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Gender Convergence in Housework Time: A Life Course and Cohort Perspective

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Abstract: Knowledge about gender convergence in housework time is confined to changes studied across repeated cross-sections of data. This study adds a dynamic view that links broader social shifts in men's and women's housework time to individual life-course profiles. Using panel data from the German Socio-Economic Panel Study (1985–2015), our analysis is the first to trace changes in housework time across the entire adult life course (ages 20–90) and across a large range of cohorts (1920–1990). The results revealed two types of gender convergence in housework time. First, the gender gap converged across the life course, narrowing by more than 50 percent from age 35 until age 70. Life-course profiles of housework time were strongly gendered, as women's housework time peaked in younger adulthood and declined thereafter, whereas men's housework time remained stably low for decades and increased only in older age. Second, the gender gap converged across cohorts, narrowing by 40 percent from cohorts 1940 until 1960. Cohort profiles of housework time showed strong declines in women and moderate increases in men. Both cohort trends were linear and extended to the most recently born, supporting the notion of continued convergence in housework time.

Keywords: age; cohort; housework; gender convergence; gender division of labor; longitudinal analysis

HOUSEWORK still figures prominently in research and debates about gender inequality. Although men's and women's roles in the market and in the home have changed considerably over the past decades, a large gender gap remains in the performance of domestic work (Bianchi et al. 2000; Kan, Sullivan, and Gershuny 2011). Scholars agree that women have decreased their time spent on these tasks (Gershuny and Harms 2016), but they disagree about the interpretation of these shifts (Sayer 2005). Dominant narratives include, on the one hand, the notion of "continued convergence" (Kan et al. 2011; Sullivan, Gershuny, and Robinson 2018), emphasizing the closing gender gap in housework time and the persistent movement towards gender equality and, on the other hand, the "stalled revolution" and the "second shift," emphasizing the large gap that has remained despite these changes and the dual burden on women's time in market and domestic spheres (Esping-Andersen 2009; Hochschild and Machung 1989).

These competing notions are informed by empirical work about changes in the time that men and women spend on housework (Bianchi et al. 2000; Gershuny and Robinson 1988; Sayer 2005). These studies, as well as recent international updates (Altintas and Sullivan 2016; Sullivan et al. 2018), have assessed changes in housework time on the basis of repeated cross-sectional measures of time use. Despite their merits, we contend that these studies offer only a limited view of

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changes in housework time, being confined to population-level changes across historical observation periods.

Our main innovation in the present study was to link these broader social shifts to individual life-course dynamics of housework time (Artis and Pavalko 2003; Elder and George 2016). A key benefit of this design is that it allowed us to connect aggregate-level shifts in men's and women's housework time to individual life-course profiles underlying these changes. For example, research has shown that union formation and parenthood are life-course transitions that propel couples into an increasingly gendered division of labor (Baxter, Hewitt, and Haynes 2008; Kühhirt 2012); other research has shown that the resulting gender gaps in housework time decline not only after union dissolution (Gupta 1999) but generally across later stages of adult life, particularly after retirement (Leopold and Skopek 2015). Given that the timing and occurrence of these life-course transitions have changed profoundly over the past decades, important new insight into gender convergence in housework time can be gained from a design that accounts for individual change with age along with social change across cohorts.

We used panel data of unprecedented scope to examine changes in housework time. Our study is the first to map changes in housework time across the entire adult life course, from late adolescence until the end of life. Our analysis combined this large age range with a large range of birth cohorts (1920–1990) to paint the most comprehensive picture of individual change and social change in housework time that is currently available in the literature. Based on this design, we examined and quantified gender inequality in housework time in two novel ways. First, our data allowed us to identify the age at which the gender gap peaked and how this age has changed across cohorts. Second, we were able to measure gender differences in housework time, and cross-cohort changes therein, in a cumulative fashion, covering five decades of adult life (ages 25–75).

Our data, obtained from 31 waves (1985–2015) of the German Socio-Economic Panel Study (SOEP), offered extensive overlaps between age and cohort (i.e., different birth cohorts observed at the same ages) ideally suited to disentangle life-course patterns and cohort patterns of change in housework time. Based on these data, we addressed two guiding research questions: First, how does housework time evolve over the entire adult life courses of men and women, at which age does the gender gap peak, and how does it change across the life course? Second, how have life-course profiles of housework time, and the associated gender gaps, changed across cohorts? Our answers to these questions shed new light not only on how gender inequality in the home unfolds over the life course but also whether long-term cohort trends in these patterns support the notion of a "continued convergence," a "slowed revolution," or a "stalled revolution."

Background

Housework Time Across the Life Course

Over the past two decades, analysts have recognized the gendered division of labor as a dynamic phenomenon characterized by changing resource constellations within

couples and changing time demands for market and domestic work. Longitudinal studies have provided important insight into the creation of gendered patterns of housework time and their evolution over the life course.

Earlier stages. After union formation, the performance of housework becomes increasingly gendered (Gupta 1999), and the transition to parenthood accelerates these changes (Baxter et al. 2008; Kühhirt 2012). Change was found mostly in women, whereas men's housework time was less responsive to these transitions. Theories offer different views about the mechanisms that produce the widening gender gap in younger adulthood, including a process of traditionalization governed by gender norms (Kühhirt 2012), rational specialization of tasks governed by an altruistic head of a household who maximizes a common utility function based on spouses' relative productivities (Becker 1991), and marital bargaining over "onerous" housework tasks governed by power relations within couples (Gupta 2007).

Middle stages. In most longitudinal studies of the division of labor, the window of observation does not extend beyond early midlife, ignoring "an important source of variation – change in adherence to traditional gender roles that occurs as marriage and family responsibilities wax and wane" (Rexroat and Shehan 1987: 737). An analysis of the 1976 wave of the Panel Study of Income Dynamics, albeit cross-sectional, indicated marked variation according to the changing salience of work and family roles. The gender gap in market and domestic work was most pronounced among parents of young children but declined gradually across subsequent age groups, as children grew older and women adjusted their commitments to work and family (Rexroat and Shehan 1987). Similar midlife patterns were reported for a cross-section of Australian time use data collected in 1997 (Craig and Sawrikar 2009).

This cross-sectional evidence has been corroborated by longitudinal studies on the division of labor in middle stages of the adult life course. A US sample of stably married parents of school-aged children observed over a period of seven years showed a moderate decline of the gender gap in housework (Bun Lam, McHale, and Crouter 2012). Data from the German Socio-Economic Panel also showed that the gender gap in housework narrowed across midlife. Yet, convergence was slight when compared to the preceding effect of the transition to parenthood (Kühhirt 2012).

Taken together, the evidence on the division of labor in middle stages of the life course shows three differences compared with earlier periods: (1) the gender gap narrows, (2) it narrows only slightly, and (3) it narrows gradually rather than shifting at life transitions. These findings are commonly seen to reflect changes in children's developmental needs and women's labor force participation, involving a decreasing demand for housework accompanied by an increase in women's market work. Similar to younger adulthood, these shifts apply to women rather than men.

In evaluating midlife trajectories of housework time, studies have concluded that a sizeable gender gap persists despite the slight convergence observed over time. Similar to earlier adulthood, different mechanisms have been proposed to account for this pattern of midlife stability. According to gender construction theories (Coltrane 2000), gendered time patterns are "sticky" because couples' homemaker

and breadwinner roles as well as the symbolic enactment of gender in marital households are highly routinized and firmly entrenched in men's and women's day-to-day lives. According to theories of relative resources, stable patterns in midlife reflect the absence of major shifts during this life stage in terms of relative time constraints, domestic productivities, income capacities, and bargaining positions of men and women (Becker 1991; Coverman 1985; Gupta 2007).

Later stages. In contrast to midlife, older age involves substantial shifts in terms of relative resources. Most notably, retirement frees up time previously dedicated to market work, reduces opportunity costs of domestic work, and may trigger a process in which retirees reassess their lives and adopt new activities, including housework (Quadagno 1999). Consequently, theories of relative resources would expect a converging gender gap in housework, particularly in male-breadwinner couples. According to gender construction theories, in contrast, retirement transitions are not expected to change the gendered division of housework given that gender display in couples as well as individual gender role attitudes do not depend on participation in the workforce. Recent studies have shown that men and women responded to retirement transitions by adjusting their housework time. Yet, these shifts did not change the general pattern of women performing the lion's share of domestic work (Leopold and Skopek 2015, 2016).

Less is known about old and oldest age, as late-life patterns of time use remain largely unexplored. Generally, serious health declines limit housework time for both women and men, whereby effects of health decline on relative reductions of time spent on routine tasks were smaller for wives than for husbands (Leopold and Schulz 2018).

Summary. Although no study has examined the entire life-course profile of men's and women's housework time, extant evidence suggests four main patterns. First, in early stages of adult life, women's housework time can be expected to increase steeply until the point where domestic demands associated with the presence of young children are at their peak. Men's housework time, in contrast, appears unlikely to change in major ways across this period. Second, in middle stages of adult life, women's housework time can be expected to decline slightly, as children grow older and women's increases in work hours limit the time available for housework. Again, there are no reasons to expect change in men's housework time during this period. Third, around retirement age, housework time can be expected to increase moderately. This increase appears to apply primarily to men and to male breadwinners in particular. Fourth, health limitations in older and oldest age can be expected to involve considerable declines in housework time among both men and women.

Housework Time Across Cohorts

Many studies about social change in housework time are based on repeated cross-sectional data from the United States (Bianchi et al. 2000; Gershuny and Robinson 1988; Sayer 2005). Although these studies did not specifically address the role of age and cohort in this process, their main arguments allude to the latter category. Increasing educational attainment is regarded as an engine of change in housework

time. Education influences housework time through different pathways, such as changes in attitudes, changes in resources, changes in family structure, and associated changes in life-course dynamics. This influence, in turn, is gendered (Sullivan and Gershuny 2016). Similar to previous considerations about changes across individual life courses, change pertains mainly to women. Educational expansion changed the determinants of women's housework time in all advanced societies, including the German context of our study, giving rise to cohort effects (Lewin-Epstein, Stier, and Braun 2006; Pampel 2011). Over the last decades, German women have increasingly attained upper-secondary levels of education, and their participation in higher education has expanded rapidly (Blossfeld, Blossfeld, and Blossfeld 2015). During this process, gender inequalities in educational attainment have been erased or even reversed. Today, more German women than men enter and graduate from universities (Geißler 2014).

Changes in gender role attitudes. A common cohort argument underlying these changes focuses on ideational shifts. The Women's Movement of the 1970s involved sharp increases in younger people's support of egalitarian gender roles. Egalitarian attitudes, in turn, are associated with a more egalitarian allocation of housework time (Nitsche and Grunow 2016), although the association between attitudes and behavior is complex and far from perfect (Lachance-Grzela and Bouchard 2010).

Gender role attitudes were found to remain stable across the adult life course (Elder and George 2016), suggesting that cohort effects constitute the main drivers of ideational change and its effects on housework time. There are two mechanisms underlying cohort effects on gender role attitudes: a succession mechanism through cohort replacement in an era of educational expansion (Brooks and Bolzendahl 2004; Goldscheider, Bernhardt, and Lappegård 2015) and a diffusion mechanism, as people of higher socioeconomic status (the "avant garde" of social change) more readily adopt new ideas (Davis and Greenstein 2009).

Changes in resources. A second pathway mediating the effects of education on housework time are changes in resources. This applies particularly to changes in women's resources relative to those of their partners. In contrast to ideational change operating mainly through cohort mechanisms, changes in resources also influence the life-course pattern of housework time, as discussed earlier. Cohort effects of changes in resources pertain to shifts that occur between the life-course profiles of resources observed across successive birth cohorts. Most notably, younger cohorts of women were more likely to enter the workforce, be more productive in the labor market, be more constrained by work hours, and be in possession of greater bargaining power compared to older cohorts of women who maintained low levels of individual resources throughout their life course. These trends have been observed in Germany as well as all other modern societies over the last decades (Geißler 2014; Goldscheider et al. 2015). Trend studies on housework in the United States have highlighted these cohort shifts in women's resources as major drivers of the shrinking gender gap in housework, a change that was mainly due to cuts in women's time spent on domestic activities (Bianchi et al. 2000).

Changes in family structure. A third pathway mediating cohort effects on housework time are changes in family structure and the associated shifts in the structure and timing of the adult life course. In the West German context of our study, changes

in factors previously considered as age effects (union formation and fertility) follow a clear cohort pattern. Fertility has fallen over cohorts and long remained at a "lowest-low" level. This trend was accompanied by continuous postponements of union formation and parenthood. Age at first birth is still on the rise (Mayer and Schulze 2013; Pötzsch and Sommer 2009). Marriage rates have declined, and the proportion of never-married women and men at the age of 40 has almost doubled from the cohort of 1955 until the cohort of 1965 (Schneider and Rüger 2007). Conversely, divorce rates surged until the marriage cohorts of the late 1990s and plateaued thereafter (Wagner, Schmid, and Weiß 2015). Given the importance of union formation and parenthood for gendered patterns of housework time, all of these cohort shifts in family structure and the prevalence and timing of associated life-course transitions can be expected to involve substantial cohort shifts in housework time.

Summary. Although long-range cohort studies of changes in housework time are absent from the literature, several major shifts that have occurred in the West German context suggest two patterns. First, women's housework time can be expected to decrease substantially across cohorts given that educational expansion and the associated changes in gender role attitudes, (relative) resources, and family structure strongly impact women's housework time. Second, men's housework time can be expected to increase across cohorts. Although not all of the factors apply similarly to men, a cohort trend towards more egalitarian gender role attitudes as well as declines in relative resources when compared to their partners should involve at least slight increases in men's housework time. Expectations are less clear when it comes to adjudicating between the perspectives of "continued convergence," "slowed revolution," and "stalled revolution." Although newer cohorts of women have surpassed men in education, other engines of convergence may still operate given the continued trend towards more egalitarian gender role attitudes (Braun and Scott 2009) as well as continued changes in family structure (Geißler 2014; Goldscheider et al. 2015). In this respect, a comprehensive age–cohort perspective will allow us to assess whether social change in the gender division of housework is ongoing, slowing down, or stalling.

Method

Data and Sample

We used data from the German Socio-Economic Panel Study (SOEP, version 32.1; Wagner, Frick, and Schupp 2007). The SOEP is one of the world's largest and longest running surveys of households and individuals. The SOEP data were ideally suited to answer our research questions given that 31 annual waves of panel data on housework time are available for the period between 1985 and 2015.

We selected a sample of men and women (N = 39,198) born in West Germany and recruited in the starting sample of the SOEP (1984) and subsequent refreshment samples (1998, 2000, 2006, 2011, and 2012). We excluded oversamples of East Germans, immigrants, and high earners given that consideration of these groups would introduce considerable heterogeneity in terms of individual and relative

resources, institutional conditions, and gender norms surrounding housework. Because the survey questions on housework time changed after the initial wave of the SOEP in 1984, we selected the next wave (1985) as a starting point of the analysis.

Our sample included all respondents aged 20 to 65 upon panel entry. Respondents could enter the panel in 1985, 1998, 2000, 2006, 2011, and 2012, as defined by the timing of refreshment samples recruited for the SOEP. We set an upper age bound of 65 in order to limit survivor bias due to panel entry at older ages and to limit heterogeneity in terms of follow-up time. Observations with missing values on the housework time variable were dropped (11 percent of observations). After these exclusions, the sample consisted of 20,109 individuals (10,250 women and 9,859 men) born between 1920 and 1990 and observed at 201,261 points in time. Individual observation windows covered up to 31 years. On average, respondents were observed 10 times; 50 percent of respondents were observed at least 8 times, 25 percent at least 17 times, and 5 percent at least 30 times. Extensive overlaps between age and cohort constituted a key benefit of these panel data for our purposes.

Note that in contrast to much of the housework literature, our study was not restricted to the gendered division of labor in couples. This allowed us to consider important demographic shifts, such as delays and declines in union formation as well as increasing risks of union dissolution, along with their implications for women's and men's housework. A restriction to couple observations would give a partial and selective view of changes in the population. Our sample focus on men and women rather than couples is consistent with previous studies on social change in the gender division of housework that used similar designs to examine periodic trends in men's and women's housework time (Altintas and Sullivan 2016; Bianchi et al. 2000; Gershuny and Robinson 1988).

Outcome Measure

The measure of housework time was based on the following annual survey question: "What does a typical weekday look like for you? How many hours per day do you spend on the following activities?" We combined respondents' hours reported on routine housework (washing, cooking, cleaning) and errands (shopping, trips to government agencies, etc.) to a measure of housework time. We did not consider information about housework time on weekends because these data were not collected in more than half of the panel waves used for our analysis. From 1985 until 1990, the SOEP questionnaire combined routine housework and errands into a single answer category. From 1991 onwards, separate answer categories were used. To account for this, our models included an indicator variable for whether the survey was conducted before 1991.

The outcome measure used in our analysis is based on so-called stylized measures of time use. Stylized measures are commonly included in multipurpose surveys, such as the SOEP, in which the length of the interview does not permit the use of time diaries. Stylized measures may lead to inflated assessments of time use (Kan 2008) but have been found to adequately reflect relative gender gaps as well as individual and social change in time use (Kan and Pudney 2008).

Model

We estimated hierarchical linear models for change with age and change across cohorts in men's and women's housework time. These models accounted for the data structure of observations (Level 1) nested in individuals (Level 2) and allowed us to study the effects of within-person change with age (Level 1), between-person change across cohorts (Level 2), and cross-level interactions between both processes.

There are several possibilities for specifying the functional relation between age, cohort, and housework time in a parametric model. We tested numerous parametrizations of age and cohort profiles of housework time and selected the best-fitting model as indicated by the Bayesian Information Criterion. The best-fitting model included four age parameters (linear, quadratic, cubic, and quartic), two cohort parameters (linear and squared), and interactions between (1) linear age and linear cohort and (2) squared age and linear cohort. We found this specification to be preferable to several alternative parametrizations, including models that were based on categorical variables of age and cohort, models that included more and fewer polynomials of age and cohort, and models that used P-splines to specify the functional relations between age, cohort, and housework time.

Our model allowed for three bends in the age profile of housework time and one bend in the cohort profile of housework time. In this parametrization, a sequence of positive, negative, positive, and negative age terms would reflect the pattern hypothesized for women's housework time, indicating early life increases and peaks, subsequent declines, a later-life plateau, and an end-of-life drop. Conversely, a negative linear cohort term would indicate a decline in housework time, and the estimate and sign of the squared cohort term would indicate whether and to which extent this trend leveled off (i.e., slowing or stalling revolution).

Our model was specified as

$$y_{it} = (a_{00} + a_{i0}) + a_{01}C_i + a_{02}C_i^2 + (a_{03} + a_{i3} + a_{06}C_i)t + (a_{03} + a_{07}C_i)t^2 + \\ + a_{04}t^3 + a_{05}t^4 + e_{it}, \tag{1}$$

where y_{it} are housework hours of respondent i at age t, and C_i is the birth cohort of respondent i; a_{i0} is a random, individual-specific intercept component, and a_{i3} is a random component for the linear age term; and e_{it} is the observation-specific error term. The model also included interaction terms between the main effects of cohort and age and age squared. Variances are estimated for a_{i0}, a_{i3}, and e_{it} as well as the intercept–slope covariance $cov(a_{i0}, a_{i3})$. Following the literature on age–cohort vector models (Mirowsky and Kim 2007), we centered age t and cohort C at the midpoints of the age and cohort spans (45 and 1955, respectively).

Two further aspects of this model require clarification. First, given our focus on age and cohorts effects, we deliberately excluded other covariates of housework time from the model. In view of the large age range and cohort range covered, we were unable to determine the relevant distributions of covariates across all ages. For example, because the cohort born in 1945 was first observed in 1985 at age 40, we were unable to observe or reconstruct all preceding patterns and age-specific distributions of work hours, labor force experience, within-couple division of labor,

marital and cohabiting status, and so on. This entails that our analyses are aimed at describing how housework time changed across the life course and across cohorts rather than explaining the shifts observed in the data.

However, it was important to examine whether change across ages and cohorts in key determinants of housework time was consistent with the trends discussed above. To assess this, we present descriptive data on these determinants in Table 1 (women) and Table 2 (men).

These results showed that the main life-course and cohort shifts discussed earlier in this article were clearly recognizable in our data. Women's education expanded rapidly, approaching men's levels in the most recent cohorts. This increase was accompanied by a rise in women's work hours and a steep decline in the proportion of women who never worked full-time. Note, however, that both women's and men's work hours and labor force experience at younger ages declined across cohorts, a result of educational expansion, particularly towards tertiary degrees. Regarding family formation, the data in Table 1 and Table 2 show strong trends towards delays and declines in union formation and fertility, both among men and women. All of these estimates are consistent with the trends discussed above, showing pronounced shifts in various key determinants and correlates of housework time.

Second, the estimation of age and cohort effects on housework time is complicated by the exact linear dependency of age, cohort, and period (period = age + cohort). The resulting identification problem requires placing at least one constraint on the model. The various possibilities of constraining the model are extensively discussed in the literature, and analysts agree that the choice of a constraint must be justified on theoretical grounds (Bell and Jones 2013; Luo 2013). In this study, we achieved identification by excluding the survey year from the model (apart from the control for whether the survey was conducted before 1991).

This means that we did not consider periodic changes, such as the spread of household technology and domestic outsourcing, shifts in gender role attitudes, and policy changes, along with potential effects on men's and women's housework (Sullivan et al. 2018). Yet, these potential sources of period effects appeared unlikely to bias our conclusions about age and cohort effects: First, crucial progress in terms of labor-saving domestic technology occurred long before our observation window (1985–2015) opened. For example, about 85 percent of German households were already equipped with a washing machine by the mid-1980s (Roth, Mikat, and Wagner 2011). Moreover, it is not clear whether labor-saving technology really saves time (Gershuny and Harms 2016 for a summary of the debate). Regarding domestic outsourcing, additional analyses using an indicator for paid household help showed no substantial changes across observation periods. Second, research on gender role attitudes has indicated that these attitudes are socialized early in life and remain stable over the life course. This suggests that changes reflect cohort succession rather than periodic shifts (Elder and George 2016). Third, policy changes that have occurred during our observation window (1985–2015) were also unlikely to influence men's and women's housework in a periodic way. A period effect would entail that a change in condition relevant to housework would impact all individuals regardless of their age. However, potentially relevant changes in West

Table 1: Descriptive statistics (women).

Cohort	Variable	Age 20–29	30–39	40–49	50–59	60–69	70–79	80–89
1920–1929	*N* (obs.)				681	4,599	3,683	1,461
	Partner in household (fraction)				0.81	0.65	0.45	0.22
	Children in household (#)				0.07	0.06	0.04	0.00
	Years of education				10.20	10.25	10.30	10.20
	Daily work hours				2.36	0.50	0.04	0.01
	Years worked full-time (#)				13.49	14.45	14.49	15.54
	Never worked full-time (fraction)				0.18	0.17	0.17	0.16
1930–1939	*N* (obs.)			813	4,844	6,815	4,468	340
	Partner in household (fraction)			0.82	0.79	0.71	0.55	0.33
	Children in household (#)			0.42	0.12	0.02	0.01	0.00
	Years of education			10.52	10.39	10.59	10.65	10.25
	Daily work hours			3.73	3.14	0.66	0.11	0.00
	Years worked full-time (#)			11.74	13.82	15.83	16.77	15.04
	Never worked full-time (fraction)			0.07	0.10	0.09	0.09	0.16
1940–1949	*N* (obs.)		667	5,078	7,266	8,744	1,420	
	Partner in household (fraction)		0.89	0.85	0.81	0.73	0.63	
	Children in household (#)		1.36	0.65	0.10	0.01	0.01	
	Years of education		11.11	11.05	11.18	11.29	11.42	
	Daily work hours		3.31	3.74	3.66	1.22	0.18	
	Years worked full-time (#)		8.27	10.6	14.42	16.58	17.52	
	Never worked full-time (fraction)		0.08	0.06	0.05	0.04	0.03	
1950–1959	*N* (obs.)	852	6,187	9,527	10,220	2,196		
	Partner in household (fraction)	0.75	0.84	0.83	0.79	0.79		
	Children in household (#)	0.91	1.44	0.86	0.15	0.01		
	Years of education	11.77	11.72	11.86	11.95	11.64		
	Daily work hours	4.32	3.69	4.43	4.43	2.93		
	Years worked full-time (#)	5.32	7.69	10.81	14.42	16.98		
	Never worked full-time (fraction)	0.11	0.06	0.05	0.05	0.04		
1960–1969	*N* (obs.)	3,945	8,531	11,313	2,744			
	Partner in household (fraction)	0.61	0.81	0.79	0.75			
	Children in household (#)	0.54	1.39	1.07	0.30			
	Years of education	11.6	12.27	12.43	12.42			
	Daily work hours	4.97	3.98	4.67	5.07			
	Years worked full-time (#)	3.92	7.66	10.62	12.94			
	Never worked full-time (fraction)	0.13	0.05	0.05	0.05			
1970–1979	*N* (obs.)	2,051	4,503	1,379				
	Partner in household (fraction)	0.47	0.74	0.78				
	Children in household (#)	0.43	1.08	1.26				
	Years of education	12.72	13.28	13.21				
	Daily work hours	4.80	4.61	4.82				
	Years worked full-time (#)	3.19	6.84	9.67				
	Never worked full-time (fraction)	0.20	0.07	0.05				
1980–1989	*N* (obs.)	1,523	736					
	Partner in household (fraction)	0.40	0.70					
	Children in household (#)	0.34	0.91					
	Years of education	12.96	13.26					
	Daily work hours	3.91	5.06					
	Years worked full-time (#)	2.07	5.25					
	Never worked full-time (fraction)	0.34	0.10					

Note: SOEP version 32.1, release 2017. obs., observations.

Table 2: Descriptive statistics (men).

Cohort	Variable	Age 20–29	30–39	40–49	50–59	60–69	70–79	80–89
1920–1929	*N* (obs.)				623	3,443	2,274	875
	Partner in household (fraction)				0.91	0.88	0.84	0.62
	Children in household (#)				0.13	0.05	0.02	0.00
	Years of education				11.40	11.47	11.42	11.11
	Daily work hours				7.18	2.11	0.26	0.12
	Years worked full-time (#)				35.95	36.66	37.02	36.64
	Never worked full-time (fraction)				0.00	0.00	0.00	0.00
1930–1939	*N* (obs.)			919	5,038	6,413	3,835	254
	Partner in household (fraction)			0.89	0.89	0.85	0.77	0.79
	Children in household (#)			0.74	0.24	0.03	0.01	0.00
	Years of education			11.50	11.41	11.44	11.55	11.46
	Daily work hours			8.12	7.51	1.93	0.32	0.04
	Years worked full-time (#)			27.25	33.15	38.4	39.55	40.21
	Never worked full-time (fraction)			0.00	0.00	0.00	0.00	0.00
1940–1949	*N* (obs.)		799	5,225	7,623	8,643	1,343	
	Partner in household (fraction)		0.87	0.87	0.86	0.84	0.84	
	Children in household (#)		1.36	0.91	0.24	0.04	0.01	
	Years of education		12.06	12.04	12.07	12.23	12.33	
	Daily work hours		8.44	8.47	7.24	3.02	0.40	
	Years worked full-time (#)		15.91	22.76	32.05	37.49	38.15	
	Never worked full-time (fraction)		0.00	0.00	0.00	0.00	0.00	
1950–1959	*N* (obs.)	885	6,012	8,967	9,482	1,888		
	Partner in household (fraction)	0.59	0.79	0.85	0.82	0.83		
	Children in household (#)	0.53	1.20	1.10	0.32	0.05		
	Years of education	12.07	12.3	12.49	12.49	12.45		
	Daily work hours	7.26	8.26	8.37	7.49	5.35		
	Years worked full-time (#)	6.12	12.53	22.13	30.17	35.42		
	Never worked full-time (fraction)	0.08	0.01	0.00	0.00	0.00		
1960–1969	*N* (obs.)	4,281	8,615	10,541	2,518			
	Partner in household (fraction)	0.38	0.73	0.79	0.79			
	Children in household (#)	0.33	1.01	1.08	0.48			
	Years of education	11.56	12.47	12.62	12.51			
	Daily work hours	6.06	8.14	8.25	7.90			
	Years worked full-time (#)	3.85	11.95	20.3	27.08			
	Never worked full-time (fraction)	0.16	0.01	0.00	0.00			
1970–1979	*N* (obs.)	2,197	4,001	1,234				
	Partner in household (fraction)	0.30	0.67	0.80				
	Children in household (#)	0.29	0.68	1.16				
	Years of education	12.40	13.26	13.39				
	Daily work hours	5.53	7.85	8.02				
	Years worked full-time (#)	3.31	9.81	16.42				
	Never worked full-time (fraction)	0.23	0.03	0.01				
1980–1989	*N* (obs.)	1,518	655					
	Partner in household (fraction)	0.27	0.66					
	Children in household (#)	0.23	0.64					
	Years of education	12.42	13.48					
	Daily work hours	4.46	7.00					
	Years worked full-time (#)	2.22	6.39					
	Never worked full-time (fraction)	0.37	0.06					

Note: SOEP version 32.1, release 2017. obs., observations.

Germany, such as the expansion of public day care (Oliver and Mätzke 2014) and the expansion of maternity and paternity leave (Lewis et al. 2008; Geisler and Kreyenfeld 2011), are obviously age graded, as they concerned mainly people in their late 20s, 30s, and early 40s.

Results

In Figure 1, we present the main results of our analysis, illustrating the life-course and cohort profiles of housework time among women (red curves) and men (blue curves). The models on which Figure 2 is based are detailed in Table 3. We obtained the curves shown in Figure 1 by fixing the cohort variable at the values indicated next to each curve. The resulting graph is the first to portray changes in housework time across the entire adult life course and across an extensive range of cohorts. The length of each curve indicates the age range in which the respective cohorts were observed in the panel. Cohort effects are identified by the gaps between the curves at overlapping ages whereby a connected pattern would indicate that cohort effects were absent, and an increasingly ragged pattern would indicate increasing cohort effects. Before we turn to the results shown in Figure 1, it is important to examine whether our parametrization accurately represented descriptive patterns of changes in housework time across ages and cohorts. To assess this, we plotted the mean values of housework time for all ages and separately for seven cohort groups, each of which comprised 10 birth years. These nonparametric curves (not shown), demonstrated that our models fitted closely with the data.

Life-Course Profiles of Housework Time

Figure 1 shows divergent life-course profiles of women's and men's housework time. Women's housework time increased sharply throughout young-adult life, followed by a moderate decline in midlife, a plateau in later stages of life, and a sharper decline towards the end of life. Men's housework time, in contrast, remained stable well into midlife. This pattern of stability was observed at a much lower level of housework time as compared to women. After age 50, men's housework time started to increase slightly, gaining momentum around retirement age and peaking around the mid-70s, followed by a decline at ages 80 and older.

Women's housework time considerably exceeded men's housework time at all ages. However, the average gender gap in housework time changed considerably across the life course. The smallest gaps were observed at the beginning and at the end of adult life. The largest gap emerged in younger adulthood, and the gap remained large throughout midlife despite some convergence.

Cohort Profiles of Housework Time

Figure 1 shows opposing cohort trends in women's and men's housework time. The curves for women are strongly ragged at almost all overlapping ages, indicating a substantial downward shift in women's housework time across all cohorts. The pattern for men is less consistent across the age range covered. A clear cohort trend

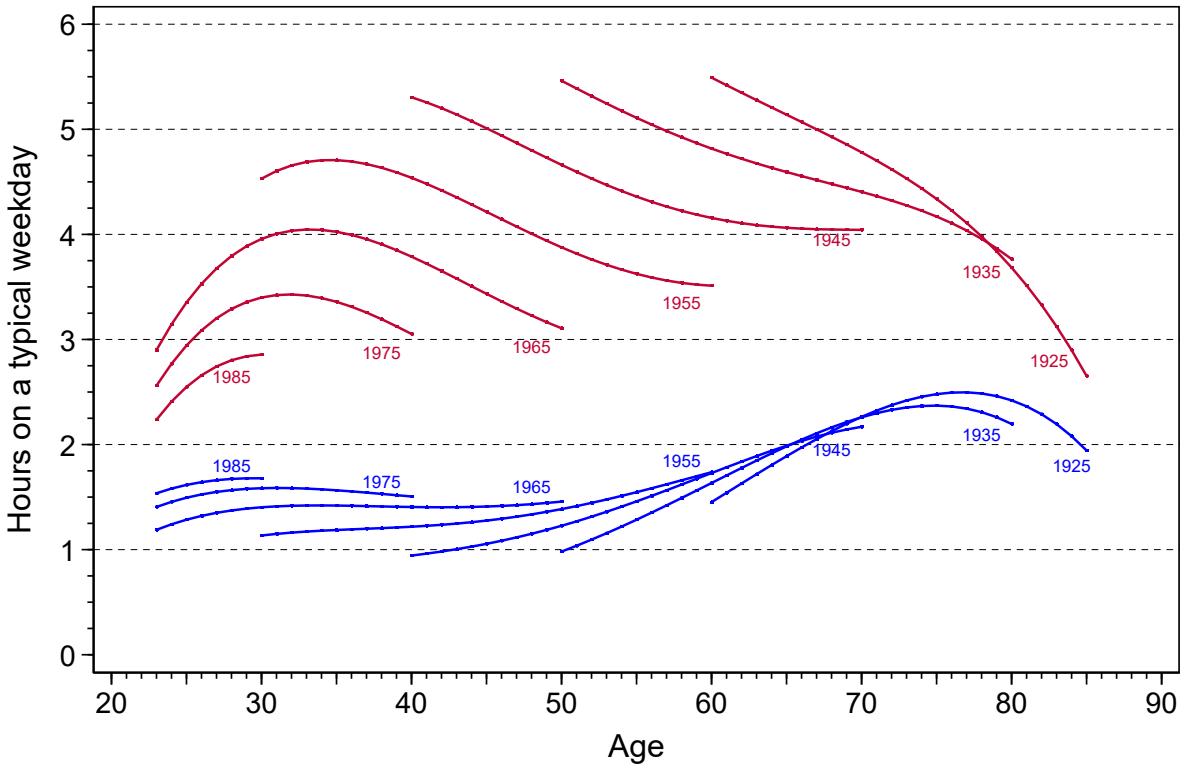

Figure 1: Life-course and cohort profiles of housework time. *Notes:* SOEP version 32.1 (1985–2015), release 2017. Red curves are women, blue curves are men. Curves are based on the models shown in Table 3.

is visible only until age 60, indicating moderate increases in men's housework time across cohorts.

When we combine women's and men's cohort trends, we observe an overall pattern of gender convergence in housework time, although a substantial gap remains even among the youngest cohorts. Importantly, our results indicate that gender convergence in housework time has proceeded in a remarkably linear fashion across cohorts. Convergence continued up to the youngest cohorts, and the data clearly show that this trend has not slowed, let alone stalled, among the West German women and men observed in this study.

An Extrapolated View

In Figure 2, we draw on the models shown in Table 3 to extrapolate women's and men's housework time across the entire adult life course of three cohorts of West Germans born in 1940, 1950, and 1960. Extrapolations are indicated by dashed lines. We selected these cohorts because each was observed up to the maximum duration of 31 years in the panel. Moreover, as shown in Figure 2, the changes in housework time found for these cohorts unfolded in similar ways for preceding and succeeding cohorts.

Table 3: Hierarchical linear models for change in housework time.

	Women	Men
Fixed part		
Cohort	$-0.788^{\dagger}$	$0.177^{\dagger}$
	(0.019)	(0.012)
Cohort^2	0.008	$-0.044^{\dagger}$
	(0.013)	(0.009)
Age	$-0.702^{\dagger}$	$0.163^{\dagger}$
	(0.021)	(0.014)
Age^2	-0.019	$0.106^{\dagger}$
	(0.014)	(0.010)
Age^3	$0.161^{\dagger}$	$0.017^{\dagger}$
	(0.005)	(0.004)
Age^4	$-0.030^{\dagger}$	$-0.016^{\dagger}$
	(0.001)	(0.001)
Age x Cohort	-0.019	$-0.116^{\dagger}$
	(0.025)	(0.017)
Age^2 x Cohort	$0.079^{\dagger}$	$-0.017^{\dagger}$
	(0.006)	(0.004)
Survey year before 1991	$-0.508^{\dagger}$	$-0.146^{\dagger}$
	(0.028)	(0.020)
Constant	$4.215^{\dagger}$	$1.276^{\dagger}$
	(0.024)	(0.013)
Random part		
Var(Age)	$0.480^{\dagger}$	$0.147^{\dagger}$
	(0.015)	(0.005)
Var(Constant)	$2.419^{\dagger}$	$0.597^{\dagger}$
	(0.047)	(0.014)
Corr(Age, Constant)	$-0.388^{\dagger}$	$0.074^{\dagger}$
	(0.016)	(0.022)
Var(Resid)	$2.201^{\dagger}$	$1.118^{\dagger}$
	(0.010)	(0.006)
Observations	104,272	96,989
Individuals	10,250	9,859
Average observations per individual	10.2	9.8
Min. observations per individual	1	1
Max. observations per individual	31	31
Log-Likelihood	–202,465	–152,909

Note: SOEP version 32.1, release 2017. $^{\dagger}p < 0.01$

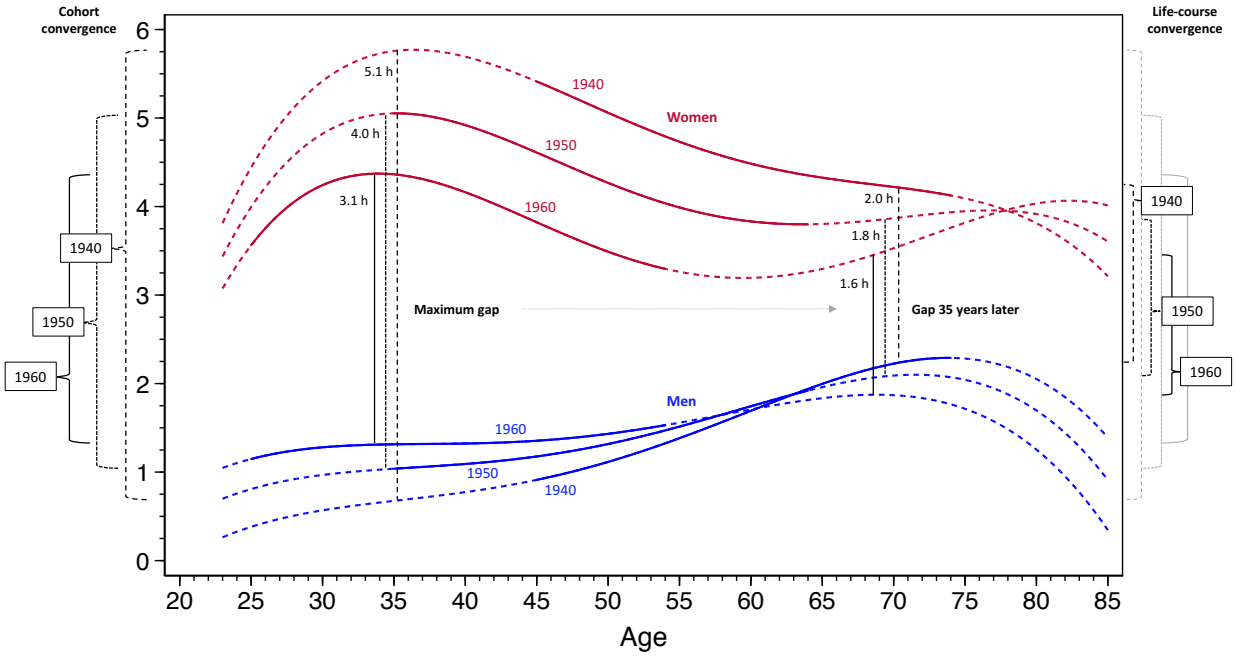

Figure 2: Life-course projections of housework time for three cohorts of women and men. *Notes:* SOEP version 32.1 (1985–2015), release 2017. Red curves are women, blue curves are men. Dashed lines are sample extrapolations. Mean values of housework time are shown for every age and separately by cohorts collapsed into 10-yearly intervals. h, hours.

The curves shown in Figure 2 allowed us to identify (1) the ages at which women's and men's housework time peaked, (2) to identify the age at which the gender gap peaked, and (3) to quantify cohort trends in these characteristics in novel ways. Three notable patterns are discernable from Figure 2. First, women's housework time peaked in younger adulthood, whereas men's housework time peaked approximately four decades later in life. The age at which housework time peaked decreased across cohorts among both women and men. Women's peak ages were estimated at 36.4 for the cohort of 1940, 35.2 for the cohort of 1950, and 34.0 for the cohort of 1960, equivalent to a decline of 1.4 months for each successive year of birth. Men's peak ages were estimated at 73.9 for the cohort of 1940, 71.6 for the cohort of 1950, and 68.8 for the cohort of 1960, equivalent to a decline of 3.1 months per year of birth. We calculated these peak ages by numerical differentiation to identify the local maximum of the gender-specific growth functions across the age range under study.

Second, the gender gap was largest when women's housework time was at its peak and subsequently narrowed in remarkably steady fashion, a life-course convergence that lasted approximately 35 years in all cohorts. In the cohort of 1940, the average gender gap in housework time (an average woman's hours minus an average man's hours) declined from a maximum of 5.1 hours at age 35.2 to 2 hours 35 years later; in the cohort of 1950, it declined from a maximum of 4 hours at

age 34.2 to 1.8 hours 35 years later; and in the cohort of 1960, it declined from a maximum of 3.1 hours at age 33.7 to 1.6 hours 35 years later.

Third, with respect to convergence across cohorts, Figure 2 allowed us to quantify this trend in two novel ways. In terms of cohort changes in the maximum gender gap, we found that average differences in housework time decreased from 5.1 hours in the cohort of 1940 to 4 hours in the cohort of 1950 and further to 3.1 hours in the cohort of 1960. In relative terms, the maximum gender gap declined by 39 percent from the cohort of 1940 to the cohort of 1960.

Additionally, we quantified changes in the gender gap in a cumulative way across the life course. Our design is the first to allow for a calculation of this type. Based on the curves shown in Figure 2, we estimated how many hours of housework time women and men accumulated across five decades of life, from age 25 until age 75. We calculated these values by a cumulative function of housework hours that equaled the integral over the growth function. Among women, cumulative hours amounted to 65,460 hours in the cohort of 1940, 57,234 hours in the cohort of 1950, and 49,208 hours in the cohort of 1960. The absolute decline of 16,252 hours in women's cumulative housework across five decades of life was equivalent to approximately 2,000 eight-hour shifts of housework, or a decline of 100 eight-hour shifts with each successive birth year. Among men, cumulative hours amounted to 16,856 hours in the cohort of 1940, 19,036 hours in the cohort of 1950, and 20,061 hours in the cohort of 1960. In relative terms, the cumulative gender gap across the life course (ages 25 to 75)—measured as women's cumulative hours per men's cumulative hours—was projected to decline from 3.9 in the cohort of 1940 to 2.5 in the cohort of 1960.

Additional Analyses

In additional analyses (not shown), we examined whether the results of age and cohort effects on housework time differed (1) between weekdays and weekends and (2) between couples and singles.

First, given that our outcome measure presented in the main analysis was restricted to housework time "on a typical weekday," patterns may look different for weekend days, during which men's and women's time available for domestic work is not constrained by market work hours. Because the SOEP data on housework time on Saturdays are limited, we examined data for housework on Sundays, which are available annually between 1984 and 1993 (with the exception of 1991) and biannually between 1993 and 2015 (with an additional measurement in 2012) for a total of 19 waves. For women, age and cohort patterns for housework time on Sundays were similar to those found for weekdays, although women performed fewer hours. For men, we found no change with age and very slight increases across cohorts.

Second, given that our main analyses included all adult respondents regardless of living arrangement, we conducted additional analyses to examine whether couples and singles showed different patterns of change in household labor. When restricting the models to observations of respondents who lived with a partner, the results were almost identical to those shown in the main analysis. When restricting

the models to observations of respondents who lived without a partner, we found that women performed less and men performed more housework across all ages and cohorts. For this subset of observations, gender convergence over the life course was stronger and gender convergence across cohorts was similar to the main analysis.

Discussion

In this study, we used panel data of unprecedented scope to examine changes in women's and men's housework time across the entire adult life course and across a large range of birth cohorts (1920–1990). In doing so, we offer the most comprehensive analysis of individual change and social change in housework time that is currently available in the literature. Our results provide answers to two guiding research questions.

First, how does housework time evolve over the entire adult life course, and at which age does the gender gap peak? Our findings showed sharp contrasts between women's and men's life-course profiles of housework time. Women's housework time increased and peaked in younger adulthood and declined thereafter, whereas men's housework time remained stably low for decades, increased only as retirement age approached, and peaked in older age, approximately four decades later in life as compared to women.

As a result, we found relatively small gender gaps in housework time at the beginning and at the end of adult life and larger gender gaps in younger adulthood and throughout midlife. These findings carry implications for pertinent theories about the division of labor and gender inequality in the home. Most notably, gendered patterns of housework time are not as sticky as gender construction theories often suggest (Bielby and Bielby 1989). Although women performed more housework than men across all ages, our models projected that the maximum gender gap found in younger adulthood declined by 50 percent or more in later life. Although this convergence did not offset gender differences in housework time, it indicates that domestic arrangements are plastic rather than persistent across the life course. These results corroborate and integrate the findings from previous research on changes in women's and men's housework time in response to transitions such as union formation (Gupta 1999), parenthood (Baxter et al. 2008; Kühhirt 2012), divorce (Gupta 1999), and retirement (Leopold and Skopek 2015, 2016).

Second, how have life-course profiles of housework time, and the associated gender gaps, changed across cohorts? Our findings showed that women's early life increases in housework time lost momentum across cohorts. As a result, women of newer cohorts not only performed fewer hours of housework but they also reached their peak of housework time earlier in life. This finding offers an interesting contrast to parallel delays in key drivers of housework time, such as union formation and parenthood, suggesting that countervailing influences prevailed. The latter include higher levels of childlessness and fewer transitions to higher parities (Bujard and Sulak 2016) as well as a higher prevalence and pace of mothers' re-entries into the labor market (Drasch 2012; Ziefle and Gangl 2014).

Men's concurrent increases in housework time observed throughout younger adulthood and midlife, in contrast, followed a cohort pattern of level shifts at all ages rather than changing age slopes. This suggests that cohort increases in housework time were driven by factors that remained stable across the life course. These may include changes in gender role attitudes (Elder and George 2016) but also increases in the share of men who remained unmarried, depriving them of a couple context for gender specialization. Conversely, the absence of major cohort changes in terms of age effects is consistent with theoretical ideas and previous findings on how life-course factors shape men's housework time: On the one hand, key determinants such as work hours did not change much across our study cohorts (Kreyenfeld 2015). One the other hand, men's housework time remained unresponsive to life-course dynamics that did change, such as the occurrence and timing of fatherhood (Baxter et al. 2008; Kühhirt 2012).

Taken together, the parallel declines in women's housework time and increases in men's housework time support the notion of gender convergence. We found no evidence to suggest that this trend has slowed or even stalled across cohorts. Although the average gender gap remained substantial in size even among the most recently born, the overall cohort pattern of convergence was linear. Our design enabled us to quantify the extent of convergence in a novel and more comprehensive way than previous research did. First, our estimates for the maximum gender gap in the life-course profiles of women's and men's housework time showed that the gap was cut in half in the course of just 20 birth cohorts (1940–1960). Second, our cumulative estimates for housework time between ages 25 and 75 showed that women's housework declined by approximately 2,000 eight-hour shifts of housework, or 100 eight-hour shifts with each successive birth year. Although estimates of absolute changes measured by stylized items should be considered upper bounds, these findings illustrate the scope of changes across cohorts in women's life-course profiles of housework time. Men's cumulative housework hours increased concurrently, albeit less dramatically. These findings on the continued convergence in women's and men's housework time is consistent with recent evidence from the United Kingdom (Gershuny and Harms 2016) and other European and non-European countries (Altintas and Sullivan 2016; Sullivan et al. 2018). Third, our findings are in line with Sullivan et al.'s (2018) notion of a slow but continuous gender revolution. Our longitudinal evidence of large-scale individual data corroborates their notion of "lagged generational change."

The aim of this study was to assess individual and social change in housework. A next step is to explain these changes by entering indicators for the factors shaping housework time into the model. It was beyond the scope of our analysis to explain the observed life-course and cohort profiles of housework time by changes in education, gender role attitudes, union formation and dissolution, fertility, children's developmental needs, and market work. As shown in the present study, social change in housework time emerged largely from changes in women's early life age profiles. This entails that an explanatory model would require data on relevant indicators for different cohorts observed across a common age range covering younger to middle adulthood. Long-running panel data, such as from the SOEP, are increasingly suitable for this type of analysis given that representative starting

and refreshment samples were recruited to the panel several years apart. These data hold potential for future research not only for understanding the mechanisms that underlie gender convergence in housework but also to project whether this trend will continue, slow down, or stall. Finally, it is important to note that our findings are limited to the social and historical context of West Germany. To examine whether our findings can be generalized to other contexts, future research should use long-running panel data on housework time that allow for similar designs to study individual change and social change in housework time along the lines of gender, age, and cohort.

References

Altintas, Evrim, and Oriel Sullivan. 2016. "Fifty Years of Change Updated: Cross-national Gender Convergence in Housework." *Demographic Research* 35:455–70. https://doi.org/10.4054/DemRes.2016.35.16.

Artis, Julie E., and Eliza K. Pavalko. 2003. "Explaining the Decline in Women's Household Labor: Individual Change and Cohort Differences." *Journal of Marriage and Family* 65:746–61. https://doi.org/10.1111/j.1741-3737.2003.00746.x.

Baxter, Janeen, Belinda Hewitt, and Michelle Haynes. 2008. "Life Course Transitions and Housework: Marriage, Parenthood, and Time on Housework." *Journal of Marriage and Family* 70:259–72. https://dx.doi.org/10.1111/j.1741-3737.2008.00479.x.

Becker, Gary S. 1991. *A Treatise on the Family.* Cambridge, MA: Harvard University Press.

Bell, Andrew, and Kelvyn Jones. 2013. "The Impossibility of Separating Age, Period and Cohort Effects." *Social Science and Medicine* 93:163–5. https://doi.org/10.1016/j.socscimed.2013.04.029.

Bianchi, Suzanne M., Melissa A. Milkie, Liana C. Sayer, and John P. Robinson. 2000. "Is Anyone Doing the Housework? Trends in the Gender Division of Household Labor." *Social Forces* 79:191–228. https://dx.doi.org/10.1093/sf/79.1.191.

Bielby, William T., and Denise D. Bielby. 1989. "Balancing Commitments to Work and Family in Dual Earner Households." *American Sociological Review* 54:776–89. https://doi.org/10.2307/2117753.

Blossfeld, Pia N., Gwendolin J. Blossfeld, and Hans-Peter Blossfeld. 2015. "Educational Expansion and Inequalities in Educational Opportunity: Long-term Changes for East and West Germany." *European Sociological Review* 31:144–60. https://doi.org/10.1093/esr/jcv017.

Braun, Michael, and Jacqueline Scott. 2009. "Changing Public Views of Gender Roles in Seven Nations, 1988–2002." Pp. 358–77 in *The International Social Survey Programme 1984–2009: Charting the Globe*, edited by M. Haller, R. Jowell, and T. W. Smith. Oxford, UK: Routledge. https://www.repository.cam.ac.uk/handle/1810/242230.

Brooks, Clem, and Catherine L. Bolzendahl. 2004. "The Transformation of US Gender Role Attitudes: Cohort Replacement, Social-Structural Change, and Ideological Learning." *Social Science Research* 33:106–33. https://doi.org/10.1016/S0049-089X(03)00041-3.

Bujard, Martin, and Harun Sulak. 2016. "Increasing Childlessness or Fewer Families with Many Children? A Decomposition of Demographic Driving Forces for Different Periods of Germany's Fertility Decline" (in German). *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 68:487–514. https://doi.org/10.1007/s11577-016-0373-6.

Bun Lam, Chun, Susan M. McHale, and Ann C. Crouter. 2012. "The Division of Household Labor: Longitudinal Changes and Within-Couple Variation." *Journal of Marriage and Family* 74:944–52. https://doi.org/10.1111/j.1741-3737.2012.01007.x.

Coltrane, John. 2000. "Research on Household Labor: Modeling and Measuring the Social Embeddedness of Routine Family Work." *Journal of Marriage and the Family* 62:1208–33. https://dx.doi.org/10.1111/j.1741-3737.2000.01208.x.

Coverman, Shelley. 1985 . "Explaining Husbands' Participation in Domestic Labor." *The Sociological Quartlery* 26:81–97. https://doi.org/10.1111/j.1533-8525.1985.tb00217.x.

Craig, Lyn, and Pooja Sawrikar. 2009. "Work and Family: How Does the (Gender) Balance Change as Children Grow?" *Gender, Work and Organization* 16:684–709. https://doi.org/10.1111/j.1468-0432.2009.00481.x.

Davis, Shannon N., and Theodore Greenstein. 2009. "Gender Ideology: Components, Predictors, and Consequences." *Annual Review of Sociology* 35:87–105. https://doi.org/10.1146/annurev-soc-070308-115920.

Drasch, Katrin. 2012. "Educational Attainment and Family-Related Employment Interruptions in Germany: Do Changing Institutional Settings Matter?" *European Sociological Review* 29:981–95. https://doi.org/10.1093/esr/jcs076.

Elder, Glen H., and Linda K. George. 2016. "Age, Cohorts, and the Life Course." Pp. 59–85 in *Handbook of the Life Course*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. New York, NY: Springer. https://doi.org/10.1007/978-3-319-20880-0_3.

Esping-Andersen, Gøsta. 2009. *The Incomplete Revolution. Adapting to Women's New Roles.* Cambridge, UK: Polity Press.

Geisler, Esther, and Michaela Kreyenfeld. 2011. "Against All Odds: Fathers' Use of Parental Leave in Germany."*Journal of European Social Policy* 21:88–99. https://doi.org/10.1177/0958928710385732.

Geißler, Rainer. 2014. *The Social Structure of Germany* (in German). 7th ed. Wiesbaden, Germany: Springer. https://doi.org/10.1007/978-3-531-19151-5.

Gershuny, Jonathan, and John P. Robinson. 1988. "Historical Changes in the Household Division of Labor." *Demography* 25:537–52. https://doi.org/10.2307/2061320.

Gershuny, Jonathan, and Teresa A. Harms. 2016. "Housework Now Takes Much Less Time: 85 Years of US Rural Women's Time Use." *Social Forces* 95:503–24. https://doi.org/10.1093/sf/sow073.

Goldscheider, Frances, Eva Bernhardt, and Trude Lappegård. 2015. "The Gender Revolution: A Framework for Understanding Changing Family and Demographic Behavior." *Population and Development Review* 41:207–39. https://doi.org/10.1111/j.1728-4457.2015.00045.x.

Gupta, Sanjiv. 1999. "The Effect of Transitions in Marital Status on Men's Performance of Housework." *Journal of Marriage and the Family* 61:700–11. https://doi.org/10.2307/353571.

Gupta, Sanjiv. 2007. "Autonomy, Dependence, or Display? The Relationship between Married Women's Earnings and Housework." *Journal of Marriage and Family* 69:399–417. https://doi.org/10.1111/j.1741-3737.2007.00373.x.

Hochschild, Arlie, and Anne Machung. 1989. *The Second Shift. Working Parents and the Revolution at Home.* London, UK: Piatkus.

Kan, Man Yee. 2008. "Measuring Housework Participation: The Gap between Stylized Questionnaire Estimates and Diary-Based Estimates." *Social Indicators Research* 86:381–400. https://doi.org/10.1007/s11205-007-9184-5.

Kan, Man Yee, and Stephen Pudney. 2008. "Measurement Error in Stylized and Diary Data on Time Use." *Sociological Methodology* 38:101–32. https://doi.org/10.1111/j.1467-9531.2008.00197.x.

Kan, Man Yee, Oriel Sullivan, and Jonathan Gershuny. 2011. "Gender Convergence in Domestic Work: Discerning the Effects of Interactional and Institutional Barriers from Large-scale Data." *Sociology* 45:234–51. https://dx.doi.org/10.1177/0038038510394014.

Kreyenfeld, Michaela. 2015. "Maternal and Paternal Employment across the Life Course." Pp. 1–15 in *Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource*, edited by R. Scott and S. Kosslyn. Hoboken, NJ: John Wiley and Sons, Inc. https://doi.org/10.1002/9781118900772.etrds0210.

Kühhirt, Michael. 2012. "Childbirth and the Long-term Division of Labour within Couples: How Do Substitution, Bargaining Power, and Norms Affect Parents' Time Allocation in West Germany?" *European Sociological Review* 28:565–82. https://doi.org/10.1093/esr/jcr026.

Lachance-Grzela, Mylène, and Geneviève Bouchard. 2010. "Why Do Women Do the Lion's Share of Housework? A Decade of Research." *Sex Roles* 63:767–80. https://doi.org/10.1007/s11199-010-9797-z.

Leopold, Thomas, and Florian Schulz. 2018. "Health and Housework in Later Life: A Longitudinal Study of Retired Couples." *The Journals of Gerontology, Series B: Social Sciences*, first published on April 18, 2018, as doi:10.1093/geronb/gby015. https://doi.org/10.1093/geronb/gby015.

Leopold, Thomas, and Jan Skopek. 2015. "Convergence or Continuity? The Gender Gap in Household Labor After Retirement." *Journal of Marriage and Family* 77:819–32. https://doi.org/10.1111/jomf.12199.

Leopold, Thomas, and Jan Skopek. 2016. "Retirement and Changes in Housework: A Panel Study of Dual Earner Couples." *The Journals of Gerontology, Series B: Social Sciences* 73:733–43. https://doi.org/10.1093/geronb/gbw121

Lewin-Epstein, Noah, Haya Stier, and Michael Braun. 2006. "The Division of Household Labor in Germany and Israel." *Journal of Marriage and Family* 68:1147–64. https://doi.org/10.1111/j.1741-3737.2006.00320.x.

Lewis, Jane, Trudie Knijn, Claude Martin, and Ilona Ostner. 2008. "Patterns of Development in Work/Family Reconciliation Policies for Parents in France, Germany, the Netherlands, and the UK in the 2000s." *Social Politics: International Studies in Gender, State & Society* 15:261–86. https://doi.org/10.1093/sp/jxn016.

Luo, Liying. 2013. "Assessing Validity and Application Scope of the Intrinsic Estimator Approach to the Age–Period–Cohort Problem." *Demography* 50:1945–67. https://doi.org/10.1007/s13524-013-0243-z.

Mayer, Karl-Ulrich, and Eva Schulze. 2013. "Delaying Parenthood in East and West Germany: A Mixed-Methods Study of the Onset of Childbirth and the Vocabulary of Motives of Women of the Birth Cohort of 1971." Pp. 55–97 in *The Demography of Europe*, edited by G. Neyer, G. Andersson, H. Kulu, L. Bernardi and C. Bühler. Dortrecht, Netherlands: Springer. https://doi.org/10.1007/978-90-481-8978-6_4.

Mirowsky, John, and Jinyoung Kim. 2007. "Graphing Age Trajectories. Vector Graphs, Synthetic and Virtual Cohort Projections, and Cross-sectional Profiles of Depression." *Sociological Methods and Research* 35:497–541. https://doi.org/10.1177/0049124106296015.

Nitsche, Natalie, and Daniela Grunow. 2016. "Housework over the Course of Relationships: Gender Ideology, Resources, and the Division of Housework from a Growth Curve

Perspective." *Advances in Life Course Research* 29:80–94. https://doi.org/10.1016/j.alcr.2016.02.001.

Oliver, Rebecca J., and Margitta Mätzke. 2014. "Childcare Expansion in Conservative Welfare States: Policy Legacies and the Politics of Decentralized Implementation in Germany and Italy." *Social Politics: International Studies in Gender, State and Society* 21:167–93. https://doi.org/10.1093/sp/jxu001.

Pampel, Fred C. 2011. "Cohort Changes in the Socio-demographic Determinants of Gender Egalitarianism." *Social Forces* 89:961–82. https://doi.org/10.1353/sof.2011.0011.

Pötzsch, Olga, and Bettina Sommer. 2009. "Generative Behavior of Female Cohorts in Long-term Comparison" (in German). *Wirtschaft und Statistik* 5/2009:377–96. https://www.destatis.de/DE/Publikationen/WirtschaftStatistik/Bevoelkerung/Frauenkohorten509.pdf.

Quadagno, Jill S. 1999. *Aging and the Life Course. An Introduction to Social Gerontology.* New York, NY: McGraw-Hill Education.

Rexroat, Cynthia, and Constance Shehan. 1987. "The Family Cycle and Spouses' Time in Housework." *Journal of Marriage and the Family* 49:737–50. https://doi.org/10.2307/351968.

Roth, Ulrich, Hermann Mikat, and Holger Wagner. 2011. "The Impact of Modern Appliances on Drinking Water Demands of Households" (in German). *GWF Wasser Abwasser* 152:736–44. https://ojs.di-verlag.de/index.php/gwf_wa/article/view/1206.

Sayer, Liana C. 2005. "Gender, Time and Inequality: Trends in Women's and Men's Paid Work, Unpaid Work and Free Time." *Social Forces* 84:285–303. https://doi.org/10.1353/sof.2005.0126.

Schneider, Norbert F., and Heiko Rüger. 2007. "Value of Marriage. The Subjective Meaning of Matrimony and the Decision To Wed" (in German). *Zeitschrift für Soziologie* 36:131–52. https://doi.org/10.1515/zfsoz-2007-0204.

Sullivan, Oriel, and Jonathan Gershuny. 2016. "Change in Spousal Human Capital and Housework: A Longitudinal Analysis." *European Sociological Review* 32:864–80. https://doi.org/10.1093/esr/jcw043.

Sullivan, Oriel, Jonathan Gershuny, and John P. Robinson. 2018. "Stalled or Uneven Gender Revolution. A Long-term Processual Framework for Understanding Why Change Is Slow." *Journal of Family Theory and Review* 10:263–79. https://doi.org/10.1111/jftr.12248.

Wagner, G.G., J. R. Frick, and J. Schupp. 2007. "The German Socio-Economic Panel Study (SOEP): Scope, Evolution and Enhancements." *Schmollers Jahrbuch* 127:139–69. https://ideas.repec.org/a/aeq/aeqsjb/v127_y2007_i1_q1_p139-169.html.

Wagner, Michael, Lisa Schmid, and Bernd Weiß. 2015. "Exploring Increasing Divorce Rates in West Germany: Can We Explain the Iron Law of Increasing Marriage Instability?" *European Sociological Review* 31:211–29. https://doi.org/10.1093/esr/jcv014.

Ziefle, Andrea, and Markus Gangl. 2014. "Do Women Respond to Changes in Family Policy? A Quasi-experimental Study of the Duration of Mothers' Employment Interruptions in Germany." *European Sociological Review* 30:562–81. https://doi.org/10.1093/esr/jcu056.

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