work, home production, and leisure. Women's wage rate depends on their initial productivity (education level) and their accumulated labor market experience.

Marriages At the beginning of adulthood, all men and women are matched in couples according to the distribution $\Pi(x, z)$, where x and z are wife's and husband's initial productivity levels respectively. Each couple is assigned an initial match quality, γ which is uniformly distributed across couples. At the end of every period each couple receives a match quality shock - γ' - from the distribution $\Gamma(\gamma'|\gamma)$ with a persistence parameter γ_c. Upon observing the shock, individuals decide whether to remain married or whether to divorce unilaterally. If couples divorce, they enter the next period as divorcées, and remain divorced for the rest of their lives.

Home production The home produced good, which also encompasses child care, requires the wife's time input (t_a^h) and a market purchased input, m_a.[18] The importance of the time input d_a is a decreasing function of the child's age,

$$H_a = (t_a^h)^{d_a}(m_a)^{(1-d_a)}, \tag{1}$$

[18]We assume husbands' time dedicated to home production to be zero because in the data this time does not vary across women's labor force participation status, see Figure A-5 in the Appendix.

where,

$$d_a = d_y^{a^{d_m}}, \tag{2}$$

with $d_y < 1$ and $d_m > 0$.

Utility Women receive utility from consumption of a market good, c_a , from consuming a home produced good H_a, from leisure t_a^l, and, if they are married they also enjoy the quality of their match (γ_a). Married men receive utility from the match quality, consumption of the private and the home-produced good, but not from their wives' leisure. Men's own leisure does not enter utility because it is assumed to be a fixed number. The utility of a married woman, $U_w(.)$ is hence given by

$$U^w(c_a, H_a, t_a^l, \gamma_a) = \frac{1}{1-\sigma_c} {c_a}^{1-\sigma_c} + \phi_h H_a + \frac{\phi_l}{1-\sigma_l} {t_a^l}^{1-\sigma_l} + \gamma_a,$$

while the utility of her husband is

$$U^h(c_a, H_a, t_a^l, \gamma_a) = \frac{1}{1-\sigma_c} {c_a}^{1-\sigma_c} + \phi_h H_a + \gamma_a.$$

For divorced women, utility U_d^f, is the same as for married women except that they do not enjoy any match quality. However, divorced men only obtain utility, U_d^m from consumption of the private good. We hence assume that upon divorce, children remain with their mother, and they only provide utility if present in the household.[19]

Wage dynamics Hourly wage rates grow according to the following process for the first 4 periods (12 years) of a woman's career. They remain constant afterwards.

$$w_t = (1 + g(l_{t-1}))w_{t-1}, \tag{3}$$

[19]This simplifying assumption allows us to only keep track of divorced women instead of divorced couples. In addition, according to Geisler et al [2018] around 61% of children in Germany live with their mothers after divorce.

where g - the growth rate - is a function of past labor market participation,

$$g(l_{t-1}) = [g^f g^p g^n]. \tag{4}$$

In order to map women's continuous labor force participation decisions to these growth rates, we assume that full time employment (l^f) requires that she works 50% of her time (8 hours per day), whereas part-time employment (l^p) requires that she works 25% (4 hours each day). Men are assumed to work full-time, thus their wages grow at rate g^f.

Labor force participation decision Every period the couple has to decide how much time the woman dedicates to market work. They decide whether she works or not, and if she does, whether she works part or full time. Her remaining time is split between home production and leisure.

3.1 Value Functions

3.1.1 Marriage

The value of marriage for a couple with a child of age a is defined as the weighted sum of individuals' expected values of marriage.

$$\max_{l_a, t_a^h, m_a} (\mu V_{m,a}^w(x, z, l_{a-1}, \gamma_a) + (1-\mu) V_{m,a}^h(x, z, l_{a-1}, \gamma))$$

s.t.

$$c_a = \Phi(2,1)(T(zl^f + w_a(x, l_{a-1})l_a) - m_a - (1-\omega)F_a^{l_a} I_{l,a} + T_k),$$

$$H_a = (t_a^h)^{d_a}(m_a)^{(1-d_a)}$$

$$1 = t_a^h + t_a^l + l_a,$$

where $\Phi(2,1) = \frac{1}{(2+1\epsilon_1)^{\epsilon 2}}$ denotes economies of scale in consumption and $T = \theta_0^m(zl^f + w_a(x, l_{a-1})l_a)^{1-\theta_1^m}$ is the tax schedule for married couples. F_a^l is the child care hourly fee to be paid if the woman works, and it depends on the age of the child and if she works full or part time. $I_{l,a}$ is an indicator function for a working wife. Child care costs are subsidized at rate ω. T_k denotes a government transfer to families with children.

The individual value of marriage for a woman with a child of age a is

$$V^w_{m,a}(x,z,l_{a-1},\gamma) = U^w(c_a,H_a,t^l_a,\gamma) + \beta EV^w_{m,a+1}(x,z,l_a,\gamma),$$

and her expected continuation value is

$$EV^w_{m,a+1}(x,z,l_a,\gamma) = E_\gamma(V^w_{m,a+1}(x,z,l_a,\gamma')IJ + V^w_{s,a+1}(x,l_a)(1-IJ))),$$

where I and J are indicator functions equal to 1 if the value of marriage is larger than the value of divorce for the wife and the husband respectively. The first term corresponds to the expected value of marriage in the following period, while $V^w_{s,a+1}(.)$ is the value of divorce in the following period defined below.

3.1.2 Divorced women

Divorced women receive utility from consumption of the market good and the home produced good,

$$V^w_{s,a}(x,l_{a-1}) = \max_{l_a,t_h,m_a} (U(c_a,H_a,t^l_a) + \beta V^w_{s,a+1}(x,l_a) - c_d I_f)$$

s.t.

$$c_a = \Phi(1,1)(T(w_a(x,l_{a-1})l_a) - (1-\omega))F^{l_a}_a I_{l,a} - m_a + s_a + T_k + T_s + T_w(1-I_{l,a}))$$

$$1 = t^h_a + t^l_a + l_a$$

$$H_a = (d_a m^\rho_a + (1-d_a)(t^h_a)^\rho)^{1/\rho}$$

where $\Phi(1,1) = \frac{1}{(1+1\epsilon_1)^{\epsilon 2}}$ and $T = \theta^s_0(w_a(x,l_{a-1})l_a)^{1-\theta^s_1}$ are economies of scale for a household composed of one child and one adult, and the tax schedule for single individuals respectively.

Divorced women with children will receive child alimony from their ex-husbands, s_a, which could dependent on the child's age. In addition, divorced women receive a transfer T_w if they do not work. Furthermore, working fulltime ($I_f = 1$) implies a utility cost, c_d, for divorced women.[20] If a woman divorces, she remains divorced for the rest of her life, thus

[20]The transfer and the utility cost are set for calibration purposes to match the fact that relatively few divorced mothers work full time and many do not work at all. Potentially these could represent welfare transfers to non-working divorced mothers and the utility cost of being a lone parent working full time respectively.

her expected continuation value is

$$EV^w_{s,a+1}(x, l_a) = V^w_{s,a+1}(x, l_a).$$

3.1.3 Divorced men

Divorced men only receive utility from consumption of the market good

$$V^h_{s,a}(z) = \max_{c_a}(U(c_a)) + \beta V^h_{s,a}(z)$$

s.t.

$$c_a = T(zl^f) - s_a.$$

Divorced men pay alimony s_a to their ex-wives. Once divorced, they remain divorced for the rest of their lives, and hence $EV^h_{s,a+1}(z) = V^h_{s,a+1}(z)$.

4 Calibration

In our model, households face a discrete choice of mothers' employment: full, part time or non-employment. Time spent on home production can be up to 16 hours with half hour intervals. Leisure is defined as disposable time of 16 hours minus time dedicated to market work and home production. Expenditure on market goods for the production of the home good is capped at 30% of household income and can be chosen in 1% increments.[21] All monthly payments and transfers are transformed to per unit of full time working hours, dividing all amounts by 160 (four weeks, five days per week, 8 hours per day).

Some model parameters are set exogenously based on outside information, whereas others are calibrated to match data moments from a 2011-2016 SOEP sample of West German mothers age 20 to 60 with a youngest child below the age of 18. In particular, we consider weighted statistics, and in line with our model we group mothers by the age of their children. We aggregate over 2 periods. During periods 1 and 2 when children are [0-3) and [3-6) years old, mothers have "small children", and during periods 3 and 4 when children are [6-9) and [9-12) years old they have "school-aged children".

[21] Note that this cap is never binding but turns out to be necessary for computational reasons.

To pair women and men, we use a matching matrix $\Phi(s, s)$, with $\Phi(i, j)$ being a particular element of this matrix, and where $i \in s$ and $j \in s$ denote women's and men's levels of education respectively - see Table A10 of the Appendix. In particular we use the International Standard Classification of Education (ISCED 1997) and define: (1) primary schooling, (2) lower secondary, (3) upper secondary or vocational, (4) upper secondary and vocational, (5) higher vocational, and (6) university, see Table A11 in the Appendix for the distribution of women by education. Following Guner et al [2012], we use men's average hourly wages by education at ages 25 to 35 to assign initial wage rates, see Table A12 in the Appendix. We assume that men and women have the same initial wages, but due to households' decisions on women's labor market participation their wages will then evolve differently. Therefore, the gender wage gap arises endogenously in our model.

Table 3 displays the parameter values. Given that a model period corresponds to three years, the discount factor β is set to 0.88 to match a yearly interest rate of 4%. We normalize the weight of wife's utility in the value of marriage, μ, to 0.5. Prices of child care are assumed to differ by the child's age and the time spent in child care. Combining the probability of obtaining a subsidized child care slot with the costs of public and private care, Wrohlich [2011] reports an expected monthly cost of part time day care in Germany for children aged 0-2 (3-6) of 183€ (90€). We convert these numbers into hourly costs of child care for part time working women (30 hours a week) of 1.525 (0.75). For children ages 7-9 who attend half-day schools we assume that part-time working mothers do not need to pay any child care costs. For children above the age of 9, there is no child care cost at all. Parameters ϵ_1 and ϵ_2 correspond to economies of scale in consumption, and following Cutler and Katz [1992] ϵ_1 is set to 0.4 and ϵ_2 takes on value 0.5. We use our estimated coefficients from the Mincerian wage regressions for the growth rates of women's wages according to experience (see Section A.3). Given that one period is equivalent to three years we set the growth rates of wages when working full time to $(1 + g)^3$ -$g^f = 0.1112$ (yearly growth, 0.0357). For returns to part time experience we use $g^p = 0.0300$, (yearly growth, 0.099), and we estimate that no participation in the labor market leads to an annual depreciation of wages, $g^n = -0.0240$, (yearly growth, -0.0081).

Policy parameters for the tax schedule (τ_0, τ_1), child care subsidies (ω), child alimony (s_a), and the child transfer (T_k) are taken directly from German data. We follow Holter et al [2019] and set τ_0 for both married and single individuals to 0.95 and τ_1 to 0.23 for married and 0.19 for single individuals. According to the OECD [2008], public child care slots in Germany are subsidized but the availability of these slots for very small children (0-3) is highly restricted,

Table 3: Parameters

Parameters set a priori		*Value*	*Source*
β	discount factor	0.88	-
μ	weight of wife's utility	0.5	normalization
F_1^p	cost of child care, part-time, period 1	1.525	Wrohlich [2011]
F_2^p	cost of child care, part-time, period 2	0.75	Wrohlich [2011]
ϵ_1	economies of scale	0.4	Cutler and Katz [1992]
ϵ_2	economies of scale	0.5	Cutler and Katz [1992]
g^f	return full time	0.1112	Mincer regression, Section A.3
g^p	return part time	0.030	Mincer regression, Section A.3
g^n	return not working	-0.024	Mincer regression, Section A.3
Policy Parameters			
θ_0	tax function	0.95	Holter et al [2019]
θ_1^m	tax function, married	0.23	Holter et al [2019]
θ_1^s	tax function, single	0.19	Holter et al [2019]
ω	child care subsidy	0	normalization
T_k	child transfer	1.125	Kindergeld
s	child alimony	2.9741	SOEP 2011-2016
Calibrated Parameters		*Value*	*Target*
$F_{1,2,3}^f$	cost of child care, full-time, periods 1, 2, 3	1.725	full time working mothers with small children
d_y	parameter of time input in home production	0.826	time home production, full time worker, period 1
d_m	parameter of time input in home production	0.447	time home production, part time worker, period 1
ϕ_h	utility weight home produced goods	1.6368	expenditure on children by couples
ϕ_l	utility weight leisure	0.8505	time home production, all mothers
σ_c	curvature of utility, consumption	0.89	full time working mothers school-aged children
σ_l	curvature of utility, leisure	0.45	non-working mothers school-aged children non-working mothers small children
γ_l	location parameter, match quality	-0.7105	divorcees after period 1
γ_c	persistence in match quality	0.8	divorcees after period 2
c_d	utility cost, full time working divorced mother	3.05	full time working divorced mothers, period 2
T_w	transfer divorced non-working mothers	2.049	non-working divorced mothers, period 2

especially in West Germany. The large majority of mothers with very small children does not have access to subsidized child care, and effective child care costs are high. This is why we set child care subsidies, ω, equal to zero in our benchmark economy. On average, German households with one child receive a transfer ("Kindergeld") of 180€ which in our model is equivalent to setting T_k to 1.125. We assume that all divorced fathers pay the average alimony observed in our SOEP data (475.851€), setting s_a to 2.9741 for all periods. For computational reasons, we normalize all our prices by the highest initial hourly wage.

Taking the two prices of part time child care from the literature, we calibrate one price for full-time child care by targeting the full time participation of mothers with children between the ages of 0 and 6. Mothers in Germany tend to be on parental leave for at least one year, and hence it is hard to estimate the cost of full time child care separately for mothers with children ages 0-2 and 3-6, as we observe very few women participating full time especially with very small children. We also assume the same child care costs for full time working

mothers of children ages 7-9. Recall that we assume no child care costs for children older than 9. For housework and child care we assume a Cobb-Douglas production function, and we calibrate parameters d_y and d_m to match the share of time in home production of mothers who work full time and those who work part-time in period 1 (when children are 0-3). The weight of home production in utility ϕ_h is set to 1.6368 to target couples' expenditure on home production and child care as reported by the Statistisches Bundesamt [2015b].[22] The weight of leisure in utility ϕ_l is calibrated to match time spent by all married mothers on housework and child care. The curvature of the utility function σ_c and the curvature of the utility of leisure, σ_l are calibrated to match three moments related to mothers' labor force participation: i) the share of mothers with small children who work, ii) the share of mothers with school-aged children who work and iii) the share of mothers with school-aged children who work full time.

Finally, we assume that couples' match quality is distributed according to a generalized Pareto distribution $\Gamma(\gamma)$ with location parameter γ_l calibrated to -0.7105 to target the share of individuals divorcing after the first period. Persistence, or the probability of receiving the same match quality in the following period, $p(\gamma_c)$ is set to 0.8 to match the share of divorced individuals after period 3. To accurately reflect the value of divorce we need to match labor force participation of divorced mothers. We target the share of divorced mothers in the second period who participate and who participate full time, by respectively setting the transfer to non-working divorced mothers (T_w) to 2.049 and the utility cost of full time employment (c_d) to 3.05.

5 Results

Table 4 presents targeted moments from our benchmark model together with the corresponding data moments. Our model matches the data on married mothers' labor force participation fairly well, although we slightly overestimate full time participation and non-participation of mothers with small and school-aged children. However, our model captures the fact that as children grow up, mothers' full and part time participation increases. We are also able to match the share of time all married mothers spent on home production, as well as relative

[22] In particular we use expenditure shares for couples with one child, and we sum monthly expenditure shares of the following items: i) dry cleaning and show repair (0.1%); ii)home maintenance (0.9%) iii) house keeping services (0.4%) iv)health care services (1.5%) v)car, motorbike, bicycle repair and maintenance (1.6%), vi)private tutoring and child care (1.5%), vii)restaurants (3.8%)viii) wellness (0.9%), ix)other services (1.3%).

differences in home production by full, part time, and non-participating mothers with very small children (0-3 years). Our model somewhat overestimates the expenditure share on home production and children. We match the share of divorced women with children ages 3-6, but slightly overestimate the share of divorced women with children 9-12. Our model produces lower numbers for full time employment and non-employment of divorced women compared to the data, but we do capture the fact that the former (latter) is much more (less) likely among divorced compared to married women.

Table 4: Data and model moments: targeted

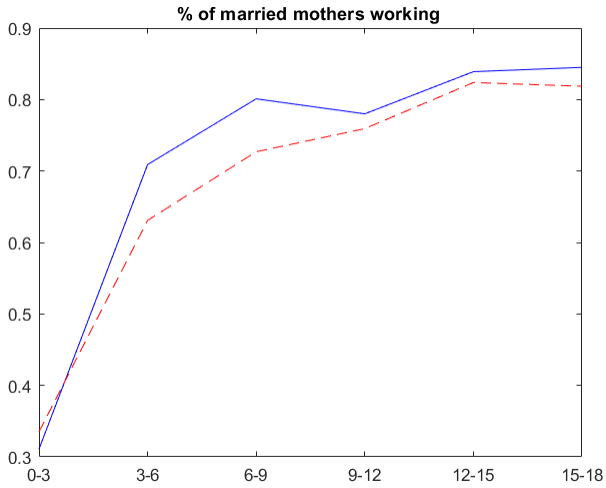
	Model	Data
Moments referring to married mothers		
% working full time, small children	14.31	12.60
% non working, small children	51.70	50.20
% working full time, school-age children	16.11	12.80
% non working, school-age children	25.69	20.90
% time spent on home production, full time work, period 1	34.37	25.81
% time spent on home production, part time work period 1	59.58	63.68
% time spent on home production, no work period ,1	86.04	91.55
% time spent on home production, all	61.26	61.54
expenditure on homeproduction, children, as % of income	15.97	12.00
Moments referring to divorced mothers		
% divorces, period 2	7.64	7.30
% divorces, period 4	21.90	18.50
% divorced working full time, period 2	15.98	19.20
% divorced non working, period 2	14.46	17.20

Notes: With the exception of expenditure on children as % of income which comes from the Statistisches Bundesamt [2015b], all other data moments are from a weighted 2011-2016 SOEP sample of West German mothers age 20 to 60 with a youngest child below the age of 18.

To assess the validity of our model, we look at married mothers' labor force participation rates throughout their kids' entire childhood, see Figure 1. The model reproduces the data well. Note that for calibration we only used labor force participation moments for married mothers of children ages 0-6 and 6-12. Similarly, Figure A-6 in the Appendix displays the percentage of married mothers working full and part time throughout their kids' childhood. While the model overestimates the increase in the share of married mothers working full time as their children grow, it does a very good job in matching the pattern of strongly increasing part time participation over the child's first nine years of life.[23]

[23]Subsequent children, an additional reason why women might not return to full time employment are absent in our model but are included in the data given that – in order to not be left with too few observations – we only limit our data to women whose youngest child is of a particular age.

Figure 1: Non-targeted moments: % of married mothers who work throughout their kids' childhood



Solid line: Data; Dashed line: Model. Two targeted moments: LFP of married mothers with children ages 0-6 and 6-12.

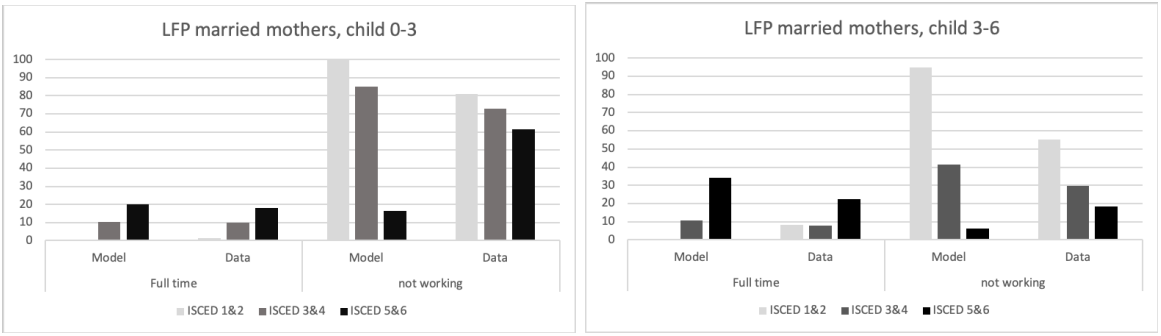
We also consider non-targeted moments on labor force participation and divorce rates for married mothers with different levels of education. Statistics displayed in Figure 2 show that the model replicates well the empirical fractions of low, medium, and highly educated women who work full time when their children are under the age of three.[24] Our model is able to capture the positive relationship between mothers' level of education and labor force participation rates when children are very small. But we underestimate the share of highly educated mothers who do not work which in the data might be due to aspects the model ignores, such as subsequent children. The model captures fairly well full time participation of medium educated mothers of children ages 3-6 as well as the increase in full time participation of highly educated mothers over their child's first six years of life. However, for low educated mothers the model only generates a very tiny fraction of this increase (from 0% to 0.06%). On the other hand, the model replicates well the reduction in non-employment by medium educated mothers as children grow.

In Table 5 we display divorce rates of mothers with children ages 3-6 in model (after the first period) and data. Targeting an average divorce rate of 7.3%, we are able to match closely divorce rates by mothers' level of education.[25] Finally note that in line with data,

[24] Traditionally public child care in West Germany was only available for children age 3 and above, see e.g. Hank and Kreyenfeld[2003].

[25] While in principle men and women can initiate divorce in our model, once calibrated only women file for divorce, which seems to be somewhat in line with empirical evidence on women being much more likely

Figure 2: Non-targeted moments: Married mothers' labor force participation by education



Notes: All data moments are from a weighted 2011-2016 SOEP sample of West German mothers age 20 to 60 with a youngest child below the age of 18.

in our model leisure time of mothers with children ages 0-3 does not vary with their labor force participation status. Taken together its performance along targeted and non-targeted moments, our model seems to capture fairly well time allocation and divorce decisions of mothers with different levels of education and with children of different ages.

Table 5: Non-targeted moments: Divorce rates by education

Level of education	ISCED	Model	Data
Mothers with children age 3-6:			
Low	1&2	9.3	10.4
Medium	3&4	8.95	8.1
High	5&6	4.3	4.5

Notes: In the data, age of child refers to age of youngest child, while in the model these are divorce rates at the end of period 1, divorcees in period 2. All data moments are from a weighted 2011-2016 SOEP sample of West German mothers age 20 to 60 with a youngest child below the age of 18.

5.1 Divorce and women's employment decisions

To highlight the importance of modeling divorce endogenously we carry out two exercises: the first one assumes the risk of divorce to be exogenously given and hence independent of couples' value of marriage, while in the second exercise we rule out divorce.[26] In particular, for the first exercise, we take for each period the share of divorced individuals by couple

to file for divorce, see Rosenfeld [2018].

[26]Most of the literature on the labor force participation of married women follows one of these two approaches. Greenwood et al [2016], Mazzocco et al [2013], Eckstein et al [2019] are some of the few exceptions to the rule, but different from us, they do not focus on the relationship between hours worked and divorce.

type from our benchmark economy to determine 36 different divorce probabilities.[27] The resulting model moments from this exercise are displayed in Table 6 next to those from our benchmark economy.

Table 6: Exogenous divorce

	(1) Benchmark	(2) Exogenous divorce
Moments referring to married mothers		
% working full time, period small	14.31	36.72
% non working, period small	51.70	47.90
% working full time, period school-aged	16.11	34.61
% non working, period school-aged	25.69	17.30
% working full time, period 1	11.93	36.95
% working full time, period 2	16.69	36.50
% working full time, period 3	15.88	34.71
% time spent on home production, full time work, period 1	34.37	34.37
% time spent on home production, part time work period 1	59.58	59.38
% time spent on home production, no work period ,1	86.04	86.19
% time spent on home production, all	61.26	54.81
expenditure on children, as % of income	15.97	14.35
Moments referring to divorced mothers		
% divorces, period 2	7.64	7.30
% divorces, period 4	21.90	18.50
% divorced working full time, period 2	15.98	16.74
% divorced non working, period 2	14.46	14.46

Notes: In column (2), we take from our benchmark model the observed divorce probabilities for each of the 36 couples and assign those to each couple of the same type as a given exogenous probability. Effectively all couples of the same type hence make identical decisions.

When divorce is exogenous and independent of couples' value of marriage, married mothers work more full time while the share of non-employed women hardly changes. Unable to affect the probability of divorce via decisions on time allocation, women work more full time which provides for more current consumption and guarantees higher future wages increasing women's outside option. On the other hand, when divorce is endogenous women work fewer hours in the market, they work more part time and spend more time on home production. This is due to two reasons: i) with more time in home production and less time working in the market, she accumulates less human capital which lowers her own income and makes the divorce state less attractive to her, thus reducing the risk of separation and ii) when divorce is endogenous it depends on couples' known match quality and women in stable couples know

[27] We have also tried with divorce probabilities depending on couple's type and match quality and divorce probabilities depending on couple's type and every couple receiving the average match quality of the distribution. Results are very similar.

that their risk of separation is lower, and hence they are willing to do more home production, forgoing human capital accumulation.[28]

Our second exercise that rules out divorce and effectively proclaims all couples stable allows us to differentiate between these two mechanisms. Table 7 displays the results from this exercise next to those from our benchmark economy. When we rule out divorce, married women work more full time, and they also work more than in our benchmark economy in all periods. Expenditure on children is reduced and and less time is spent on home production. These findings could in principle be due to selection. Couples who would have divorced must now remain married, and hence their decisions will affect aggregate moments of married individuals (selection effect). On the other hand, not being able to divorce also affects individuals' decisions directly (behavioral effect). We isolate the behavioral effect by considering only decisions made by women who would have remained married, taking from the benchmark economy for each period the share of couples who remain married by education type, previous labor force participation of the wife, and match quality. We observe that in the no-divorce scenario, even women who would have remained married also work more full time than in the benchmark economy in both periods 2 and 3. Note that these higher labor force participation rates of married mothers along both the extensive and intensive margin are thus quite similar to those from the exogenous divorce scenario. This suggests that the dominant mechanism in our benchmark economy is not the one operating through women in stable couples spending more time on home production. Quite the contrary, results from the no-divorce scenario indicate that women in stable couples also prefer less home production and more consumption of the private good.

5.2 Heterogeneity

Does the threat of divorce condition labor force participation decisions of all women equally? In Figure 3 we display heatmaps for wives' changes in labor force participation and homework and child care time when divorce becomes exogenous. In general, time allocation decisions of medium and highly educated women are affected most. Couples where both individuals

[28] Although in our model we do not allow men to work part time, a similar argument could be made as to why men work so much. When divorce is endogenous she loses more, the more he works and contributes to household income. Hence, to reduce the divorce risk men would optimally choose to work full time. Note however, that empirical evidence on this matter is much harder to come by given the general lack of variation in married men's employment status or hours worked which is also the reason we abstain from modeling this decision.

Table 7: Ruling out divorce

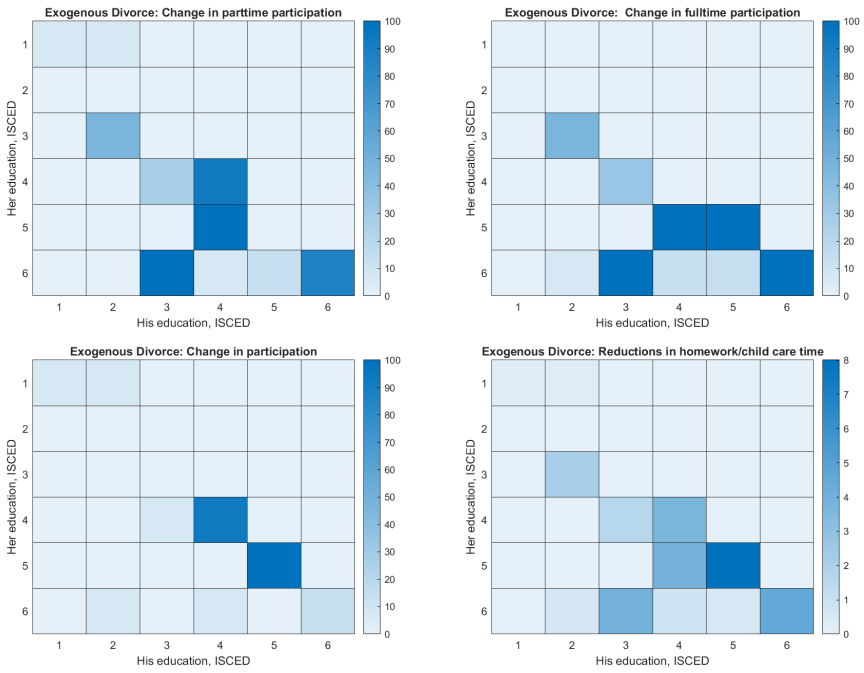
	(1) Benchmark	(2) No divorce	(3)Behavioral effect only
Moments referring to married mothers			
% working full time, period small	14.31	36.94	
% non working, period small	51.70	34.43	
% working full time, period school-aged	16.11	36.94	
% non working, period school-aged	25.69	19.86	
% time spent on home production, all	61.26	52.93	
expenditure on children, as % of income	14.35	13.95	
% working full time, period 1	11.93	36.95	-
% non working, period 1	66.49	35.49	-
% working full time, period 2	16.69	36.94	32.75
% non working, period 2	36.91	33.37	35.13
% working full time, period 3	15.88	36.94	30.93
% non working, period 3	27.31	19.86	23.79
% time spent on home production, period 1	74.17	59.33	-
% time spent on home production, period 2	61.31	55.36	56.85
% time spent on home production, period 3	56.08	48.98	51.44

Notes: In column (2), we rule out divorce and all couples remain married independently of the value of their marriage. In column (3) we only report decisions by those women who would have remained married by taking from the benchmark economy for each period the share of couples who remain married by education type, previous labor force participation of the wife, and match quality.

have lower levels of education or couples where he has higher educational attainment than his wife, hardly see their decisions altered. Results look very similar when considering the no divorce case instead (see Figure A-7 in the Appendix).

Why are decisions of medium and highly educated women mostly affected by how divorce is modeled? These women are in a position to maximize the value of their marriage via more consumption or more home production; the difference being that the former increases the attractiveness of the outside option for her and hence the divorce risk. On the other hand, wives in low educated couples work whenever their wages are higher than child care costs because due to relatively low household income the marginal utility of private consumption in these couples is very high. In couples where he has higher educational attainment and thus earns relatively more, household income is high enough for the marginal utility of private consumption to be relatively low. Whatever she can provide in terms of own income in these couples is never high enough to make up for forgone home production, independently of the threat of divorce. These findings are in line with our empirical estimates of larger positive (negative) marginal effects for medium educated couples regarding her hours in the market (home production) and the risk of separation.

Figure 3: Changes in labor force participation and housework/child care time of mothers with small children (ages 0-3) when divorce becomes exogenous, by couple type



International Standard Classification of Education (ISCED): (1) primary schooling, (2) lower secondary, (3) upper secondary or vocational, (4) upper secondary and vocational, (5) higher vocational, and (6) university.

6 Policy experiments

As discussed before, alimony payments, joint taxation, and lack of child care are three additional driving forces which could also explain why married women work so little. To test how couples' considerations of divorce risk interact with these factors we carry our three policy experiments: a subsidy to child care costs, eliminating joint taxation, and higher alimony payments.

Table 8 reports the model's moments in our benchmark economy next to those when we introduce a 13% subsidy (ω) to child care costs. Note that this is the amount necessary to decrease child care costs faced by mothers working full-time in the first period to those faced by mothers working part-time in the same period. In our experiment the same subsidy is applied to child care costs in all periods and independently of mothers' labor force participation status. Lowering the cost of childcare leads to more married mothers working full time when children are small (0-6 years), and in particular when they are between 3 and 6 years old and mother's time in home production and child care becomes less important. As

the costs of raising a child are lowered, divorce increases. Note that the small increase in the share of non-working married mothers is due to a composition effect, as more women, and in particular those who work, divorce. Among divorced women, the share of those not working decreases. The increase in divorce also feeds back into women's labor force participation, raising the share of full time workers. When we repeat the experiment and divorce is ruled out, more couples decide that she works full time as child care becomes cheaper. However, this increase is lower than in our benchmark economy, due to the fact that under this scenario there is no increased threat of a higher divorce risk. As more women work full time, less time is spend on home production. Given the assumption of a Cobb-Douglas production function for home production, as time is reduced, we expect expenditure to increase. However, with increasing income the expenditure share devoted to child care and home production falls.

Table 8: Experiment: Subsidy to child care costs

	(1) Benchmark	(2) 13% Subsidy
Moments referring to married mothers		
% working full time, period small	14.31	20.69
% non working, period small	51.70	51.76
% working full time, period school-aged	16.11	29.84
% non working, period school-aged	25.69	25.70
% time spent on home production, full time work, period 1	34.37	35.06
% time spent on home production, part time work period 1	59.58	59.53
% time spent on home production, no work period ,1	86.04	86.05
% time spent on home production, all	61.26	58.89
expenditure on children, as % of income	15.97	15.32
Moments referring to divorced mothers		
% divorces, period 2	7.64	8.03
% divorces, period 4	21.90	22.13
% divorced working full time, period 2	15.98	17.22
% divorced non working, period 2	14.46	13.75

In the second experiment we eliminate joint taxation, see Table 9. As working becomes more attractive for the secondary earner, more married mothers work and more work full time. This reduces their time spent on home production and child care and expenditure on these items increases, but falls as a share of income. As women work more, they accumulate more human capital making divorce more attractive and divorce rates increase. This is why labor force participation effects here are larger compared to an exogenous divorce scenario where the threat of divorce remains constant. Eliminating joint taxation has the largest effects on mothers working full time under the no divorce scenario, as it affects the entire lifetime

income of all couples. On the other hand, the policy change does not affect the income of divorced individuals and hence changes in divorced women's labor force participation are only due to composition effects as more women divorce.

Table 9: Experiment: Eliminating joint taxation

	Benchmark $\theta_1^m = 0.23$; $\theta_1^s = 0.19$	No joint taxation $\theta_1^m = \theta_1^s = 0.19$
Moments referring to married mothers		
% working full time, period small	14.31	31.97
% non working, period small	51.70	38.30
% working full time, period school-aged	16.11	35.24
% non working, period school-aged	25.69	23.33
% time spent on home production, full time work, period 1	34.37	34.38
% time spent on home production, part time work period 1	59.58	59.51
% time spent on home production, no work period ,1	86.04	85.31
% time spent on home production, all	61.26	54.69
expenditure on children, as % of income	15.97	14.36
Moments referring to divorced mothers		
% divorces, period 2	7.64	8.29
% divorces, period 4	21.90	25.66
% divorced working full time, period 2	15.98	15.71
% divorced non working, period 2	14.46	15.88

Finally, we increase alimony payments by 10% which leads to lower full time participation by married mothers, see Table 10. However, the share of women not working only increases among those with very small children ages 0-3, when mothers' time in child care matters most. For those with older children not working becomes less attractive because divorce also becomes more likely when alimony payments are higher. Hence women have more incentives to accumulate human capital. Time spent on home production and child care increases overall, driven by the relativity large increase in non-working mothers when children are very small. As more time is devoted to children we expect expenditure on children to fall, but lower income of couples implies that the expenditure share increases. As expected, higher alimony payments lead to a reduction in labor force participation of divorced mothers, both along the intensive and extensive margin. Under the exogenous divorce scenario, on the other hand, we only observe a reduction in the share of divorced women working full time. This highlights the fact that changes in alimony payments only affect married couples decisions in as far as they are able to alter the probability of divorce. Our results are hence in line with empirical findings in Chiappori et al [2017] who did not find any affect of a change

in Canadian alimony law on women's labor force participation decisions in newly formed couples.

Table 10: Experiment: Increase in alimony payments

	Benchmark Benchmark	Alimony - 10% increase
Moments referring to married mothers		
% working full time, period small	14.31	12.03
% non working, period small	51.70	66.38
% working full time, period school-aged	16.11	13.61
% non working, period school-aged	25.69	25.30
% time spent on home production, full time work, period 1	34.37	34.38
% time spent on home production, part time work period 1	59.58	59.87
% time spent on home production, no work period ,1	86.04	85.78
% time spent on home production, all	61.26	63.64
expenditure on children, as % of income	15.97	16.53
Moments referring to divorced mothers		
% divorces, period 2	7.64	9.72
% divorces, period 4	21.90	26.25
% divorced working full time, period 2	15.98	14.28
% divorced non working, period 2	14.46	14.08

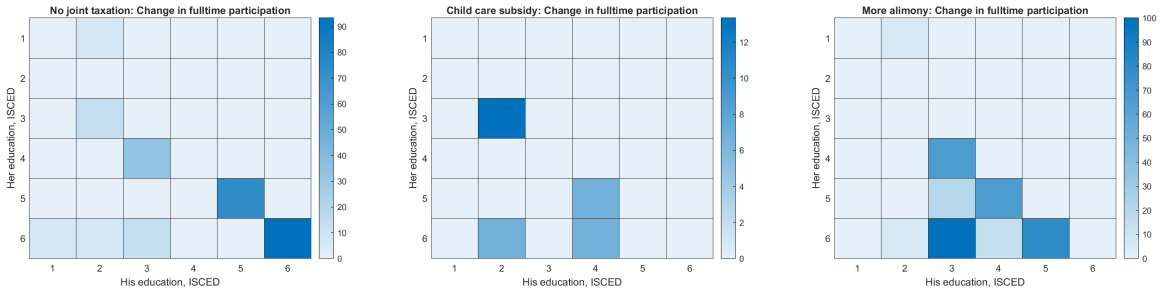
6.1 Heterogeneity

Figure 4 shows heatmaps for absolute changes in full time participation of mothers with very small children (ages 0-3) under each policy experiment. Note that the direction of the change is negative in the case of higher alimony payments and positive in the case of child care subsidies and eliminating joint taxation. Under each policy experiment, again, mostly mothers of medium and higher education change their labor force participation decisions. However, this might depend on the size of each policy. If, for instance, subsidies were high enough to lower child care costs to below wages of low educated women their full time participation might also change.

Under the assumed magnitudes in policy changes (eliminating joint taxation and child care subsidies), higher full time participation of medium and highly educated mothers of small children contribute to higher divorce rates, see Figure 5.

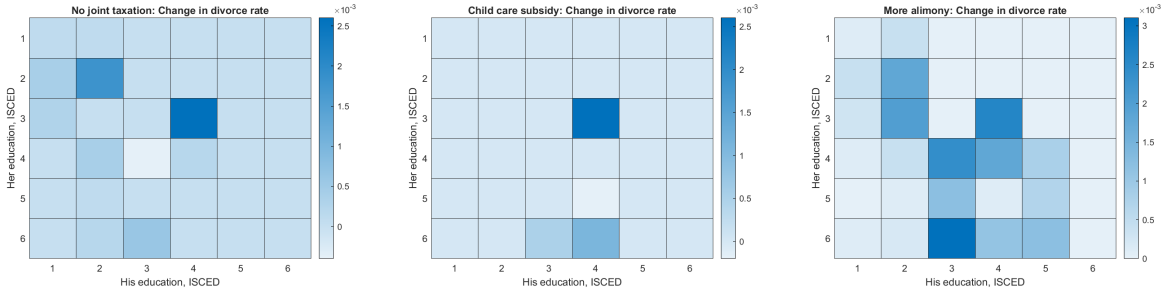
In the case of higher alimony payments also divorce rates of lower educated couples increase. However, we see no effect on divorce rates of women married to very high educated men,

Figure 4: Absolute changes in full time employment by mothers of small children (ages 0-3) under different policy experiments, by couple type



International Standard Classification of Education (ISCED): (1) primary schooling, (2) lower secondary, (3) upper secondary or vocational, (4) upper secondary and vocational, (5) higher vocational, and (6) university.

Figure 5: Changes in divorces rates of mothers with small children (ages 0-3) under different policy experiments, by couple type



International Standard Classification of Education (ISCED): (1) primary schooling, (2) lower secondary, (3) upper secondary or vocational, (4) upper secondary and vocational, (5) higher vocational, and (6) university.

because the increase of 10% in alimony payments is not enough to compensate for losing out on his income. In the case of child care subsidies, the change in divorce rates is concentrated among couples, where he has medium education and she has medium or higher education. In these couples, child care subsidies hardly affect women's labor force participation but they increase the value of her outside option, increasing divorce rates. When we eliminate joint taxation, mothers of small children in low educated couples start to work part time, reducing their time spent on home production and child care which increases their human capital, making her outside option more attractive and increasing divorce.

7 Conclusion

We present empirical evidence for a positive relationship between wives spending more hours working in the market (and fewer hours dedicated to home production and child care) and

divorce for married couples in Germany. This suggests that even though working part time implies a cost in terms of lower future wages, affecting in particular divorced women, married women could be optimally choosing to work only part time to reduce the risk of divorce.

We then build a dynamic life cycle model of women's labor force participation, home production, and divorce decisions, that allows us to study this mechanism in detail. We use our model to highlight the importance of modeling divorce endogenously when accounting for married women's time allocation. When divorce is exogenous or ruled out, full time participation of married women is overestimated, their time dedicated to home production and child care is underestimated and part time participation almost ceases to exist, particularly for medium and highly educated women. Running three policy experiments, we show that conclusions from each are altered when divorce is assumed exogenous. Hence, policies aimed at increasing labor force participation of married women need to take into account their direct effects on family formation as well as the fact that endogenous divorce decisions condition anticipated effects for married women's market hours.

One interesting road for future research would be to also consider couples' decisions to have subsequent children. Within the framework of our model this could potentially be interpreted as a discrete increase in the value of marriage, and as such a way to mitigate divorce risks while at the same time leaving mothers more exposed to divorce shocks as their time in home production/child care will be more valuable for longer periods of time.

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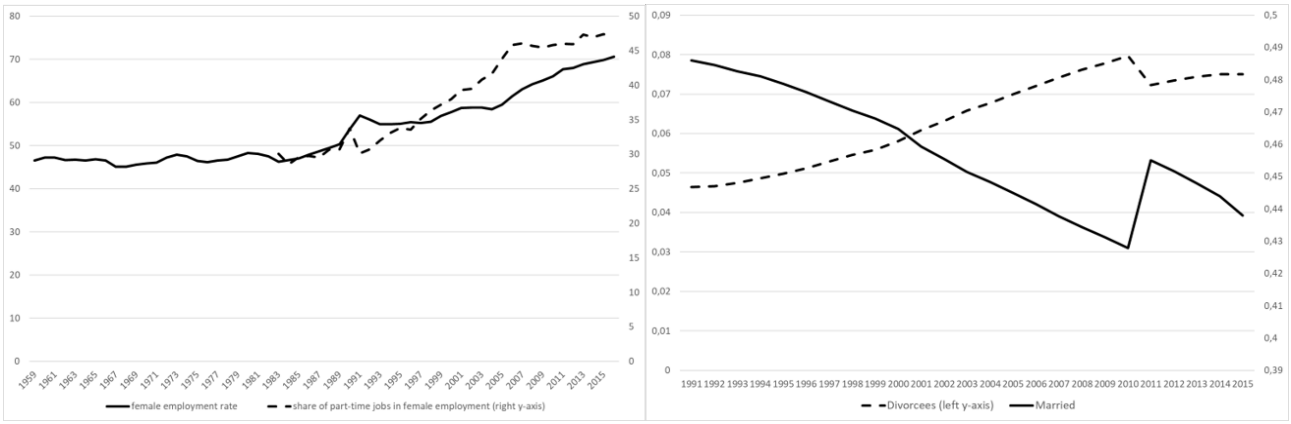
A Appendix: For Online Publication

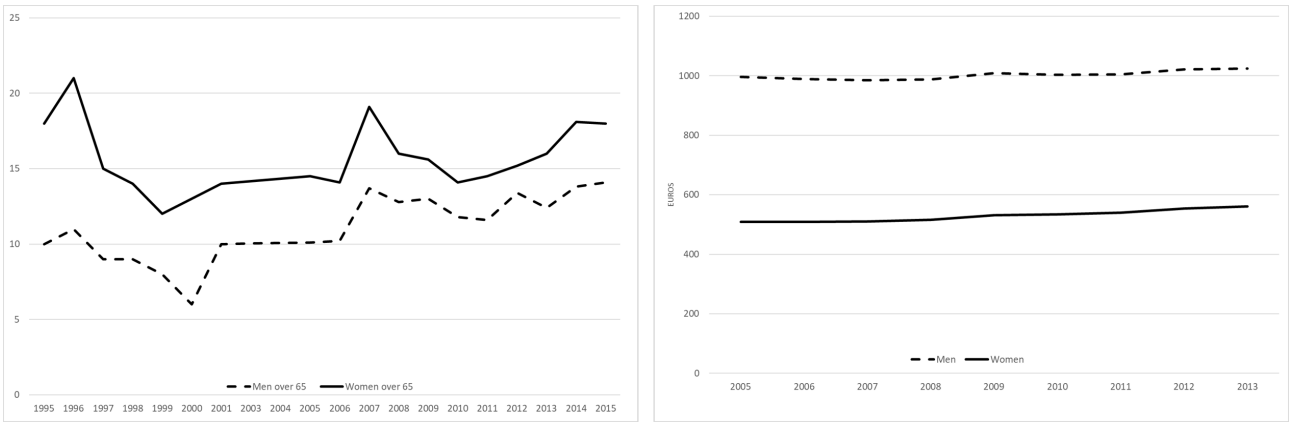
A.1 Figures

Figure A-1: Female employment, part-time work, married and divorced individuals in Germany



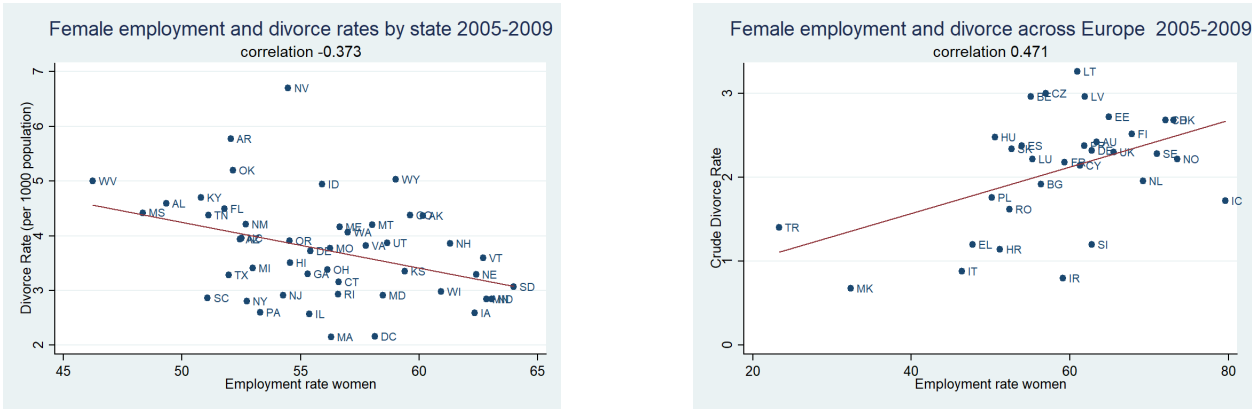
Data: Statistisches Bundesamt for demographics and female employment; OECD for share of part-time.

Figure A-2: Average old age pensions and at risk-of-poverty-rates for individuals over 65, for men and women, Germany



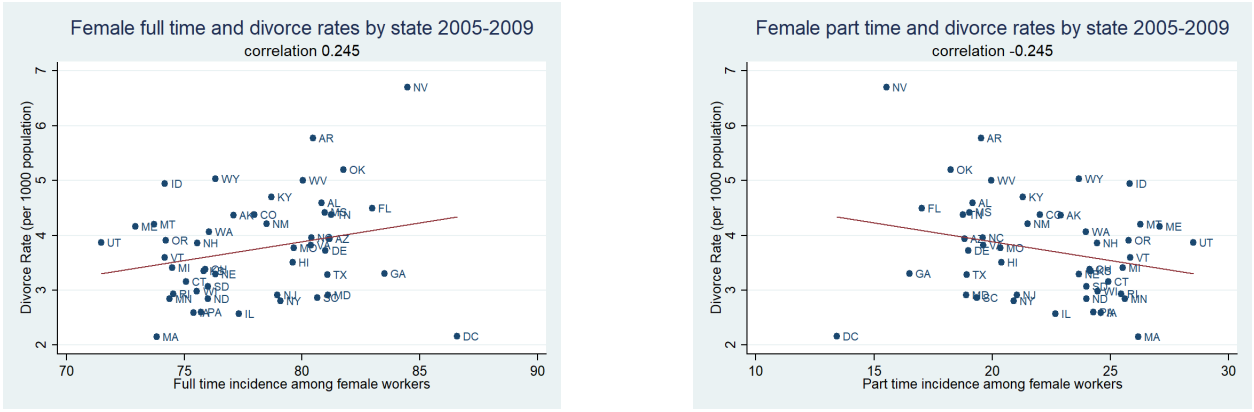
Data: Statistisches Bundesamt (monthly averages correspond July 1st of each year)

Figure A-3: Divorce rates and female employment in US and Europe



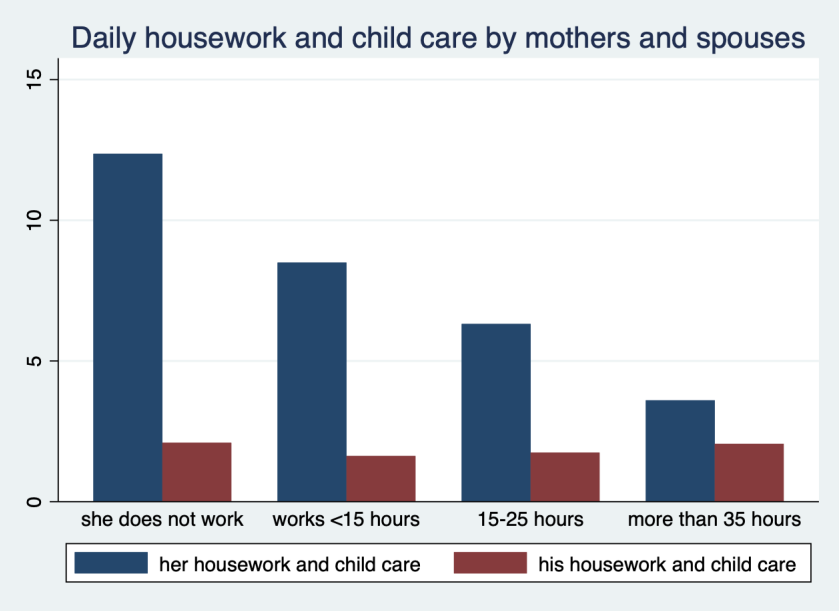
Divorces: US National Center for Health Statistics-National Vital Statistics Report; population numbers and female employment are from the OECD; Eurostat for Europe

Figure A-4: Divorce rates and female full-and part time employment in US



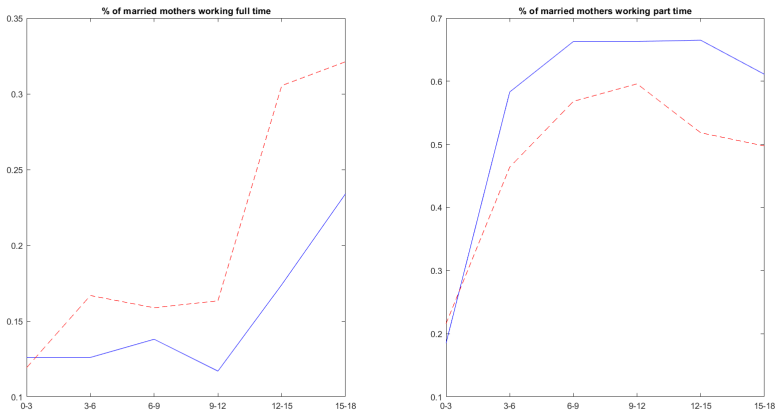
Divorces: US National Center for Health Statistics-National Vital Statistics Report; population numbers and female full-time employment are from the OECD.

Figure A-5: Daily housework and childcare by mothers and spouses



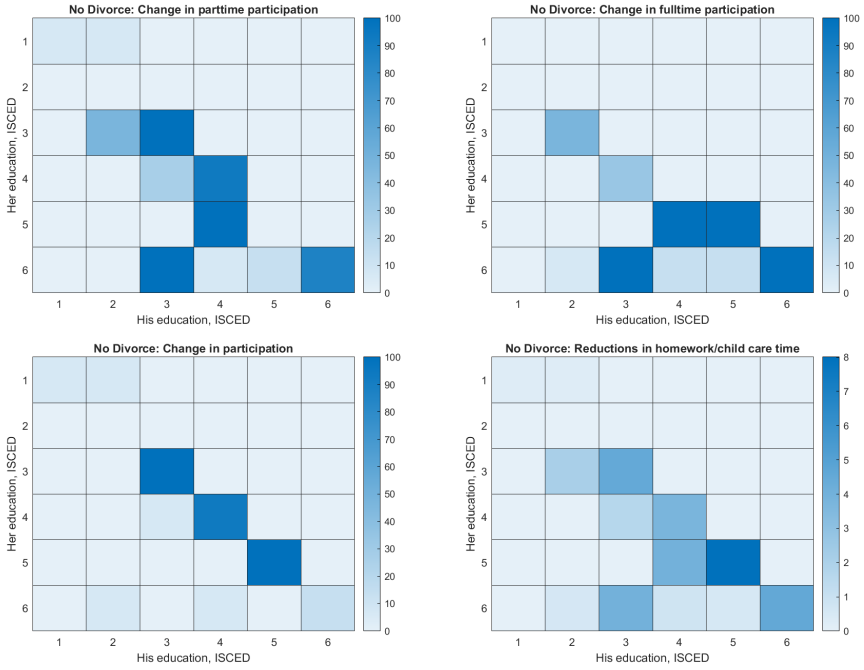
Source: SOEP: 2000-2016

Figure A-6: Non-targeted moments: % of married mothers who work throughout their kids' childhood, full and part time



Solid line: Data; Dashed line: Model. Four targeted moments: Part and full time participation of married mothers with children ages 0-6 and 6-12.

Figure A-7: Changes in married mothers' (child age 0-3) labor force participation and housework/child care time when divorce is ruled out by couple type



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A.2 Tables

Table A1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.
Separation in t	0.005	0.073	0	1
Duration marriage	16.528	8.390	2	43
Year marriage	1992.977	9.096	1966	2014
Not first marriage for at least one	0.112	0.315	0	1
Her age at marriage	26.213	5.13	18	54
His age at marriage	28.693	5.597	18	59
Born in Germany, he	0.824	0.381	0	1
Born in Germany, she	0.819	0.385	0	1
Reside in urban region in $t-1$	0.741	0.438	0	1
She works fulltime, $t-2$	0.174	0.38	0	1
He works fulltime, $t-2$	0.927	0.26	0	1
She is employed, $t-2$	0.753	0.432	0	1
He is employed, $t-2$	0.958	0.201	0	1
She is in education, $t-2$	0.027	0.162	0	1
He is in education, $t-2$	0.018	0.131	0	1
Her education (<11 years), $t-1$	0.248	0.432	0	1
His education (<11 years), $t-1$	0.32	0.466	0	1
Her education ($11-16$ years), $t-1$	0.62	0.485	0	1
His education ($11-16$ years), $t-1$	0.509	0.5	0	1
Nr. children: 0-1, $t-1$	0.089	0.295	0	2
Nr. children: 2-7, $t-1$	0.486	0.711	0	4
Nr. children: 8-15, $t-1$	0.741	0.861	0	5
His monthly gross income (in 2015€) $t-2$	4,153.34	3,015.1023	0	105,042.016
Her monthly gross income (in 2015€) $t-2$	1,293.662	1,541.63	0	54,479.422
Home owners, $t-1$	0.316	0.465	0	1
Her share, housework & child care, $t-2$	0.797	0.185	0	1
Couple's hours per day, housework & child care	9.459	6.9943	1	56
Cleaning help, $t-2$	0.095	0.293	0	1
Married after 2008	0.052	0.221	0	1
Observed after 2008	0.507	0.5	0	1

N=18,771; 3,384 couples

Table A2: Full table: Risk of separation and wife's hours worked in the market

	(1)	(2)	(3)	(4)	(5)	(6)
She works fulltime, $t-2$	0.34 (0.087)***	0.35 (0.088)***	0.364 (0.09)***	0.297 (0.097)***	0.301 (0.097)***	0.302 (0.097)***
He works fulltime, $t-2$	0.116 (0.206)	0.149 (0.212)	0.155 (0.213)	0.203 (0.218)	0.214 (0.219)	0.202 (0.22)
She is employed, $t-2$	0.042 (0.096)	0.043 (0.097)	0.054 (0.101)	0.021 (0.102)	0.024 (0.102)	0.047 (0.104)
He is employed, $t-2$	-.177 (0.258)	-.202 (0.262)	-.202 (0.263)	-.175 (0.264)	-.180 (0.264)	-.149 (0.266)
She is in education, $t-2$		-.202 (0.254)	-.218 (0.256)	-.217 (0.258)	-.234 (0.26)	-.219 (0.26)
He is in education, $t-2$		0.27 (0.203)	0.269 (0.204)	0.269 (0.204)	0.26 (0.205)	0.269 (0.206)
Not first marriage for at least one	0.321 (0.103)***	0.311 (0.106)***	0.309 (0.107)***	0.3 (0.108)***	0.288 (0.108)***	0.277 (0.109)**
Her age at marriage	-.020 (0.01)*	-.020 (0.011)*	-.020 (0.011)*	-.020 (0.011)*	-.019 (0.011)*	-.017 (0.011)
His age at marriage	0.002 (0.009)	0.004 (0.009)	0.004 (0.009)	0.004 (0.009)	0.005 (0.009)	0.008 (0.009)
Born in Germany, he	0.06 (0.125)	0.064 (0.127)	0.063 (0.127)	0.071 (0.127)	0.09 (0.128)	0.093 (0.129)
Born in Germany, she	0.066 (0.122)	0.079 (0.123)	0.082 (0.124)	0.081 (0.124)	0.089 (0.124)	0.082 (0.125)
Reside in urban region in $t-1$	0.124 (0.088)	0.129 (0.089)	0.136 (0.09)	0.135 (0.09)	0.117 (0.091)	0.109 (0.091)
Nr. of children: 0-1, $t-1$			-.152 (0.141)	-.156 (0.141)	-.157 (0.142)	-.146 (0.142)
Nr. of children: 2-7, $t-1$			0.042 (0.068)	0.037 (0.068)	0.043 (0.068)	0.062 (0.069)
Nr. of children: 8-15, $t-1$			-.003 (0.055)	-.003 (0.055)	-.0001 (0.055)	0.004 (0.055)
Her education (<11 years), $t-1$		0.045 (0.153)	0.05 (0.154)	0.093 (0.16)	0.077 (0.161)	0.067 (0.161)
His education (<11 years), $t-1$		0.051 (0.142)	0.049 (0.143)	0.001 (0.152)	-.00002 (0.152)	0.0007 (0.153)
Her education ($11-16$ years), $t-1$		0.02 (0.129)	0.023 (0.13)	0.061 (0.134)	0.063 (0.135)	0.064 (0.136)
His education ($11-16$ years), $t-1$		0.181 (0.124)	0.182 (0.125)	0.14 (0.13)	0.148 (0.13)	0.148 (0.131)
His income (in 2015 €), $t-2$				-.00002 (0.00002)	-.00002 (0.00002)	-.00002 (0.00002)
Her income (in 2015 €), $t-2$				0.00003 (0.00002)*	0.00003 (0.00002)*	0.00003 (0.00002)*
Home owners, $t-1$					0.136 (0.08)*	0.141 (0.081)*
Married after 2008						0.125 (0.186)
Observed after 2008						-.174 (0.082)**
Number of observations	18,771	18,771	18,771	18,771	18,771	18,771

SOEP data: 2000-2016. The dependent variable is "Separation or divorce in t". The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by probit models, and they include a polynomial of degree six for duration of marriage.

Table A3: Full table: Risk of separation and wife's hours worked in the market and at home

	(1)	(2)	(3)
She works fulltime, $t-2$	0.302	0.243	0.242
	(0.097)***	(0.101)**	(0.101)**
He works fulltime, $t-2$	0.202	0.245	0.247
	(0.22)	(0.223)	(0.223)
Her share hwk and child care$_{t-2}$		-.396	-.397
		(0.201)**	(0.201)**
Couple's hours housework & child care$_{t-2}$		-.011	-.011
		(0.008)	(0.008)
She is employed, $t-2$	0.047	-.010	-.010
	(0.104)	(0.108)	(0.108)
He is employed, $t-2$	-.149	-.136	-.131
	(0.266)	(0.267)	(0.267)
She is in education, $t-2$	-.219	-.247	-.247
	(0.26)	(0.263)	(0.263)
He is in education, $t-2$	0.269	0.293	0.292
	(0.206)	(0.207)	(0.206)
Not first marriage for at least one	0.277	0.275	0.275
	(0.109)**	(0.109)**	(0.109)**
Her age at marriage	-.017	-.018	-.018
	(0.011)	(0.011)*	(0.011)*
His age at marriage	0.008	0.008	0.008
	(0.009)	(0.01)	(0.01)
Born in Germany, he	0.093	0.091	0.09
	(0.129)	(0.129)	(0.129)
Born in Germany, she	0.082	0.09	0.09
	(0.125)	(0.125)	(0.125)
Reside in urban region in $t-1$	0.109	0.109	0.108
	(0.091)	(0.092)	(0.092)
Nr. of children: 0-1, $t-1$	-.146	-.159	-.158
	(0.142)	(0.143)	(0.143)
Nr. of children: 2-7, $t-1$	0.062	0.102	0.099
	(0.069)	(0.074)	(0.074)
Nr. of children: 8-15, $t-1$	0.004	0.023	0.021
	(0.055)	(0.057)	(0.057)
Her education (<11 years), $t-1$	0.067	0.089	0.097
	(0.161)	(0.162)	(0.162)
His education (<11 years), $t-1$	0.0007	0.004	0.013
	(0.153)	(0.153)	(0.154)
Her education ($11-16$ years), $t-1$	0.064	0.078	0.086
	(0.136)	(0.135)	(0.136)
His education ($11-16$ years), $t-1$	0.148	0.15	0.158
	(0.131)	(0.131)	(0.133)
His income (in 2015 €), $t-2$	-.00002	-.00002	-.00002
	(0.00002)	(0.00002)	(0.00002)
Her income (in 2015 €), $t-2$	0.00003	0.00002	0.00002
	(0.00002)*	(0.00002)	(0.00002)
Home owners, $t-1$	0.141	0.143	0.142
	(0.081)*	(0.081)*	(0.081)*
Married after 2008	0.125	0.138	0.138
	(0.186)	(0.186)	(0.186)
Observed after 2008	-.174	-.185	-.185
	(0.082)**	(0.083)**	(0.083)**
Cleaning help, $t-2$			0.081
			(0.135)
Number of observations	18,771	18,771	18,771

SOEP data: 2000-2016. The dependent variable is "Separation or divorce in t". The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by probit models, and they include a polynomial of degree six for duration of marriage.

Table A4: Full table: Risk of separation and wives' hours worked in the market - random fixed effects model

	(1)	(2)	(3)	(4)	(5)	(6)
She works fulltime, $t-2$	0.955 (0.256)***	0.986 (0.258)***	1.037 (0.265)***	0.922 (0.273)***	0.926 (0.268)***	0.913 (0.259)***
He works fulltime, $t-2$	0.408 (0.607)	0.459 (0.61)	0.492 (0.611)	0.615 (0.631)	0.643 (0.624)	0.596 (0.616)
She is employed, $t-2$	0.111 (0.278)	0.102 (0.28)	0.141 (0.289)	0.084 (0.293)	0.098 (0.291)	0.165 (0.292)
He is employed, $t-2$	-.501 (0.742)	-.531 (0.748)	-.543 (0.748)	-.477 (0.754)	-.485 (0.748)	-.386 (0.742)
She is in education, $t-2$		-.508 (0.723)	-.535 (0.723)	-.525 (0.725)	-.550 (0.723)	-.527 (0.718)
He is in education, $t-2$		0.715 (0.532)	0.725 (0.532)	0.722 (0.535)	0.702 (0.531)	0.718 (0.525)
Not first marriage for at least one	0.906 (0.318)***	0.901 (0.321)***	0.889 (0.325)***	0.882 (0.326)***	0.834 (0.326)**	0.769 (0.294)***
Her age at marriage	-.056 (0.029)*	-.056 (0.03)*	-.057 (0.03)*	-.056 (0.031)*	-.054 (0.03)*	-.047 (0.03)
His age at marriage	0.004 (0.025)	0.01 (0.026)	0.008 (0.026)	0.01 (0.027)	0.012 (0.026)	0.02 (0.026)
Born in Germany, he	0.192 (0.364)	0.208 (0.371)	0.209 (0.37)	0.232 (0.376)	0.268 (0.372)	0.248 (0.361)
Born in Germany, she	0.186 (0.351)	0.207 (0.358)	0.213 (0.358)	0.218 (0.363)	0.248 (0.356)	0.237 (0.35)
Reside in urban region in $t-1$	0.339 (0.262)	0.358 (0.265)	0.367 (0.266)	0.377 (0.269)	0.314 (0.267)	0.269 (0.258)
Nr. of children: 0-1, $t-1$			-.456 (0.401)	-.460 (0.403)	-.451 (0.4)	-.432 (0.397)
Nr. of children: 2-7, $t-1$			0.124 (0.188)	0.114 (0.191)	0.134 (0.188)	0.182 (0.186)
Nr. of children: 8-15, $t-1$			-.004 (0.155)	-.004 (0.157)	0.002 (0.155)	0.009 (0.152)
Her education (<11 years), $t-1$		0.085 (0.435)	0.091 (0.438)	0.174 (0.458)	0.114 (0.454)	0.066 (0.444)
His education (<11 years), $t-1$		0.129 (0.416)	0.121 (0.418)	-.019 (0.444)	-.026 (0.438)	-.039 (0.429)
Her education ($11-16$ years), $t-1$		0.015 (0.366)	0.019 (0.368)	0.103 (0.385)	0.092 (0.381)	0.089 (0.374)
His education ($11-16$ years), $t-1$		0.5 (0.369)	0.494 (0.37)	0.384 (0.384)	0.396 (0.38)	0.373 (0.368)
His income (in 2015 €), $t-2$				-.00005 (0.00006)	-.00004 (0.00006)	-.00005 (0.00006)
Her income (in 2015 €), $t-2$				0.00005 (0.00004)	0.00005 (0.00004)	0.00004 (0.00003)
Home owners, $t-1$					0.403 (0.227)*	0.411 (0.222)*
Married after 2008						0.287 (0.508)
Observed after 2008						-.479 (0.232)**
Number of observations	18,771	18,771	18,771	18,771	18,771	18,771
Number of couples	3,384	3,384	3,384	3,384	3,384	3,384
Times observed (min)	1	1	1	1	1	1
Times observed (max)	15	15	15	15	15	15
Times observed(average)	5.547	5.547	5.547	5.547	5.547	5.547

SOEP data: 2000-2016. The dependent variable is "Separation or divorce in t". The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by random fixed effects cloglog models and they include a polynomial of degree six for duration of marriage. Note that couples which are observed once have observations for three years at least, given that one needs information about separation in t, variables in $t-1$ and $t-2$.

Table A5: Full table: Risk of separation and wives' hours worked in the market and at home - random fixed effects model

	(1)	(2)	(3)
She works fulltime, $t-2$	0.913	0.718	0.709
	(0.259)***	(0.273)***	(0.273)***
He works fulltime, $t-2$	0.596	0.732	0.738
	(0.616)	(0.623)	(0.624)
Her share hwk and child care$_{t-2}$		-1.064	-1.061
		(0.536)**	(0.536)**
Couple's hours housework & child care$_{t-2}$		-.030	-.029
		(0.022)	(0.022)
She is employed, $t-2$	0.165	0.011	0.008
	(0.292)	(0.299)	(0.299)
He is employed, $t-2$	-.386	-.359	-.352
	(0.742)	(0.741)	(0.742)
She is in education, $t-2$	-.527	-.595	-.606
	(0.718)	(0.72)	(0.721)
He is in education, $t-2$	0.718	0.761	0.757
	(0.525)	(0.523)	(0.523)
Not first marriage for at least one	0.769	0.765	0.765
	(0.294)***	(0.293)***	(0.293)***
Her age at marriage	-.047	-.048	-.049
	(0.03)	(0.03)	(0.03)*
His age at marriage	0.02	0.018	0.019
	(0.026)	(0.026)	(0.026)
Born in Germany, he	0.248	0.234	0.232
	(0.361)	(0.36)	(0.36)
Born in Germany, she	0.237	0.25	0.252
	(0.35)	(0.35)	(0.35)
Reside in urban region in $t-1$	0.269	0.249	0.245
	(0.258)	(0.258)	(0.258)
Nr. of children: 0-1, $t-1$	-.432	-.457	-.456
	(0.397)	(0.398)	(0.398)
Nr. of children: 2-7, $t-1$	0.182	0.285	0.274
	(0.186)	(0.196)	(0.197)
Nr. of children: 8-15, $t-1$	0.009	0.055	0.05
	(0.152)	(0.156)	(0.156)
Her education (<11 years), $t-1$	0.066	0.138	0.168
	(0.444)	(0.443)	(0.446)
His education (<11 years), $t-1$	-.039	-.029	-.005
	(0.429)	(0.427)	(0.43)
Her education ($11-16$ years), $t-1$	0.089	0.136	0.164
	(0.374)	(0.372)	(0.374)
His education ($11-16$ years), $t-1$	0.373	0.366	0.39
	(0.368)	(0.367)	(0.37)
His income (in 2015 €), $t-2$	-.00005	-.00004	-.00005
	(0.00006)	(0.00006)	(0.00006)
Her income (in 2015 €), $t-2$	0.00004	0.00003	0.00003
	(0.00003)	(0.00003)	(0.00003)
Home owners, $t-1$	0.411	0.414	0.415
	(0.222)*	(0.222)*	(0.222)*
Married after 2008	0.287	0.311	0.307
	(0.508)	(0.508)	(0.508)
Observed after 2008	-.479	-.514	-.510
	(0.232)**	(0.233)**	(0.233)**
Cleaning help, $t-2$			0.244
			(0.359)
Number of observations	18,771	18,771	18,771
Number of couples	3,384	3,384	3,384
Times observed (min)	1	1	1
Times observed (max)	15	15	15
Times observed(average)	5.547	5.547	5.547

SOEP data: 2000-2016. The dependent variable is "Separation or divorce in t". The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by random fixed effects cloglog models, and they include a polynomial of degree six for duration of marriage. Note that couples which are observed once have observations for three years at least, given that one needs information about separation in t, variables in $t-1$ and $t-2$.

Table A6: Couple-fixed effects model: Risk of separation and wife's hours worked in the market

	(1)	(2)	(3)	(4)	(5)	(6)
She works fulltime, $t-2$	0.009 (0.002)***	0.009 (0.002)***	0.01 (0.002)***	0.008 (0.003)***	0.008 (0.003)***	0.008 (0.003)***
He works fulltime, $t-2$	0.0003 (0.004)	0.0004 (0.004)	0.0005 (0.004)	0.001 (0.004)	0.001 (0.004)	0.001 (0.004)
She is employed, $t-2$	-.0001 (0.002)	-.0001 (0.002)	0.0004 (0.002)	-.001 (0.002)	-.001 (0.002)	-.001 (0.002)
He is employed, $t-2$	-.002 (0.005)	-.002 (0.005)	-.002 (0.005)	-.002 (0.005)	-.002 (0.005)	-.002 (0.005)
She is in education, $t-2$		-.0005 (0.004)	-.0005 (0.004)	-.0003 (0.004)	-.0002 (0.004)	-.0002 (0.004)
He is in education, $t-2$		-.002 (0.005)	-.002 (0.005)	-.002 (0.005)	-.002 (0.005)	-.002 (0.005)
Reside in urban region in $t-1$	-.002 (0.009)	-.002 (0.009)	-.002 (0.009)	-.001 (0.009)	-.001 (0.009)	-.001 (0.009)
Nr. of children: 0-1, $t-1$			-.0009 (0.002)	-.0009 (0.002)	-.001 (0.002)	-.0009 (0.002)
Nr. of children: 2-7, $t-1$			0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
Nr. of children: 8-15, $t-1$			0.00009 (0.001)	0.0002 (0.001)	0.0002 (0.001)	0.0002 (0.001)
Her education (<11 years), $t-1$		-.027 (0.026)	-.028 (0.026)	-.029 (0.026)	-.029 (0.026)	-.028 (0.026)
His education (<11 years), $t-1$		0.017 (0.021)	0.017 (0.021)	0.017 (0.021)	0.017 (0.021)	0.017 (0.021)
Her education ($11-16$ years), $t-1$		-.013 (0.022)	-.014 (0.022)	-.014 (0.022)	-.014 (0.022)	-.014 (0.022)
His education ($11-16$ years), $t-1$		0.009 (0.015)	0.009 (0.015)	0.01 (0.015)	0.01 (0.015)	0.01 (0.015)
His income (in 2015 €), $t-2$				-2.18e-07 (3.77e-07)	-2.22e-07 (3.77e-07)	-2.39e-07 (3.78e-07)
Her income (in 2015 €), $t-2$				1.74e-06 (9.27e-07)*	1.73e-06 (9.27e-07)*	1.73e-06 (9.27e-07)*
Home owners, $t-1$					-.002 (0.003)	-.002 (0.003)
Observed after 2008						-.004 (0.002)*
Number of observations	18,771	18,771	18,771	18,771	18,771	18,771
R-squared	0.006	0.006	0.007	0.007	0.007	0.007
F statistic	8.87	5.877	5.124	4.834	4.647	4.591
Number of couples	3,384	3,384	3,384	3,384	3,384	3,384
Times observed (min)	1	1	1	1	1	1
Times observed (max)	15	15	15	15	15	15
Times observed (average)	5.547	5.547	5.547	5.547	5.547	5.547

SOEP data: 2000-2016. The dependent variable is "Separation or divorce in t". The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by linear probability models with fixed effects, and they include a polynomial of degree six for duration of marriage. Note that couples which are observed once have observations for three years at least, given that one needs information about separation in t, variables in $t-1$ and $t-2$.

Table A7: Robustness to different categorizations of hours worked: Risk of separation and wife's hours worked in the market

	(1)	(2)	(3)	(4)	(5)	(6)
A: *Continuous measure of hours*						
Her weekly hours worked, $t-2$	0.011 (0.003)***	0.012 (0.003)***	0.012 (0.003)***	0.01 (0.004)***	0.01 (0.004)***	0.01 (0.004)***
His weekly hours worked, $t-2$	-.003 (0.004)	-.003 (0.004)	-.002 (0.004)	-.002 (0.004)	-.002 (0.004)	-.002 (0.004)
B: *15-hour categories*						
Her hours: 15-35, $t-2$	0.161 (0.123)	0.167 (0.124)	0.168 (0.124)	0.14 (0.125)	0.145 (0.126)	0.146 (0.126)
Her hours: >35, $t-2$	0.378 (0.132)***	0.394 (0.134)***	0.403 (0.137)***	0.318 (0.146)**	0.325 (0.146)**	0.329 (0.146)**
His hours: 15-35, $t-2$	-.032 (0.451)	-.041 (0.452)	-.029 (0.455)	0.021 (0.465)	0.021 (0.463)	0.01 (0.461)
His hours: >35, $t-2$	0.011 (0.403)	0.015 (0.402)	0.026 (0.406)	0.094 (0.421)	0.104 (0.418)	0.087 (0.417)
C: *10-hour categories*						
Her hours: 10-20, $t-2$	0.65 (0.327)**	0.652 (0.33)**	0.648 (0.33)**	0.637 (0.33)*	0.642 (0.332)*	0.638 (0.33)*
Her hours: 20-30, $t-2$	0.645 (0.326)**	0.652 (0.329)**	0.646 (0.329)**	0.617 (0.33)*	0.624 (0.332)*	0.62 (0.33)*
Her hours: 30-40, $t-2$	0.671 (0.333)**	0.681 (0.337)**	0.681 (0.337)**	0.626 (0.339)*	0.635 (0.341)*	0.634 (0.34)*
Her hours: >40, $t-2$	0.914 (0.328)***	0.952 (0.332)***	0.944 (0.333)***	0.857 (0.338)**	0.868 (0.34)**	0.869 (0.338)**
His hours: 20-30, $t-2$	-.540 (0.589)	-4.052 (193.490)	-.557 (0.589)	-.529 (0.598)	-.535 (0.594)	-.546 (0.592)
His hours: 30-40, $t-2$	-.358 (0.543)	-4.201 (193.491)	-.424 (0.549)	-.385 (0.56)	-.377 (0.558)	-.389 (0.555)
His hours: 30-40, $t-2$	-.488 (0.479)	-7.616 (236.274)	-.512 (0.481)	-.474 (0.495)	-.464 (0.491)	-.485 (0.488)
His hours: >40, $t-2$	-.503 (0.47)	-7.673 (236.274)	-.523 (0.472)	-.477 (0.488)	-.464 (0.484)	-.478 (0.48)
Number of observations	13,937	13,937	13,937	13,937	13,937	13,937

SOEP data: 2000-2016. The dependent variable is "Separation or divorce in t". The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by probit models, and they include all controls included in our main regressions in Table 1. Individuals who do not work are assigned zero hours. The number of observations is smaller than in our main sample due to employed individuals for whom we have information on full-or parttime status but not on weekly hours worked.

Table A8: Robustness to absolute times spent on housework & child care by each spouse: Risk of separation, wife's hours worked in the market and at home.

	(1)	(2)	(3)
She works fulltime, $t-2$	0.302	0.248	0.247
	(0.097)***	(0.1)**	(0.1)**
He works fulltime, $t-2$	0.202	0.276	0.277
	(0.22)	(0.226)	(0.226)
Her hours housework & child care, $t-2$		-.023	-.022
		(0.01)**	(0.01)**
His hours housework & child care, $t-2$		0.021	0.021
		(0.016)	(0.016)
She is employed, $t-2$	0.047	-.031	-.031
	(0.104)	(0.108)	(0.109)
He is employed, $t-2$	-.149	-.129	-.124
	(0.266)	(0.269)	(0.269)
She is in education, $t-2$	-.219	-.239	-.238
	(0.26)	(0.262)	(0.261)
He is in education, $t-2$	0.269	0.308	0.308
	(0.206)	(0.207)	(0.207)
Not first marriage for at least one	0.277	0.278	0.278
	(0.109)**	(0.11)**	(0.109)**
Her age at marriage	-.017	-.018	-.018
	(0.011)	(0.011)*	(0.011)*
His age at marriage	0.008	0.007	0.007
	(0.009)	(0.01)	(0.01)
Born in Germany, he	0.093	0.093	0.092
	(0.129)	(0.129)	(0.129)
Born in Germany, she	0.082	0.092	0.093
	(0.125)	(0.126)	(0.125)
Reside in urban region in $t-1$	0.109	0.105	0.104
	(0.091)	(0.092)	(0.092)
Nr. of children: 0-1, $t-1$	-.146	-.158	-.158
	(0.142)	(0.143)	(0.143)
Nr. of children: 2-7, $t-1$	0.062	0.099	0.096
	(0.069)	(0.074)	(0.074)
Nr. of children: 8-15, $t-1$	0.004	0.02	0.019
	(0.055)	(0.057)	(0.057)
Her education (<11 years), $t-1$	0.067	0.085	0.093
	(0.161)	(0.162)	(0.162)
His education (<11 years), $t-1$	0.0007	-.008	0.0008
	(0.153)	(0.153)	(0.154)
Her education ($11-16$ years), $t-1$	0.064	0.077	0.084
	(0.136)	(0.136)	(0.136)
His education ($11-16$ years), $t-1$	0.148	0.145	0.153
	(0.131)	(0.132)	(0.133)
His income (in 2015 €), $t-2$	-.00002	-.00002	-.00002
	(0.00002)	(0.00002)	(0.00002)
Her income (in 2015 €), $t-2$	0.00003	0.00003	0.00002
	(0.00002)*	(0.00002)	(0.00002)
Home owners, $t-1$	0.141	0.14	0.14
	(0.081)*	(0.081)*	(0.081)*
Married after 2008	0.125	0.133	0.133
	(0.186)	(0.186)	(0.187)
Observed after 2008	-.174	-.186	-.186
	(0.082)**	(0.083)**	(0.083)**
Cleaning help, $t-2$			0.079
			(0.135)
Nr of observations	18,771	18,771	18,771

Source: SOEP: 2000-2016. The dependent variable is "separated or divorced in t" The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by probit models, and they include a polynomial of degree six for duration of marriage.

Table A9: Robustness to excluding individuals who "violate" the 24-hour time constraint: Risk of separation, wife's hours worked in the market and at home.

	(2)	(3)
A: *Excluding those who violate it for sum of housework and child care*		
Her share housework & child care, $t-2$	-.399 (0.202)**	-.400 (0.202)**
Couple's hours housework & child care, $t-2$	-.011 (0.009)	-.011 (0.009)
Number of observations	18,205	18,205
B: *Excluding those who violate it for sum of housework and child care plus hours at work*		
Her share housework & child care, $t-2$	-.396 (0.203)*	-.397 (0.203)*
Couple's hours housework & child care, $t-2$	-.009 (0.01)	-.009 (0.01)
Number of observations	18,105	18,105
C: *Excluding those who violate it for sum of housework, child care, hours at work plus leisure*		
Her share housework & child care, $t-2$	-.374 (0.205)*	-.375 (0.205)*
Couple's hours housework & child care, $t-2$	-.013 (0.01)	-.013 (0.01)
Number of observations	17,798	17,798

Source: SOEP: 2000-2016. The dependent variable is "separated or divorced in t" The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by probit models, and they include all controls of columns (2) and (3) of Table A3.

Table A10: Matching matrix

		Spouses						
ISCED		1	2	3	4	5	6	$\sum$
W	1	14.2	32.3	38.1	5.2	3.2	7.1	100
o	2	6.2	27.1	51.4	3.4	4.1	7.7	100
m	3	1.3	6.6	55.8	9.2	12.4	14.8	100
e	4	1.2	4.9	32.9	17.8	9.8	33.4	100
n	5	0	1.8	37.0	8.5	22.6	30.1	100
	6	0.1	1.5	19.9	8.4	7.3	62.8	100

Pooled data from SOEP unbalanced panel 2011-2016 for West German married women age 20-60 with youngest child age < 18 N = 14,092.

Table A11: Distribution of individuals by education

ISCED level	Women
1	1.64
2	10.14
3	45.09
4	13.55
5	5.12
6	24.47

Pooled data from SOEP unbalanced panel 2011-2016

for West German married women

age 20-60 with youngest child < 18.$N = 14,092$

Table A12: Initial hourly wages (in 2010 €) by education level(men ages 25 to 35)

ISCED levels	Men
1	9.88
2	11.02
3	14.57
4	16.37
5	18.32
6	20.31

Data: Pooled data from SOEP unbalanced panel 2011-2016;

N= 6,838

A.3 Limited labor market participation and women's wages

Sample To analyze the effect of not working or working only part-time on women's wages, we construct a sample of women ages 20 to 60 from waves 2011-2016. Again we exclude those who report to have lived in East Germany in 1989. Table A13 displays the descriptive statistics for this sample which is much larger as we do not require any information on marriage spells nor detailed information on husbands, other than their income. We also include single and childless women. Regarding descriptive statistics, the only significant difference compared to our couple sample is that fewer women in this sample were born in Germany.

Table A13: Summary statistics for wage regression

Variable	Mean	Std. Dev.	Min.	Max.
Log hourly wage	2.595	0.571	0	5.527
Log monthly wage	7.257	0.86	0.049	10.675
Higher education ($> 17 years$)	0.133	0.34	0	1
Year	2013.485	1.655	2011	2016
Born in Germany	0.785	0.411	0	1
Resides in urban region	0.728	0.445	0	1
Married	0.583	0.493	0	1
Log(income spouse)	4.092	4.083	0	11.562
Firm tenure	8.871	9.005	0	44.8
Nationality other than German	0.12	0.325	0	1
Number of children under 16	0.810	1.013	0	8
Has children ages 0-3	0.077	0.267	0	1
Years not working	7.566	5.802	0	41
Full time experience (years)	9.499	8.801	0	44
Parttime experience (years)	6.485	6.846	0	40.7
Years full time squared	167.684	275.047	0	1936
Years part time squared	88.919	162.512	0	1656.49

N=30,482

Methodology We run a Mincer wage regression on the log of real hourly wages

$$\log w_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 J_{i,t} + \beta_3 F_{i,t} + \beta_4 e\tilde{x}p_{i,t} + \beta_5 D_t + \beta_6 D_s + \epsilon_{t,s,i}, \tag{A-1}$$

where $X_{i,t}$ denotes individual controls (education, nationality, country of birth, marital status, spouse's log income – set to 0 for those who are not married), D_t and D_s are year and state fixed effects, $J_{i,t}$ are job characteristics (years with the current firm), $F_{i,t}$ are family characteristics (number of children under the age of 16, having small children aged 0-3), and $e\tilde{x}p_{i,t}$ are variables related to individuals' job market experience where we include years not worked, years of full time and years of part time work as well as the last two terms squared. Note that these controls make it impossible for us to control for age of the individual separately.

Results For women, returns to experience for fulltime jobs are 3.5% higher hourly wages per year, with decreasing returns, see Table A14. For part time jobs, returns in terms of hourly wage also show decreasing returns and are only 0.2% per year. Each year spent not working is associated with 0.6% lower hourly wages, which is considerable given that on average women in our sample take more than 7 years off from work. Signs of other coefficients are as expected. Women with university education, residing in urban areas, and born in Germany have higher hourly wages. The positive and significant coefficients on the number of children and on having small children are due to selection given that few mothers with small children work. As expected, wages increase with years worked within a firm. We test the robustness of our results using log monthly wages controlling for hours worked, and running Heckman selection models using "having a child age 0-3" as our exclusion restriction. Results displayed in Tables A15 and A16 show that numbers for returns to full time jobs and years not working are very robust. Returns to part time experience, on the other hand, vary between -0.3% when using hourly wages and controlling for selection and 1.2% when using monthly wages. This suggests that women who decide not to work, would actually face wage penalties for their years of part time experience.

Table A14: Extend of women's labor market participation and hourly wages

	(1)	(2)	(3)	(4)	(5)
High education ($\geq$ 17 years)	0.49	0.502	0.495	0.477	0.502
	(0.009)***	(0.009)***	(0.009)***	(0.009)***	(0.008)***
Resides in urban area	0.119	0.108	0.118	0.116	0.109
	(0.008)***	(0.006)***	(0.008)***	(0.008)***	(0.007)***
Born in Germany	0.093	0.043	0.04	0.031	0.031
	(0.009)***	(0.009)***	(0.009)***	(0.009)***	(0.008)***
Nationality other than German	-.130	-.078	-.083	-.078	-.064
	(0.011)***	(0.011)***	(0.011)***	(0.011)***	(0.01)***
Married		-.004	-.024	-.004	-.024
		(0.007)	(0.007)***	(0.007)	(0.007)***
Log(income spouse)		0.008	0.007	0.006	0.006
		(0.0009)***	(0.0009)***	(0.0009)***	(0.0008)***
Firm tenure		0.022	0.022	0.021	0.018
		(0.0003)***	(0.0003)***	(0.0003)***	(0.0004)***
Number of children under 16			0.021	0.028	0.037
			(0.003)***	(0.003)***	(0.003)***
Has children: 0-3			0.098	0.071	0.088
			(0.011)***	(0.011)***	(0.011)***
Years not working				-.009	-.006
				(0.0005)***	(0.0005)***
Full time experience (years)					0.035
					(0.0009)***
Parttime experience (years)					0.002
					(0.001)*
Years full time squared					-.0008
					(0.00003)***
Years part time squared					-.0001
					(0.00005)**
Nr. of observations	30,482	30,482	30,482	30,482	30,482
R-squared	0.137	0.243	0.255	0.262	0.304

SOEP data: 2011-2016. The dependent variable is log hourly wages. The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by OLS regressions, and they include year and state-fixed effects.

Table A15: Extend of women's labor market participation and monthly wages

	(1)	(2)	(3)	(4)	(5)
Hours worked	0.011	0.011	0.011	0.011	0.011
	(0.00006)***	(0.00006)***	(0.00006)***	(0.00007)***	(0.00007)***
High education ($\geq$ 17 years)	0.454	0.471	0.457	0.443	0.472
	(0.01)***	(0.009)***	(0.009)***	(0.009)***	(0.009)***
Resides in urban area	0.119	0.107	0.123	0.122	0.115
	(0.009)***	(0.007)***	(0.008)***	(0.008)***	(0.008)***
Born in Germany	0.102	0.053	0.051	0.041	0.032
	(0.01)***	(0.009)***	(0.009)***	(0.009)***	(0.009)***
Nationality other than German	-.142	-.087	-.091	-.085	-.067
	(0.012)***	(0.012)***	(0.011)***	(0.011)***	(0.011)***
Married		0.019	-.003	0.012	-.025
		(0.008)**	(0.008)	(0.008)	(0.008)***
Log(income spouse)		0.008	0.007	0.006	0.006
		(0.0009)***	(0.0009)***	(0.0009)***	(0.0009)***
Firm tenure		0.023	0.024	0.023	0.019
		(0.0004)***	(0.0004)***	(0.0004)***	(0.0004)***
Number of children under 16			0.037	0.042	0.046
			(0.003)***	(0.003)***	(0.004)***
Has children: 0-3			0.109	0.084	0.118
			(0.012)***	(0.012)***	(0.012)***
Years not working				-.008	-.007
				(0.0006)***	(0.0006)***
Full time experience (years)					0.035
					(0.001)***
Parttime experience (years)					0.012
					(0.001)***
Years full time squared					-.0008
					(0.00003)***
Years part time squared					-.0004
					(0.00005)***
Nr. of observations	30,482	30,482	30,482	30,482	30,482
R-squared	0.557	0.612	0.619	0.622	0.639

SOEP data: 2011-2016. The dependent variable is log monthly wages. The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by OLS regressions, and they include year and state-fixed effects.

Table A16: Heckman selection model for hourly and monthly wages

VARIABLES	(1) Log hourly wages	(2) Participation	(3) Log monthly wages	(4) Participation
Resides in urban area	0.111***	-0.026	0.118***	-0.026
	(0.007)	(0.025)	(0.008)	(0.025)
Born in Germany	0.035***	-0.231***	0.036***	-0.231***
	(0.008)	(0.027)	(0.009)	(0.027)
Nationality other than German	-0.063***	0.040	-0.066***	0.040
	(0.010)	(0.031)	(0.011)	(0.031)
Married	-0.010	-0.354***	-0.010	-0.354***
	(0.007)	(0.026)	(0.008)	(0.026)
Log(income spouse)	0.006***	0.015***	0.006***	0.015***
	(0.001)	(0.003)	(0.001)	(0.003)
Firm tenure	0.016***	0.291***	0.017***	0.291***
	(0.000)	(0.004)	(0.000)	(0.004)
Number of children under 16	0.048***	-0.010	0.058***	-0.010
	(0.003)	(0.009)	(0.003)	(0.009)
Has children: 0-3		-1.253***		-1.253***
		(0.026)		(0.026)
Years not working	-0.005***	-0.049***	-0.006***	-0.049***
	(0.001)	(0.001)	(0.001)	(0.001)
Full time experience (years)	0.034***	0.028***	0.033***	0.028***
	(0.001)	(0.003)	(0.001)	(0.003)
Parttime experience (years)	-0.003***	0.118***	0.006***	0.118***
	(0.001)	(0.004)	(0.001)	(0.004)
Years full time squared	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Years part time squared	0.000	-0.004***	-0.000***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.000)
Hours worked			0.010***	
			(0.000)	
Constant	2.025***	0.755***	5.346***	0.755***
	(0.044)	(0.120)	(0.049)	(0.120)
Nr. of observations	41,102	41,102	41,102	41,102

SOEP data: 2011-2016. The dependent variable is log hourly (monthly) wages in columns 1 (3) and employment in columns (2) and (4). The coefficients are marked with * if the level of significance is between 5% and 10%, ** if the level of significance is between 1% and 5% and *** if the level of significance is less than 1%. All columns are estimated by Heckman selection models, and they include year and state-fixed effects.