DOCUMENTS DE TRAVAIL 217

New spouse, same chores? A panel analysis of marital specialization in consecutive unions

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Avril 2015

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D'ÉTUDES DÉMOGRAPHIQUES

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A panel analysis of marital specialization in consecutive unions

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Summary

This paper investigates domestic sphere investments of spouses in two consecutive relationships and aims to identify potential sources of variation. Economic reasoning would predict a learning effect from one partnership to the next, e.g., the anticipation of lost marital investments in case of separation, and hence less specialization in the domestic sphere in the second relationship. Prevailing gender norms or institutions, on the contrary, may prevent such adjustments in the division of housework. In a fixed-effects regression analysis, we compare time allocations of couples in the German Socio-Economic Panel whose members experienced two consecutive partnerships in the period of 1991-2012. Our results indicate that while women's and men's successive matches differ from each other, individual domestic investment patterns remain similar across unions. Only highly educated women with larger opportunity costs of housework specialization seem to conform to the economic rationale by reducing their marital investments significantly in their next partnership.

Key-words: time-use, housework, work division, divorce, remarriage

JEL classification: D13 - J12

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INTRODUCTION

Divorce and remarriage have become standard life events in developed countries. While divorce rates have remained more or less constant at high levels in the North of Europe, including the UK, they are increasing in Southern European countries, where divorce was still a scarce event in the early 1980s. Starting at a somewhat lower rate than North Europe, Germany's divorce rate has now reached the same level as the North—2.3 divorces per 1,000 residents (Eurostat 2014). A large proportion of separated individuals are likely to re-enter relationships. In 2012, about 24 percent of marital spouses had been divorced already, whereas this figure was only 16 percent in 1980 (BiB 2014). In addition to the upswing in formal divorces, the number of non-marital union dissolutions has also risen. As a consequence, union dissolution is becoming increasingly common; people now more often experience several unions during their lifetime. This demographic pattern of serial partnerships may change the structure of the remarriage market and marital specialization behaviour within couples.

First, the market for remarriages appears less rigid and much larger today than in decades past. With the rising number of union dissolutions, divorcees and stepchildren are now less stigmatized. One consequence of this trend is that this outside option is becoming a more plausible threat to an existing partnership. Second, as the notion of 'marriage for life' is becoming somewhat antiquated, investments during marriage, particularly in the domestic sphere, are increasingly less likely to yield long-term returns. This is because, contrary to marketable human capital, part of the marriage-specific skills acquired through work division during one partnership might not be transferable to a subsequent one (Chiswick & Lehrer 1990), and may then be lost for the individual in case of disruption.

It is this paper's aim to investigate whether time investments in the domestic sphere differ between two consecutive partnerships. Up to now, very little is known about

individuals' time allocation in successive partnerships—whether they share common tendencies or whether they differ, particularly with respect to work division. Do spouses exhibit the same patterns of marital specialization in their first and second (marital) unions and, if so, what are the determinants?

We will outline two lines of reasoning in the next section: On one hand, the risk of dissolution might be more present in marriages that involve a divorced or separated partner. According to family economic models, which assume individuals to be forward-looking and utility-maximizing agents, remarried partners would be more reluctant to re-invest in non-marketable, marriage-specific skills since they are more conscious of the risk of dissolution and the detrimental effect of housework specialization on their earnings potential. According to a gender norms approach, on the other hand, the gendered division of housework may simply reflect women's and men's prescribed societal roles and explain women's over-proportional investment in domestic tasks. If individual behaviour is strongly determined by these norms, and supported by institutions in the same vein, there is no reason why marital specialization should change from one union to another.

To date, the analysis of work division in consecutive unions has been very limited, mainly due to the lack of data that allows researchers to follow individuals across households, i.e., from one dissolved household to a newly formed. Most research relies on cross-sectional time-use data, comparing individuals in their first union with other individuals in later partnerships. Obviously, this approach suffers from selection and unobserved heterogeneity problems, leading to possibly biased results. The German Socio-Economic Panel (GSOEP) is a unique data source that allows us to observe the domestic investments of the same individual over time by following respondents even after household dissolution and reporting their marital and cohabitation histories, complete with detailed information on both their former and current partners. Using fixed effects models that capture heterogeneity across

individuals, we are thus able to identify the "pure" effect of partnership rank on the division of domestic work. Moreover, given the very different consequences of marital dissolution for men and women and the lack of studies that offer comparisons between first and subsequent partnerships, we also investigate whether women's second unions differ from men's second unions. Additionally, we examine the specific role of educational attainment.

Our study produces three main results. First, marital specialization patterns remain stable in consecutive unions, a finding that confirms the strong influence of gender norms or explicit institutional constraints in preventing individuals from deviating from their assumed social roles. Second, male and female higher-order partnerships differ by their types of matches, as does the division of labour between the two. Finally, we observe a time-use adjustment of higher-educated women who significantly reduce domestic investments in their second unions compared to their previous ones.

Theoretical considerations

Why should the division of housework differ between unions? As discussed above, the reasons are manifold and stem from perceptions about union stability, the role of gender norms and institutions, and different matching processes.

Threat point and learning effect

The first union may be seen as a marital apprenticeship period for individuals during which at least one partner acquires some marriage-specific capital (e.g., learns how to organize the household and accommodate the partner's preferences, possibly raises children). After a separation, these investments in household production will, at least partially, be lost. Consequently, individuals may exercise more caution and be more reluctant to specialize in domestic tasks in their second partnerships when considering the potential risks of relationship failure.

As a consequence, the possibility of divorce may discourage the specialization and accumulation of marriage-specific capital, as Becker et al. (1977) have argued. Manser and Brown (1980) and McElroy and Horney (1981) proposed Nash bargaining models of the household, in which separation or divorce are possible threat points to an existing partnership that may impact current time-use decisions and the way in which partners allocate and share their time between professional and market activities. In the dynamic bargaining models of Ott (1992) and Konrad and Lommerud (2000), the threat point is endogenously determined by past decisions such as specializing in non-marketable domestic work. Focussing onthe strategic aspect of such a threat point, we ask whether partners allocate and share their domestic time differently in second partnerships since they are more aware of the associated consequences. The threat point could play a greater role in later unions because it has become a more plausible scenario for both the individual who dissolved the relationship and the partner who typically knows that the other person has experienced a breakup prior to the current relationship.

Sullivan (1997) described this phenomenon of a higher anticipated risk of divorce with the expression, "Once bitten twice shy." In the same vein, Aughinbaugh (2010, p. 1174) argues that "the failure of household production to bring returns upon the end of a previous marriage may make women less likely to reduce their labour supply in second and higher marriages." Consequently, they should be evenly unlikely to increase their non-transferable, domestic work.

Gender norms

Probably the most persistent force in time-use behaviour is the traditional norm of a gendered division of work, as strongly indicated by the universal gender gap in reported time spent on housework in the international literature (Hook 2010). Gender display may lead female and male partners to allocate their time according to perceived expectations in their

proper roles as wife and husband (or mother and father, respectively) (Brines 1994; Cooke 2006). The theory of identity economics rationalizes this behaviour in a utility framework that incorporates the social costs of deviating from one's social role (Akerlof & Kranton 2000).

However, even if individuals displayed this gendered behaviour, there is no reason to expect that they should do so differently across unions. Such norms may only have a perceptible impact differing by union rank, if separation or divorce were seen as a result of failure of this behaviour and accordingly, prompted more egalitarian views about work division in later partnerships (Ishii-Kuntz & Coltrane 1992).

Institutions

A third force that may affect specialization behaviour in consecutive unions relates to the institutional background of marriage (or cohabitation) and divorce (or separation). Joint taxation of married couples and the existence of private transfers such as spouse or child alimony after divorce might partly compensate for the marriage-specific investment and accompanying loss in human capital by the partner who invested in home production. These private transfers constitute a disincentive for the beneficiary to re-enter the labour market in a subsequent partnership so that he/she might adopt the same behaviour as before in order to maintain them.

In Germany, eligibility for these private transfers varies based on former marital status. Contrary to child alimony, which exists both for children born in cohabiting and married unions, spouse alimony exists only for formerly married women (unless the child is younger than three years of age). In addition, the incentives for divorcees to remarry typically differ between the former primary wage earner (usually the man) and the partner responsible for the household sphere (usually the woman). This is particularly true for Germany, where until 2008, maintenance payment regulation was relatively generous to the lesser- or non-earning spouse. Since maintenance payments are means-tested, they imply a disincentive for

the beneficiary to re-partner. Thus our prediction concerning the marital status is the following: as cohabiting spouses typically do not possess a formal contract and are thus less protected in case of separation, we expect them to invest in less work division than married couples in general. More egalitarian values shared by non-married versus married couples may contribute to this difference. In case of re-partnering, we expect a stronger adaptation of time use for cohabiting unions than for married ones because of fewer monetary transfers coming from or going to previous spouses. However, it is difficult to say whether this adaptation will involve less or more investment in domestic tasks in the second partnership as this depends highly on the new partner's characteristics.

New partner matching

The last and probably most obvious reason why housework division is likely to differ between unions is simply that one partner has changed. The amount and division of work within a couple is the outcome of two persons' preferences and negotiation, and a new partner is likely to have somewhat different inclinations and characteristics.

Becker (1973) advances that greater differences in the relative abilities or skills of the partners will result in complementarities and generate greater gains from specialization. For more diverse couples in terms of education, age, and wages, we should hence observe more specialization. Becker's theory predicts negative assortative matching with regard to spouses' wages in order to maximize the gains from specialization. However, this prediction has found relatively weak empirical support (Zhang & Liu 2003). We usually observe positive assortative matching, known as homogamy (Nakosteen, Westerlund & Zimmer 2004). Partners tend to match with partners of similar age, educational level, ethnicity, and, consequently, earnings (potentials).

Due to homogamy, the remarriage matching process may allocate a partner very similar to the first one (in terms of socio-economic characteristics). Because of his/her similar

characteristics, this new partner is likely to behave similarly to the former one, which includes decisions about time allocation. On the other hand, ample empirical evidence suggests that homogamy decreases from first to subsequent unions because of different matching processes: The re-marriage market is smaller than the first-marriage market (fewer singles available at each age), and individuals looking for a new partner may have to expand their criteria. This compositional effect increases the likelihood of finding someone who strays further from one's own characteristics compared to the first partner. Empirical evidence confirms that, for instance, the observed differences in age and educational level are more pronounced in second marriages (Bozon 1991) and that socioeconomic status plays a weaker role in remarriages than in first marriages (Shafer & James 2013). These results suggest that specialization based on complementarities should be higher in second unions. However, more recently, Aström et al. (2009) find evidence in Swedish register data for high similarity between the successive partners of women who experienced two successive unions. Duncan and Hoffman (1985) also present a positive correlation between the incomes of a woman's two successive husbands.

Based on these theoretical considerations, we are unable to unambiguously predict whether individuals engaged in a second union would change their specialization behaviour, or whether one partner (generally the woman) would invest less in the domestic sphere than before. Persistent forces such as gender norms and institutions may balance the possible learning and cautiousness effects. In an effort to empirically distinguish the second union effect from other factors, we must take into account the characteristics of the new partner and household composition to capture the couple matching process. If any, we expect the possible reduction of domestic time investment between partnerships to be more pronounced for women than men. Typically, the woman is the partner who specializes more in domestic and child care activities, and who consequently loses more in the event of marital disruption in

terms of earnings potential. We therefore expect to observe more women adapt their behaviour in the new couple by reducing domestic investments.

Previous findings

To our knowledge, very few studies have analysed the dynamics of the division of domestic labour within couples. In a longitudinal study for Germany, Schulz (2010) revealed the dynamics of spouses' time use over the course of their relationships. Whereas about half of the couples exhibited an egalitarian division of housework at the beginning of the relationship, over time, the arrangements shifted systematically toward a more traditional arrangement. After 14 years of marriage, the great majority of couples (85 percent) had converged to a traditional work division, independent of the spouses' economic resources. Particularly after the birth of a child, the women tended to take over larger shares of household work.

Studies on the dynamics of the division of domestic labour by union order are even more scarce. We counted only three studies in English-speaking countries. Sullivan (1997) used one of the waves of the British Household Panel Survey (BHPS) to show that women's second unions tend to be more egalitarian due to greater male participation, but that men's second unions do not. The study used a question about the total number of domestic working hours devoted to cooking, cleaning, and laundry asked directly to the respondent—very similar to the question used in the GSOEP questionnaire. Another study, by Ishii-Kuntz and Coltrane (1992) in North America, also showed that remarried men participate more in five domestic tasks (cooking, meal clean-up, shopping, laundry, and housecleaning) than men in their first unions. The authors account for family composition and analyse male participation in the following four family types: (1) first married couples with biological children; (2) remarried couples with biological children only; (3) remarried couples with step-children only; and (4) remarried couples with biological and step-children. They find that fathers with only biological children (and not step-children) are those who participate most. They also

report that remarried women spend more time on housework, particularly those who have step-children. In the most recent analysis, Aughinbaugh (2010) studied women's labour market participation by marital status and marriage order using the U.S. Panel Study of Income Dynamics for the years of 1979 to 2001. After controlling for background characteristics, she shows that women's labour market participation remains stable between first and higher-order marriages, but that hours spent at work differ. In higher-order marriages, women work more hours. However, due to her data set, Aughinbaugh focuses exclusively on women, and only a small proportion of the respondents were in two consecutive marriages (n = 77). In addition, the results differ when unobserved heterogeneity is taken into account, and vary by the form of unobserved heterogeneity. Accordingly, we will pay particular attention to this methodological problem in our analysis.

As the previous literature also shows remarriage patterns to differ by gender (Shafer & James 2013), we will systematically distinguish between female and male second unions in our own empirical analysis.

METHOD

The merits of panel data

Time allocation patterns within couples and the disproportionate female share of housework have been addressed by many economic, demographic, and sociological studies. Most of the empirical specifications are cross-sectional and based on time-use data. The main difficulty of these studies is thus to isolate and eliminate unobserved effects that have the potential to create selection bias. One reason is that housework division depends on a vast set of determinants, both observed (such as age, household structure, partner's characteristics, or children) as well as unobserved (such as preferences for having a clean home, wearing ironed

clothes, or spending time with children). These unobserved factors are difficult to take into account in a cross-sectional approach.

Studies taking a life course perspective on the dynamics of time allocation are still rare (as one exception, see Baxter et al. 2008) and they do not systematically apply models that can account for unobserved heterogeneity. The ideal data source to study couples' time allocation decisions with changing partners are panel data that provide observations of the same individual, and the respective spouse, in different partnerships. With fixed-effects estimation, such data offer a promising approach to control for unobserved individual-specific factors, at least if we assume their stability over time.

Our data

The German Socio-Economic Panel (GSOEP) is an annual micro-data panel based on annual interviews of individuals and households since 1984 in West Germany and since 1990 in East Germany (Wagner et al. 2007). It is well suited for our analysis as it follows participants over time, even in the case of household dissolution. When a household dissolves, all members of the new household, including any potential new partners, are re-interviewed in their new living circumstances. The GSOEP includes various individual characteristics that are likely to affect both an individual's re-partnering match and intra-family work division. Survey participants provide information about their living conditions each year, such as whether they live with a partner, their formal family status, and most relevant for our purposes, their time use. Although not as informative as a detailed time-use survey, the GSOEP has the distinct advantage of collecting longitudinal data, enabling us to obtain a reasonable number of respondents in two consecutive unions within the observation period.

Sample

Our sample comprises all individuals within the GSOEP dataset who experienced at least two partnerships for which information on both spouses (from the first and second

union) are available. For our analysis, we chose an observation period of 22 years, from 1991 to 2012. We selected all respondents aged 20-60 who reported at least two consecutive partnerships within the observation period, i.e., whose first observed union (whether married or not) was dissolved. The second union did not have to follow immediately, but had to begin at some point during the observation period of the GSOEP. In total, we ended up with 665 individuals who fulfilled these criteria. On average, they are observed for four years in their first union and almost five years in the second. Note that both partnerships may be censored by the observation window—the first union being typically left-censored because the couple had already been formed when entering the panel, and the second union being right-censored by the last year of interview, unless it dissolved immediately after.

The dependent variable

The time use information is gleaned from a set of items in the GSOEP questionnaire in which respondents are asked to report the average amount of time per day spent on employment, housework, errands, gardening, repairs, childcare, and hobbies or other leisure activities. The questions reads: "What does a typical weekday look like for you? How many hours per day do you spend on the following activities? 1) job, apprenticeship, second job (including travel time to and from work), 2) errands (shopping, errands, citizen's duties), 3) housework (washing, cooking, cleaning), 4) childcare, 5) education or further training, studying (also school, college), 6) repairs on and around the house, car repairs, garden work, 7) hobbies and other free-time activities." In the years of 1991 to 1997, the wording of the time-use question differed marginally. But the items we are interested in throughout this paper were unaffected.

Hours are reported for weekdays, Saturdays, and Sundays separately by men and women, but annual data is available for weekdays only. For this reason, we focus on weekday time use. Because a small number of respondents report simultaneous activities totalling more

than 24 hours per day, we restrict the sum of all work activities to 18 hours per day (thereby allowing at least 6 hours of physical rest) as proposed in Barg and Beblo (2012).

In our analysis, we focus on marital specialization in time use by measuring the investment of each partner in the two spheres: paid labour market work and unpaid domestic work. We adopt an indicator that takes into account both domains: "Domestic investment (DI)" measures the ratio of hours spent on domestic activities—both childcare (C) and housework (H) to the hours of total work, which equals domestic time plus time spent on employment (E): DI=(H+C)/(H+C+E)

(Complete specialization with a null involvement in one of the two spheres proves negligible in practice.) This multifaceted indicator has several advantages. It provides an adequate summary of the relative investment in the domestic sphere. Furthermore, since time allocation decisions for the private and market spheres are performed simultaneously, considering both together helps us to avoid the problem of endogenous employment hours that arises when focusing only on domestic work (Jenkins & O'Leary 1995). Leisure time is treated as the residual. Of course, reducing or increasing individual leisure time can be an alternative adjustment measure. However, our focus is on the relative rather than the absolute measure of marital investments here.

We use a broad definition of domestic work that includes both housework tasks and childcare activities. Housework includes "core chores" such as washing, cooking and cleaning (covered in category 3 of the GSOEP time-use item), shopping and errands (category 2), and repairs and gardening (category 6). Childcare is reported separately (in category 4).

Empirical strategy

Our empirical strategy is to estimate the relative domestic time investments for women and men separately. For the reasons outlined above, we want to determine whether the level of women's (and respectively, men's) marital specialization in second unions differs from that

of their first, and whether the specialization appears conditional on individual, partner, and/or couple match characteristics. By using a fixed-effects model, we account for all invariant factors, both observed and unobserved, and capture any time-constant heterogeneity between individuals who experience two partnerships. The following model is estimated:

$$DIR_{it} = \propto SU_{it} + \beta R_{it} + \gamma P_{it} + \delta C_{it} + \varepsilon_{it} \quad (1)$$

DIR_{it} is the respondent's (the wife's or husband's) domestic time investment observed each year. α is the coefficient of interest that estimates the effect of being observed in a second union (SU_{it}), R_{it} and P_{it} are two sets of time-varying explanatory variables for the respondent and partner, and C_{it} is a set of time-varying covariates for the couple/match.

We decompose the error term ε_{rt} in the following way:

$$\varepsilon_{it} = \theta_i + \mu_{it} \quad (2)$$

The fixed-effect term θ_i is the unobserved, individual-specific component that assesses the respondent's unobserved heterogeneity and μ_{it} is assumed to be a random variable with a normal distribution with a mean of 0 and a variance of σ^2.

The partner equation looks symmetrical except that the union rank corresponds to the respondent's. Once we account for fixed effects in the individual observed in both partnerships, the regression offers an indication about the changing behaviours of the new partner, compared to the previous one. If $\propto$ is significantly different from zero, it means that the new partner has a different level of domestic investment to the previous one, all other things being equal.

$$DIP_{it} = \propto SU_{it}^{r} + \beta R_{it} + \gamma P_{it} + \delta C_{it} + \varepsilon_{it} \quad (3)$$

We introduce the time-varying explanatory factors step by step in order to distinguish different levels of explanation: the individual effect, the partner effect, and finally, the couple match effect. Model 1 only takes into account the union order and time-constant individual controls through θ_i fixed-effect specification. Model 2 adds time-varying respondent

characteristics R_{it} (age and hourly potential wage). To account for the endogeneity and simultaneity problem of working hours, we calculated a potential Mincer-type wage for those not employed, i.e., a proxy for the wage they may expect if they were to re-enter the labour market, based on years of schooling, age, actual experience, squared experience, and nationality. This potential wage is calculated from the individual's job history and real work experience (distinguishing between part-time and full-time positions). The third specification (Model 3) adds the characteristics of the partner (P_{it}), whether first or second, with respect to age and potential hourly wage. Finally, Model 4 includes all of these variables plus the matching and couple covariates C_{it} such as non-labour household income, dwelling size, number of children per age group (below 3, 3-5, 6-11, and 12-16 years of age), and the presence of stepchildren. The level of home production may differ between unions due to changing family composition, e.g., the presence of step-children brought in by the new partner. We will also pay special attention to the role of formal marital status. Unfortunately, our data do not allow us to calculate the precise couple duration for first couples due to possible left censoring (if they formed a couple before entering the first GSOEP interview) and because we have no information on the exact year of couple formation for unmarried couples. However, we are able to calculate an "at-least duration" that we use as a further control variable. The marital status of the partnership (whether the couple is married or not) is also included.

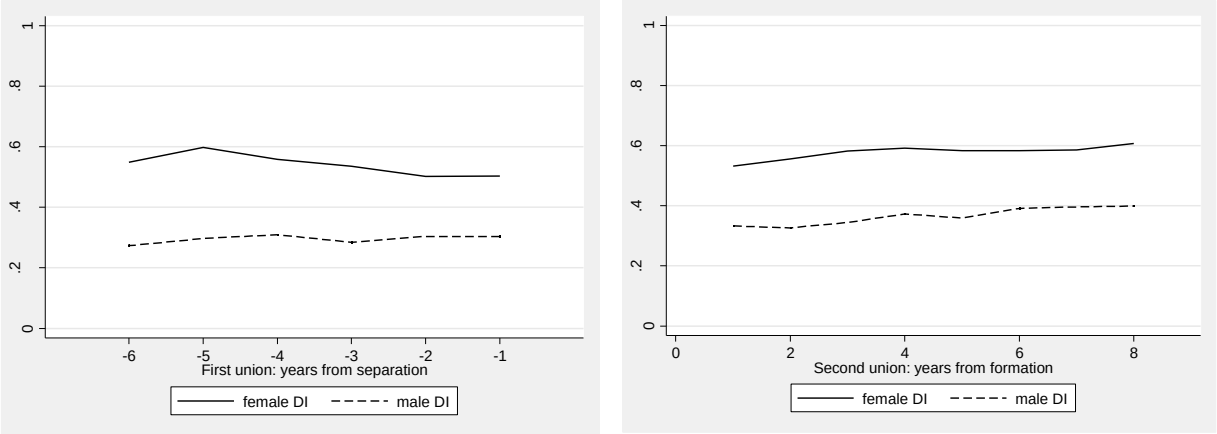
RESULTS

Descriptives

Figure 1 displays our domestic investment indicator during the last years of the first observed partnership (left panel) and the initial years of the subsequent one (right panel),

separately for female and male partners. The illustration does not consider the time elapsed between separation and re-partnering as long as it takes place within the observation period.

Figure 1: Domestic investment indicator, DI, before breakup (left) and after re-partnering (right)



Source: GSOEP waves 1991 to 2012.

The distances between the curves indicate large gender gaps in relative investments, with higher relative levels of domestic investment for women than for men. Women spend more than half of their total work time in domestic and parental activities, whereas men do this only one third of their total time, devoting the remaining two thirds to labour market activities. At first glance, our sample does not reveal remarkable differences in the work division of couples between first and second unions. However, we are inclined to interpret an increasing tendency toward domestic specialization for both men and women in their second partnerships, which possibly coincides with the arrival of children in the new couple. With regard to first unions, domestic investments are rather stable for men, while they decrease slightly for women. The decrease in domestic investment during the union's last years, in view of separation, may be an indication of an anticipated divorce or dissolution (Johnson & Skinner 1985). Further data analyses unveil that the decrease is due to both a reduction of domestic hours as well as an increase in women's labour force participation.

As illustrated in Table 1, first and second unions also differ at both the individual and couple levels with regard to other socioeconomic characteristics that may be directly or indirectly linked to the observed time use. Female (and respectively, male) respondents' columns correspond to individuals who experienced at least two consecutive unions (we call them first and second one) and were surveyed in both partnerships within the observation period. Columns of the male (female) partner describe the characteristics of the respondents' respective partners (for whom we do not have information on the number of previous partnerships).

Housework hours slightly decrease while childcare time increases between women's consecutive partnerships, leading to a rather stable time investment devoted to the domestic sphere. The indicator of domestic investment increases only slightly (from 0.53 to 0.57), primarily due to the reduced number of hours spent in the labour market. For men, the increase of the domestic investment indicator (from 0.29 to 0.36) is driven both by a decrease in market hours and an increase in housework hours in their second partnership. Neither change is statistically significant. A comparison of the time use between the respective partners reveals that the new partners of women and men uniformly spend less time in the labour market than their predecessors.

With respect to other characteristics, individuals in their second partnerships are, on average, of course, older, and slightly more likely to be highly educated (due to more potential time spent pursuing education). Second union partnerships are also less likely to be married and are observed during a longer period. Partly because of these life cycle effects, they are also more likely to be well-off, with higher non-labour income and larger average dwelling size.

Table 1a: Women's and men's characteristics in female unions

	First union				Second union			
	Female respondent		Male partner		Female respondent		Male partner	
Time use per weekday	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Housework hours, H (incl. errands, repairs, gardening)	3.86	2.08	2.39	1.79	3.66	1.87	2.40	1.92
Childcare hours, C	3.05	4.01	0.93	1.52	3.37	4.42	1.10	2.00
Employment hours, E	6.10	4.56	8.79	3.79	5.55	4.42	8.34	4.08
Marital investment indicator ((H+C)/(H+C+E))	0.53	0.34	0.31	0.28	0.57	0.33	0.34	0.31
Individual characteristics								
Age	30.98	7.23	34.20	7.86	38.78	7.97	40.47	8.33
Years of schooling	12.10	2.44	11.83	2.28	12.25	2.23	12.50	2.49
Full-time employed	0.45	0.50	0.83	0.38	0.41	0.49	0.85	0.36
Part-time employed	0.18	0.39	0.02	0.13	0.27	0.45	0.02	0.15
Hourly labour income (partly predicted)	10.10	5.29	12.86	6.45	13.37	6.40	17.14	9.17
Couple characteristics		*M*	*SD*			*M*	*SD*	
Married		0.65	0.48			0.51	0.50	
Years partnership observed		3.89	3.06			4.89	3.65	
No. of household members		3.19	1.08			3.17	1.19	
No. of children in the household aged < 3		0.17	0.39			0.16	0.40	
No. of children in the household aged 3-5		0.22	0.46			0.19	0.43	
No. of children in the household aged 6-11		0.36	0.66			0.34	0.64	
No. of children in the household aged 12-16		0.23	0.51			0.26	0.55	
Non-labour household income (net)		368.13	521.83			513.37	806.77	
Size of the dwelling (in m^2)		89.18	34.41			108.03	41.22	
Living in East Germany		0.35	0.48			0.32	0.47	
No. of couples	304				304			
No. of observations (respondents*years)	1,189				1,712			

Source: Own calculations on GSOEP waves 1991 to 2012. Sample means are shown for all observation units of a couple where information on both partners is available.

Table 1b: Women's and men's characteristics in male unions

	First union				Second union			
	Female partner		Male respondent		Female partner		Male respondent	
Time use per weekday	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Housework hours, H (incl. errands, repairs, gardening)	3.88	2.14	2.26	1.69	3.77	2.13	2.57	1.79
Childcare hours, C	2.96	3.91	0.90	1.49	2.90	4.12	0.89	1.63
Employment hours, E	5.91	4.62	8.98	3.59	5.67	4.53	8.20	4.18
Marital investment indicator ((H+C)/(H+C+E))	0.54	0.34	0.29	0.27	0.56	0.34	0.36	0.31
Individual characteristics								
Age	32.33	7.68	34.58	7.74	37.26	8.40	41.38	7.57
Years of schooling	12.10	2.45	12.34	2.53	12.38	2.41	12.32	2.45
Full-time employed	0.42	0.49	0.85	0.36	0.43	0.50	0.85	0.36
Part-time employed	0.19	0.39	0.02	0.13	0.26	0.44	0.02	0.15
Hourly labour income (partly predicted)	10.49	5.42	14.14	8.00	12.83	6.48	18.20	9.98
Couple characteristics		*M*	*SD*			*M*	*SD*	
Married		0.63	0.48			0.47	0.50	
Years partnership observed		4.16	3.22			4.90	3.64	
No. of household members		3.09	1.03			2.90	0.98	
No. of children in the household aged < 3		0.14	0.36			0.15	0.37	
No. of children in the household aged 3-5		0.20	0.44			0.17	0.40	
No. of children in the household aged 6-11		0.35	0.62			0.22	0.50	
No. of children in the household aged 12-16		0.24	0.54			0.19	0.49	
Non-labour household income (net)		354.14	554.62			439.71	671.58	
Size of the dwelling (in m^2)		93.36	36.92			103.23	39.60	
Living in East Germany		0.32	0.47			0.28	0.45	
No. of couples	361				361			
Observation units (respondents*years)	1,492				2,023			

Source: Own calculations based on GSOEP waves 1991 to 2012. Sample means are shown for all observation units of a couple where information on both partners is available.

Interestingly, women's second unions differ from those of men in several respects. The remarriage market characteristics hence appear to be gender-specific. For instance, spouses in women's second partnerships show more similarities than spouses in men's second partnerships. The age gap between spouses in female second unions is smaller (1.5 years) than in males' (more than four years). The hourly gender wage gap (predicted for those out of the labour force) is also smaller in women's second unions but higher in men's. Furthermore, women's second households tend to be larger and inhabited by more children above age 6 (0.34 versus 0.21 for children aged 6 to 11, and 0.24 versus 0.19 for children above 11), presumably because it is the mother who typically has custody of the child(ren) born in the first union. This may also be why women spend more time providing childcare in their second unions, whereas men's respective hours decrease.

These multidimensional differences between first and second unions and the theoretical impact of the partner match can only be fully accounted for by using a multivariate regression analysis. In view of the differences between women's and men's second partnerships, we will run our estimations with separate samples, according to whose partner (the man's or the woman's) is experiencing a second union.

Estimation results for domestic time investments

Tables 2 and 3 document how women's and men's domestic time use in their second unions varies with the inclusion of time-varying explanatory factors step by step in order to distinguish different levels of explanation: the individual effect, the partner effect, and finally, the couple match effect. Model 1 takes only into account the union order and time-constant individual controls through θ_i fixed-effect specification. Model 2 adds time-varying respondent characteristics R_{it} (age and hourly potential wage). To account for the endogeneity and simultaneity problem of working hours, we calculated a potential wage for those not employed, i.e., a proxy for the wage they may expect if they were to re-enter the labour market, based on years of schooling, age, actual experience, squared experience, and nationality. This potential

wage is calculated from the individual's job history and real work experience (distinguishing between part-time and full-time positions). The third specification (Model 3) adds the characteristics of the partner (P_{it}), whether first or second, with respect to age and potential hourly wage. Finally, Model 4 includes all of these variables plus the matching and couple covariates C_{it} such as non-labour household income, dwelling size, number of children per age group (below 3, 3-5, 6-11, and 12-16 years of age), and the presence of stepchildren. According to the estimation results in Table 2, women increase their domestic investments when they re-partner. This positive relationship is robust to adding her individual characteristics (age and potential wage) as well as her partner's characteristics. However, the second union effect is no longer statistically significant when taking the compositional characteristics of the couple into account. This means that women's higher participation in the domestic sphere during their second union is primarily explained by the different household composition, with the number of children being most important, followed by marital status and non-labour income level.

Women's consecutive partners do not seem to exhibit different behaviours of specialization. Once we control for the woman's characteristics, the coefficient of the second union no longer proves statistically significant. The women do not appear to choose more egalitarian-minded men than before, presumably because the remarriage market process is driven by other (e.g., financial) factors. As also shown by Dewilde and Uunk (2008), remarriage seems to be a way to overcome financial difficulties for some women, at the cost of increased engagement in the domestic sphere.

These results show that women in second unions are not investing less time in marital-specific skills than before, which contradicts our first economic hypothesis that they might adjust their specialization behaviours after their first union. Instead, the finding gives more support to the gender display and institutions argument that compels individuals to maintain similar behaviours in subsequent partnerships in spite of a changed partner match. However, it

may also be an indication that women are holding to their once chosen work division, trying to make economic use of their past marital specialization investments.

Table 2: Fixed effects estimation of relative domestic time use in women's second unions

	Model 1		**Model 2**		**Model 3**		**Model 4**	
Dependent variable = $DI^{f,m}$	Female resp.	Male partner	Female resp.	Male partner	Female resp.	Male partner	Female resp.	Male partner
Second union	0.066*** (0.019)	0.041** (0.018)	0.058* (0.032)	-0.029 (0.025)	0.068** (0.032)	-0.028 (0.026)	0.023 (0.033)	-0.085 (0.037)
Individual charact.								
Her age			0.001 (0.004)	0.008*** (0.002)	-0.007* (0.004)	0.007** (0.003)	0.000 (0.004)	0.013** (0.005)
Her wage			-0.000 (0.003)	-0.001 (0.001)	-0.001 (0.002)	-0.000 (0.001)	0.000 (0.002)	0.001 (0.001)
Partner charact.								
Partner's age					0.006** (0.003)	0.002** (0.003)	0.003 (0.002)	0.001 (0.003)
Partner's wage					0.005*** (0.001)	-0.003 (0.002)	0.002*** (0.001)	-0.002 (0.002)
Couple background								
Married							0.049*** (0.018)	0.020 (0.017)
Yrs couple observed							0.002 (0.004)	-0.007 (0.005)
# children 0-2							0.307*** (0.017)	0.010 (0.018)
# children 3-5							0.144*** (0.015)	0.015 (0.015)
# children 6-11							0.061*** (0.013)	0.002 (0.014)
# children 12-16							0.009 (0.011)	0.007 (0.013)
# step children							0.014 (0.048)	-0.011 (0.049)
Dwelling size							0.000 (0.000)	-0.001*** (0.000)
HH nonlab.inc./1000							0.064* (0.016)	0.118*** (0.023)
Constant	0.516 (0.011)	0.307 (0.011)	0.487*** (0.103)	.073 (0.061)	0.473*** (0.101)	0.061 (0.061)	0.190*** (0.108)	-0.084 (0.112)
R-sq overall	0.004	0.002	0.003	0.000	0.013	0.003	0.310	0.035
No. of observations	Female partner 2926 | Male resp. 2914							
No. of couples	304							

**** Indicates statistical significance at the 1% level, ** at 5%, * at 10%.*

Source: GSOEP waves 1991 to 2012.

Table 3: Fixed effects estimation of relative domestic time use in men's second unions

	Model 1		Model 2		Model 3		Model 4	
Dependent variable = $DI^{f,m}$	Female partner	Male resp.	Female partner	Male resp.	Female partner	Male resp.	Female partner	Male resp.
Second union	0.038* (0.022)	0.070*** (0.013)	-0.004 (0.030)	0.003 (0.018)	0.001 (0.031)	0.008 (0.018)	0.007 (0.036)	-0.029 (0.029)
Individual charact.								
Her age			0.004 (0.003)	0.007*** (0.002)	0.002 (0.003)	0.005** (0.003)	0.004 (0.003)	0.002 (0.002)
Her wage			0.002 (0.001)	0.000 (0.001)	-0.003** (0.002)	-0.001 (0.001)	-0.002* (0.001)	-0.000 (0.001)
Partner charact.								
Partner's age					0.003 (0.004)	0.002 (0.002)	0.004 (0.005)	0.009** (0.004)
Partner's wage					0.002** (0.001)	0.001 (0.001)	-0.000 (0.001)	-0.002 (0.001)
Couple background								
Married							0.083*** (0.018)	-0.005 (0.017)
Yrs couple observed							-0.004 (0.005)	-0.003 (0.004)
# children 0-2							0.337*** (0.017)	0.052*** (0.015)
# children 3-5							0.170*** (0.015)	0.021 (0.013)
# children 6-11							0.106*** (0.014)	0.028** (0.011)
# children 12-16							0.044*** (0.014)	-0.018 (0.012)
# step children							-0.015 (0.023)	0.019 (0.019)
Dwelling size							0.000 (0.000)	-0.001*** (0.000)
HH nonlab.inc./1000							0.068*** (0.013)	0.109*** (0.017)
Constant	0.528 (0.013)	0.289 (0.008)	0.379*** (0.082)	.037 (0.061)	0.386*** (0.081)	0.042 (0.061)	0.089 (0.137)	-0.074 (0.112)
R-sq overall	0.000	0.012	0.000	0.003	0.006	0.003	0.324	0.082
No. of observations	Female resp. 3515 | Male partner 3538							
No. of couples	361							

**** Indicates statistical significance at the 1% level, ** at 5%, * at 10%.*

Source: GSOEP waves 1991 to 2012.

Table 3 shows similar results for men. Like women, they do not change their domestic investments from one union to the next. The coefficient estimate of the second union, which is

statistically significant and positive in the first specification (without any controls), is no longer significant once basic individual characteristics are considered. Men's domestic time use, hence, seems highly related to age. Like women, men seem to adhere to the same time use pattern in their first and second unions and their respective partners also exhibit a similar level of domestic investment.

Control variables

Concerning individual, partner, and couple background characteristics, we first notice that the variation of domestic time use decisions remains largely unexplained for men, as documented by the very weak explanatory power of R^2, well below 10 percent. In contrast, the factors that affect the domestic investment of women seem somewhat better determined, since about 30 percent of the variance in the dependent variable can be explained by the variables included in the richest specification in Model 4. This applies to both the female respondents' and female partners' models. According to Tables 2 and 3, these are, most importantly, marital status and the presence of children—with the youngest associated with the largest increase in women's unpaid domestic work relative to paid market work. Being married is also positively associated with a more traditional division of work between spouses, with the woman investing more in the private sphere. Economic variables seem to influence women's decisions to invest more in the domestic sphere than the labour market. The partner's wage level is positively related to a higher domestic investment of women (for female respondents in Table 2, as well as female partners of male respondents in Model 3 of Table 3), consistent with household bargaining theory, as is the non-labour income (see Model 4 in both tables). These monetary resources may pose a disincentive for women to invest in the labour market.

With regard to the male partners' participation in domestic work in women's second unions, the estimates of Model 2 (in Table 2) indicate that it is largely and positively related to her age. This relationship also proves robust with the introduction of further controls in Models 3 and 4.

For male respondents in Table 3, his age, family composition, dwelling size, and non-labour income show some correlation with domestic time use. A larger dwelling size is associated with reduced domestic investments, which might be explained by a wealth effect. Wealthy men are more likely to both outsource household work by buying substitutes on the market and work longer hours in their jobs. Table 3 also confirms that the female partner's own potential wage diminishes her relative participation in domestic and parental work. This effect may be interpreted in connection with the relative resources approach (see e.g. Sullivan & Gershuny 2012)or in a bargaining context, where the woman's bargaining power regarding financial resources is negatively related to her domestic investments. Finally, the presence of step-children in the household does not seem to affect either spouse's domestic investments in any scenario.

Subsamples

Of course, an important shortcoming of the fixed effects model is that any time-invariant characteristics at the respondent level are detected by the individual fixed effect and are then, by construction, excluded from the model as explanatory factors. In order to assess their impact, we split the sample and perform separate estimations. We hence apply our final and preferred Model 4 to various subsamples to analyse whether specific populations react differently when entering a second union. In particular, we divide the sample by (1) marital status of the first partnership, (2) time elapsed after dissolution of the first and formation of the second partnership, and (3) both partners' educational attainments.

In regard to the first distinction by marital status, the amount of household work remains unchanged for women in their second unions, regardless of their previous status. We might have expected domestic investment behaviour to change according to marital status, given that some private transfers such as spouse alimony are only available to formerly married spouses. Persistent behaviour from one partnership to the next would presumably be observed for these individuals. In fact, no difference is observed between married and non-married

partners, providing weak support for this reasoning and more support for a continued gender display across any mixed-sex unions.

Our second subsample division concerns the elapsed time between the marital dissolution and the new couple formation, which might be an indicator of the difficulties in finding a new partner or the right match. The estimates reveal that men who wait longer than three years to re-partner will invest less domestic time during their second unions, whereas no significant difference between unions is observed for those who re-partner earlier. One explanation could be that these men are waiting for a partner with complementary abilities (i.e., a women who is ready to invest in the domestic sphere), and just need more time to find her.

Table 4: Men's second union effects of relative domestic time use in a subgroup analysis (of male respondents)

	Married in first union		**Years elapsed between unions**		**Education level**	
Dep. var. = DI^m	yes	no	< 3	≥ 3	high	low
Second union	-0.038	-0.030	-0.007	-0.095**	-0.006	-0.057*
	(.040)	(.040)	(.039)	(.041)	(.049)	(.034)
Individual, partner, and couple background characteristics accounted for						
No. of observations	2,128	1,410	1,127	1,985	1,070	2,468
No. of couples	192	169	106	224	126	254

**** Indicates statistical significance at the 1% level, ** at 5%, * at 10%.*
Specification of model 4.

Source: GSOEP waves 1991 to 2012.

Table 5: Women's second union effects of relative domestic time use in a subgroup analysis (of female respondents)

	Married in first union		**Years elapsed between unions**		**Education level**	
Dep. var. = DI^f	yes	no	< 3	≥ 3	high	low
Second union	-0.009	0.006	-0.039	0.050	-0.089**	0.023
	(.041)	(.039)	(.036)	(.050)	(.044)	(.034)
Individual, partner, and couple background characteristics accounted for						
No. of observations	1,801	1,125	2,565	1,799	801	2,125
No. of couples	169	135	242	198	100	224

**** Indicates statistical significance at the 1% level, ** at 5%, * at 10%.*
Specification of model 4.

Source: GSOEP waves 1991 to 2012.

Our third distinction concerns educational attainment. A very interesting result appears, as men with low levels of education (i.e., less than 13 years of schooling, which means without a highschool degree) tend to reduce their domestic investments in second unions, whereas more highly educated men (with at least a high school degree) do not. This might be financially motivated by the need for additional resources to compensate for the negative financial consequences of divorce. A reduction of domestic investment in second unions is also apparent for highly educated women. Separated women may have to extend their labour force participation and cut back on unpaid work for the same economic reasons as poorly educated men. Previous studies have shown that many women who are not in the labour force re-enter the labour market after a separation, which pays off mostly for the highly educated (Finnie 1993, Bonnet et al 2010). High-educated women are those who bear the highest opportunity costs by specializing in the domestic sphere instead of supplying labour to the market. They may have already perceived these costs during their first union and are consequently more cautious in their second.

DISCUSSION AND CONCLUSION

One well-known and puzzling finding in the economic literature of time use and the division of housework is that women with higher human capital endowments than their husbands (as indicated, e.g., by their higher education levels or wages) continue to perform more domestic work than their husbands, even if they work full-time. This paradox has been explained by the *doing gender* theory (West & Zimmerman 1987) and the concept of identity economics (Akerlof & Kranton 2000), the economic equivalent, in which women bear a social cost of escaping their prescribed gender roles and therefore do not necessarily maximize monetary utility when making a time use decision.

The present study points out a puzzling new fact. According to Becker et al. (1977), spouses are more reluctant to invest in marriage-specific capital when they anticipate a marital dissolution. Using panel data on couples' time uses across unions, we are able to compare domestic investments—measured as unpaid work relative to total (paid plus unpaid) work—throughout an individual's marital history. When controlling for unobserved heterogeneity in an estimation with individual fixed effects, we find that marital investment choices do not differ from a first to subsequent partnership in Germany. In particular, we find that women who invested in marital specific capital during their first unions, bearing possibly high costs in the event of couple dissolution, choose the same level of marital investment with their next partners. This non-adaptive behaviour of women is puzzling since bargaining and learning theories would predict women to be more aware of the risks involved when re-partnering. After all, there does not seem to be a learning effect from the first marital experiment; if any, it is compensated by counteracting effects. These counteracting effects, leading to rather constant time allocation choices across successive couple unions, are due to persistent forces that influence all partnerships, independent of rank order. First, individual preferences may just be strong and remain stable across consecutive partnerships. We may call this the "blind love" effect. Second, if society's or the peer group's role assignments to genders are very strong, and this applies to all couples uniformly, behaviour is not expected to change between first and second partnership. Finally, institutions (e.g., spouse alimony) may attenuate the costs of divorce, particularly for the person specializing in domestic work, who is then willing to re-invest in later unions.

For men, specialization choices also appear stable from one union to the next. Hence, from the couple's point of view, our results suggest that a second partnership's division of work between spouses is just as balanced (or unbalanced) as the previous one. The rare papers that have studied this question provided rather ambiguous results that may only partly be due to country specificities Whereas Sullivan (1997) found more egalitarian second unions in terms of

housework division in the UK, and Aughinbaugh (2010) showed that American women increase their market labour hours when they re-partner, Ishii-Kuntz and Coltrane (1992) countered that remarried women in the U.S. spend even more time on housework. However, these past results share the caveat of being either based on small sample sizes or cross-section data sets that do not fully account for individual unobserved heterogeneity, which is potentially of great importance when studying marital behaviour.

Our panel-data results, on the contrary, provide strong evidence for persistent marital specialization patterns between individuals' consecutive partnerships, with only some subgroups exhibiting distinct behaviour: Particularly high-educated women reduce their relative domestic time investments in their second relationships. We interpret this as resulting from their higher opportunity costs of labour market time. Women with high educational attainment who specialize in the domestic sphere simply have more to lose than those with less education. Consequently, they increase their labour force participation—which might also be easier for them to match with demand than for lower-educated women—and/or reduce their housework hours when re-partnering.

In spite of the unambiguous results, some limitations of our study should be mentioned. First, as housework, childcare, and employment hours are self-reported in the GSOEP and taken as weekly averages, they are certainly less precise than time-use diary information would be. However, we have no reason to believe that a potential bias would affect time use information differently across unions, so this caveat does not present a major concern in our analysis. The second limitation refers to our aggregate measure of relative domestic investments that we use to overcome the inherent problem of circularity between private and labour market spheres. The indicator includes working hours in both the domestic and labour market sphere, so that any changes may be due to an adjustment of housework time, job time, or both. Adjustments in single time uses might even invalidate the aggregate measure. In this sense, our study draws a rather broad picture of individuals' time use trajectories across unions.

This also applies to the distinction between core housework and childcare, of course. As separated parents have to share in time spent with the children from their first union, this time may be central to negotiations and valued in and of itself. In addition to stepchildren, individuals may have children with their new partner. We leave it to future research to further disentangle the single behavioural adjustments in different domestic investments.

Finally, for our panel fixed effects approach we have to apply the crucial assumption of constant individual preferences over time and across unions. However, if changes in preferences are in fact responsible for marriage dissolution, this would imply a bias towards finding larger behavioural adjustments than actually take place and we would consequently be at risk of reporting upward biased results. The overall absence of behavioural changes in our analysis thus seems to confirm not only the strong role of institutions and norms but also persistent individual preferences. The reluctance to adjust couple time-use, which was known from the housework gender gap not adjusting to rising female labour force participation already, is particularly noteworthy in the context of marital dissolution and re-partnering – two demographic events that one may have rated most likely to alter individual values.

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