Parental Union Dissolution and the Gender Revolution

Helen Eriksson and Martin Kolk

Stockholm University

Demography Unit

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Helen Eriksson[1] and Martin Kolk[1,2]

[1]Stockholm University, [2]Institute for Futures Studies

Abstract

As men's contributions to household work began to rise across Europe and North America, so did parental union dissolution. Because children's residency with their mothers has been nearly universal for decades, in all couples in which fathers share at least some of the care work, a union dissolution slows societal increases in gender equality. A new family form—children's 50/50 residency with both their parents—has begun to alter the consequences of union dissolution. As it requires the father to take on all care for half of the time—something few partnered fathers do—it may even push parents into more egalitarian sharing. We studied care work through Swedish administrative data on parents' leave from work to care for a sick child. We created a panel of leave-sharing for children aged 2–11 and used fixed-effects models to estimate the within-couple effect of dissolution on sick-child leave. The results show that in the parental unions dissolving today, fathers' share of sick-child leave is higher in the years following the dissolution than it was in the years in which the union was still intact. Whereas union dissolutions slowed the gender revolution for decades in Sweden, they now accelerate it.

Introduction

A major transformation in family life took place in the second half of the 20th century: the dramatic increase in women's labor force participation, typically referred to as the "gender revolution" (England, Levine & Mishel 2020). It soon became apparent that the revolution was only partial; fathers maintained their relatively low levels of work in the home, including care work. The gender revolution would not be complete until fathers took on family responsibilities to the same extent that mothers had increased their contributions to the family economy through paid work (Goldscheider, Bernhardt & Lappegård 2015). Very slow increments in fathers' family work remain a main explanation of why the gender revolution has "slowed" or "stalled" (England 2010).

During the same decades as the onset of the gender revolution, parental unions became increasingly unstable (van de Kaa 1987; Cherlin 1992). Children whose parents' union dissolved came to be cared for nearly exclusively by their mothers (Heuveline, Timberlake & Furstenberg 2003). For decades, parental union dissolution has shifted the entire burden of care work towards the mother, producing even greater gender inequality among the parents than was found prior to dissolution. A new family form—50/50 joint physical custody wherein children share their time equally between their parents' homes—has begun to challenge the universality of the shift in care work towards single mothers. The establishment of the new family form has thus far not been considered a potential component of the gender revolution (Thomson & Turunen 2021).

In this study, we investigated the change in how dissolution affects couples' division of care work over a time period in which joint physical custody is established as the mode care arrangement following parental union dissolution. Sweden serves as a case in which joint physical custody is no longer a marginal phenomenon: the majority of children whose parents' unions have dissolved now live with their fathers at least half of the time (Statistics Sweden 2014:119). As a measure of care work, we examined one of the most stubborn inequalities between women and men in high-income countries today: taking leave from paid work to care for a child. We tracked leave-taking through sick-child leave, a social security benefit providing job protection and income replacement to all working parents who need to take time off work to care for a child who cannot attend preschool or primary school because

of sickness. The number of days used for sick-child leave is recorded for each parent by the Swedish Social Insurance Agency and provided as an annual count in Swedish administrative registers. In order to estimate the effect of dissolution on care work rather than the selection into dissolution, we created a panel of sick-child leave-sharing for all parental couples with a first-born child aged 2–11 in any of the years 1994–2017. We use couple fixed-effects to estimate the within-couple difference in sick-child leave-sharing in the years following the dissolution compared to the years preceding it. Because sick-child leave is recorded for each parent individually, we could identify leave-sharing regardless of where the parents were living, where the child was living, or any custody arrangements. We therefore obtained a complete longitudinal record of care work both before and after union dissolution that was not affected by selection, attrition, missing data or biased self-reporting.

Gender revolutions

The term "gender revolution" is typically used to refer to the dramatic flow of married women into paid work occurring across Europe and North America during the latter half of the 20th century (England et al. 2020). The starting point of the gender revolution is the era of the "separation of spheres" (Ferree 1990), a stylized concept that describes how the economic organization of the family was transformed from farm work and family businesses into families with a breadwinning man and a home-making woman (Ruggles 2015). In many countries, the period with the male-breadwinning family was brief and did not encompass most families (Stanfors & Goldscheider 2017). For example, in the United States, the male-breadwinning family peaked at 57 percent of all marriages in 1940 and represented the majority only between 1920 and 1960 (Ruggles 2015:1800). Although the gender revolution is therefore better described as married women's return to economic activity (Goldin 1995), it describes an increase in the economic self-sufficiency of women that contrasts with centuries of women's economic activity being controlled by a male head of the household (Ruggles 2015).

As women entered the public sphere, men did not respond with equal contributions in the home. The "second half" of the gender revolution was delayed (Goldscheider et al. 2015).

Men's entry into the private sphere can be separated into two stages: 1) as contributors to work in the private sphere and 2) as self-sufficient caregivers of children. Men began increasing their contributions to overall household work at roughly the same time as women entered paid work: in the 1960s in the Anglo-Saxon countries and Northern and Western Europe, and in the 1980s in Southern Europe (Kan, Sullivan & Gershuny 2011). Most of the gender convergence over these decades, however, resulted from a dramatic decrease in women's time in unpaid work. Studies on time use have shown that although the total workload of men and women is similar, the distribution of time between paid and unpaid work is different (Bianchi et al. 2000; Bianchi et al. 2012). What is becoming clear via recent studies (Kleven, Landais & Søgaard 2019) is that most of the distributional gender difference is the direct result of the birth of children and the additional work the presence of a child creates. We refer to the sum of all work brought on by children—childcare as well as its associated household work, such as cleaning, cooking and, laundry—as care work.

Although mothers joined the labor market later than women without children—a lag in part resulting from constraints in the availability of high-quality and affordable non-parental care (Morrissey 2017)—their entry did not initially produce any increase in fathers' self-sufficiency as caregivers. Because caring for a child is time-inflexible—its 24/7 responsibilities cannot be fully adapted to a work schedule (Bianchi et al. 2012)—self-sufficiency in caregiving requires that care work is allowed to intrude on paid work.

Across the high-income countries, until the very recent past, virtually all care work that requires an absence from paid work has been done by mothers. While men take on at least a third of the total household work in most European and North American countries (Kan et al. 2011), their share of reductions in paid work is often small. This is true for all types of care work that require an absence from paid work: full-time leave-taking following the birth of a child (Karu & Tremblay 2018), part-time work to meet the care needs of the pre-school child (Anxo et al. 2007) or, as studied here, unplanned absences from work to provide 'urgent childcare' (Maume 2008), including caring for a sick child (Daly & Groes 2017). In Sweden, the country that tops the chart of fathers exchanging paid work for care work, fathers took in total around three and a half months of full-time leave for children born in 2010, and about 30 percent of all leave in 2019 (Statistics Sweden 2020a:46–47).

This is not to suggest that ideas about fatherhood have not undergone a revolution. In contrast with the start of the gender revolution, during a time in which scientific views on children's emotional needs deemed the mother crucial for the healthy upbringing of a child (Vicedo 2013), fathers now take a much greater part in their children's lives. In comparison with female labor force participation and the gender revolution as women's return to economic activity, fathers' exchange of paid work for care work is new to the historical narrative of the providing father (Coontz 2000). Swedish fathers taking three months of leave from paid work to care for an infant while the mother is working for pay is, in this sense, unimaginable not only in many countries around the world today (Hobson 2013) but also in the Western European and North American historical context.

Parental union dissolutions

Around the same time as the first part of the gender revolution, unions became increasingly unstable. Divorce rates began increasing in the Nordic countries in the 1960s, followed by the United States and other countries in Western Europe (Sobotka & Toulemon 2008). Although co-resident parental unions are less likely to dissolve than childless unions, the increase in dissolutions extended to parents as well. Across Europe, at least one in five children are estimated as having experienced a parental union dissolution during childhood (Kalmijn & Leopold 2021).

The increase in parental union dissolution took place well before fathers became self-sufficient caregivers. The role of the mother as primary caregiver was still deemed non-substitutable and the "best interest of the child" was not separated from the interest of the mother (Bernardi & Mortelmans 2021). Parental union dissolutions therefore ubiquitously led to childrearing shifting to the single mother (Heuveline et al. 2003). Fathers became "non-resident" fathers with a frequency of contact too low to substantially contribute to any care work. Among non-resident fathers in the US in 1981, around half of all children aged 11-16 were estimated as having had no contact with their non-resident fathers during the previous year with only about a third meeting with their fathers at least monthly (Furstenberg et al.

1983). The same numbers are found in Europe with half of all Netherlandish children of the 1949–1971 cohort having no contact at all with their non-resident fathers, and more than 80 percent having no overnight contact (Westphal, Poortman & van der Lippe 2014). Historically, the single mother / non-resident father arose in large part following the unique period of children growing up in the same household as both their parents. This was a different pattern from that when unions were dissolved by death and minor children remained in the household of the surviving parent (Lundh 2002).

In recent decades, some shifts have been observed in contact between non-resident fathers and their children (Amato, Meyers & Emery 2009; Westphal et al. 2014; Grätz 2017). At the extreme, fathers increasingly share physical custody with mothers; i.e., children live with their father to the same extent as with their mother. Some of the Nordic countries have seen the most rapid increase in joint physical custody. In Sweden, more than half of children whose parents' union has dissolved live with their fathers at least half of the time (see more in the Swedish section below), followed by 30 percent in Norway (Kitterød & Wiik 2017). Expansion is underway primarily in Northern Europe, with Belgian Flanders at 33 percent (Sodermans, Matthijs & Swicegood 2013:847) and the Netherlands at 25 percent (Koster & Castro-Martín 2021:939). A number of other high-income countries are documenting an increase in co-residence with the father, but the prevalence is still low, with the United States at around five percent (Steinbach, Augustijn & Corkadi 2021).

Joint physical custody produces a family form that challenges our understanding of mothering and fathering. Children are cared for by one parent at a time, splitting their time equally between their parents' homes, most typically by alternating homes every week (Bakker & Karsten 2013). Because each parent functions as the sole caregiver during the days/weeks in which the child stays with the parent, it is a family form that is structurally different not just from the single-mother family but also from the nuclear family (Thomson & Turunen 2021). It requires the parent with whom the child resides at the time to take on the full range of activities involved in caring for a child—including those that require an absence from paid work—and may therefore produce a gender-egalitarian division of care work in those couples that were not egalitarian in the intact union (Thomson & Turunen 2021).

A reversal in the effect of union dissolution on care work

At the onset of the increase in union dissolutions in the 1960s, men's contributions to household work in intact unions were very low, often only between five and ten percent (Kan et al. 2011). As dissolutions made fathers into non-resident fathers, their contributions to care work were thus not so different from what they were when they were still living with their children's mother. Mothers did virtually all care work and kept on doing so after a dissolution. As men's contributions to household work began increasing in the intact union while the predominant care arrangement for dissolved unions remained the co-resident single mother / non-resident father, a mismatch began emerging between what fathers did before and after a dissolution. Dissolutions of unions in which the father's contributions were larger in the intact union than what they were when he became a non-resident father therefore began slowing the gender revolution at a societal level.

After many decades of fathers increasing their contributions to care work in intact unions, joint physical custody began emerging as an alternative family form following a union dissolution. Because most fathers in intact unions were still not equal contributors to care work, a dissolution leading to joint physical custody had the potential to increase rather than decrease their care work. This potential reversal in the gendered effect of union dissolution was publicly debated in Sweden following the release of a book discussing the potentially "enriching aspects" of union dissolution from a gender perspective (Sveland & Wennstam 2011). A number of well-known feminist debaters wrote about how having a "week off" from childcare responsibilities would alleviate the burden of care work, freeing up time for paid work and leisure activities. Intertwined with heartfelt stories of longing for one's children during the "week off", the debaters argued that a union dissolution that led to a 50/50 division of the child's time would push the parents toward a more equal division of care work. The suggestion of a reversal in the gendered effect has also been confirmed in interview studies. Most parents who practice a 50/50 split state that they do so because of a belief in both parents' equal rights to the child and the child's equal rights to their parents (Fransson et al. 2016). Interestingly, several respondents contrasted the period within the intact union—which was not equal—to the period following the dissolution—in which the pre-determined 50/50 split in time made the parents more equal. One mother said, "part of why we separated was

because he wasn't an engaged parent, but he is now and that's great" (Fransson et al. 2016:157).

Care-work divisions in intact versus dissolved unions therefore seem to follow two different logics. Within the intact union, care divisions are typically the result of a (often unconscious) gradual adaptation to gendered structures at large. The gap between egalitarian ideals and non-egalitarian behavior is striking and, as argued by Daminger (2020), the result of a process in which the couple "degender" the rationale of their choices. While a commitment to equality in parenting therefore may provide a necessary condition for care to be equally divided, it is not a sufficient condition. In contrast, within the dissolved union, care divisions seem to be the result of a conscious negotiation. Because the parents are no longer living together, many unconscious adaptations are put out of play. For example, while co-residing parents may "degender" their traditional gendered behavior by a logic of "efficiency"—in which couples consider their gendered behaviors the result of distinct 'personalities' rather than gendered investments (Daminger 2020)—parents living apart cannot so easily engage in these everyday adaptations. While parents living apart may renegotiate the agreement—and there is some evidence that they do (Statistics Sweden 2014:132)—the agreement may be more "sticky" if it is agreed upon with an ex-partner than what it is in an intact union.

The Swedish case

In Sweden, both the inflow of women into paid work and the increase in parental union dissolution stabilized at a high level around two to three decades ago. Sweden is also one of the few contexts in which men are not just contributors but in which many fathers have also begun acting as self-sufficient caregivers. Thus, it is one of the few contexts where we, on a societal level, can begin to expect to see a reversal in the effect of union dissolution on care work.
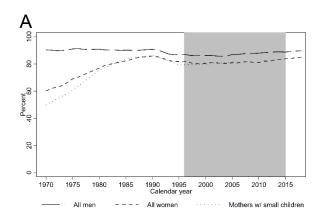
Figure 1A shows labor force participation of women, men, and mothers of children aged 0–6 in Sweden from 1970–2018. Due to data limitations, a time series for fathers and mothers with older children is not available. In the figure and the following Figure 2, we have shaded
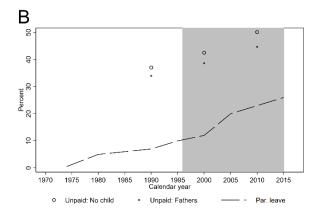
the time period for which we estimate the dissolution effect (1996–2015). The 1970s and 1980s show the last stages of women's entry into paid work that started at the turn of the century and accelerated during the 1960s (Stanfors 2014). By 1990, women and men in Sweden were virtually on par in terms of labor force participation. The Swedish gender difference in employment of 2.2 percentage points was the lowest of all countries in the International Labour Organization data (Antecol 2000). A small gap remained throughout the time period, about a fifth of which can be explained by women's educational advantage and the resulting longer time spent in higher education (Statistics Sweden 2020a). Full-time home-making has virtually disappeared since the 1960s. In 2020, only 1.4 percent of all women reported home-making as their main activity (Statistics Sweden 2020a).

Figure 1. Time series over calendar years 1970-2018 (shaded area is years for which the dissolution effect can be observed).
Figure 1A. Labor force participation of men, women and mothers with small children (aged 0-6).
Figure 1B. Partnered men's and father's share of unpaid work and fathers' share of parental leave days.

Source: A: Labor force participation of men and women aged 20-64 as estimated by Statistics Sweden (2020a) using the Swedish part of the EU labor force survey (EU-LFS) and mothers (at least one resident child ages 0-6 years) as estimated by Stanfors (2014:518). Labor force participation of fathers is not estimated by Statistics Sweden (Statistics Sweden 2021). B: Share of household work of partnered men 20-44 years old with no children and partnered fathers with children 0-6 years old from the Swedish time-use surveys 1990, 2000 and 2010 (Statistics Sweden 2012) and fathers' share of parental leave with children aged 0-3 each calendar year (Statistics Sweden 2021).

Figure 1A also shows labor force participation of mothers with small children. In Sweden, the combination of job-protected paid parental leave and the rapid expansion of universally provided public childcare allowed mothers to return to work after the birth of each child (Rønsen & Sundström 2002). By 1980, mothers' labor force participation was comparable to that of women as a whole. Still, although men and women are on par in terms of participation, paid work is not gender-equal. In Sweden as elsewhere, the main driver of the gender difference is that mothers take on a disproportionate amount of care work and reduce their time in paid work to do so. In terms of labor force participation, parents on job-protected leave are classified as participating in the labor market (Statistics Sweden 2020a), and so the relatively long parental leave periods of mothers are not reflected in labor force participation. The gender difference in employment shows up more clearly in Figure 1B below.

Figure 1B shows the "second half" of the gender revolution, in which men enter the private sphere. We used men's share of household work as a measure of what we have called men as contributors and fathers' parental leave as a measure of fathers as self-sufficient caregivers. As in other contexts, men did not pick up time in unpaid work at the same pace as women joined the labor market. By 1990, as women became on par with men in terms of labor force participation, partnered men were still doing only a little more than a third of the unpaid work. This gap, however, closed by 2010, at which time men's share of household work in childless couples was at almost exactly 50 percent: the 2010 Swedish time-use study recorded childless partnered women as doing a daily 2 hours and 42 minutes of household work, whereas childless partnered men did 2 hours and 43 minutes (Statistics Sweden 2013). Although no panel evidence is available that follows couples over time, the overall difference between all men and women in Sweden therefore appears to be attributed to the arrival of children. While care work increases the total work load dramatically for fathers as well as mothers—by two hours every day—mothers add an additional hour that they draw from paid work (Statistics Sweden 2013). This redistributional difference is reflected in the lower percentages of household work being performed by fathers. Fathers' household work reached 44 percent in 2010, increasing at a rate of 0.5 percentage-point per year between 1990 and 2010.

The second trend in Figure 1B—fathers' share of parental leave—provides a clear indicator of the much later onset of fathers as self-sufficient caregivers. Unlike household work that can be performed during hours outside of paid work, parental leave requires an absence from paid work, and is therefore a more direct indicator of whether fathers are self-sufficient caregivers. We show here fathers' share of the leave period following the birth of a child, as the measurement we use in the study—fathers' share of sick-child leave—is not available in a longer time series. The figure shows a striking discrepancy between men as contributors and fathers as self-sufficient caregivers. In 1974, as Sweden introduced the world's first gender-neutral parental leave—lauded as a blueprint for gender-egalitarian caregiving (Gornick & Meyers 2008)—it was hugely unsuccessful in practice: only 0.5 percent of the leave days were claimed by fathers. When the 1990 Swedish time-use study recorded childless partnered men doing roughly a third of the household work, fathers' sharing of parental leave was still only around seven percent. When comparing fathers' parental leave in Figure 1B with women's labor force participation in Figure 1A, we note that the gap between women as self-sufficient breadwinners and fathers as self-sufficient caregivers is decades long.

Focusing on the shaded area of Figure 1B, however, we also note that the march toward fathers as self-sufficient caregivers progressed dramatically during our study period. Extra parental leave months to be used exclusively by fathers was a provision added to the policy, producing small bumps upward (Duvander & Johansson 2012), but for the most part continuing an upward trend in fathers' leave-taking. By 2009, most Swedish mothers handed over the care of the child to the fathers while returning to work themselves. A common pattern is that after the end of a maternity leave of about ten months, fathers take a full-time leave from work of about four months to function as the sole caregiver of the child (Eriksson 2019). The period could therefore be characterized as a large increase in fathers' self-sufficiency in caregiving—in which many fathers take on all care work that requires an absence from paid work for a substantial period of time—coupled with a remaining gender inequality in the overall division of work among parents.

Figure 2A shows the increase in parental union dissolution that occurred during the first part of the gender revolution: the share of children whose parents' union had dissolved by age 11. To match our analysis below, we show the shares of all first-born children. The increase

accelerated in the 1970s and kept increasing until the turn of the century. Comparing Figure 2A with the trends in Figures 1A–B, it is evident that the increase took place well before fathers were becoming self-sufficient caregivers. As for women's entry into the public sphere, parental union dissolution has been largely stable during the time period for which we estimate the dissolution effect, but remains at higher levels than in many other countries.

Figure 2. Time series over calendar years 1970-2018 (shaded area is years for which the dissolution effect can be observed).
Figure 2A. Percent children having experienced a parental union dissolution.
Figure 2B. Percent children meeting with a non-resident father at least once a month.
Figure 2C: Percent children having experienced a parental union dissolution residing 1) with their mothers only, and 2) in 50/50 joint physical custody.

Source: A: Author calculations of the percent of all children whose parents are not registered in the same property in Swedish administrative register data. To keep with the analyses of the study, the percentages refer to first-born children aged 11. B. Percentage of respondents having experienced a parental union dissolution with at least monthly contact with the non-custodial parent as calculated retrospectively using the Level of Living Survey by Gähler & Palmtag (2015). Birth year groups reported in Gähler & Palmtag (2015) are set at the mid-interval and reported for the calendar year in which the respondent turns 16. Percentages for years 1992/1993 refer to the calendar year estimated using the EU-SILC 1992/1993 (Statistics Sweden 1995:54). C: Percentages estimated by Statistics Sweden using the Swedish EU-SILC as reported in Statistics Sweden (1995) for the years 1984/1985 and 1992/1993, Swedish Government Official Reports (2011) for years 2001/2002 and Statistics Sweden (2022a) for the years 2013-2017.

Finally, Figures 2B and 2C show the level of engagement of fathers following a union dissolution. Figure 2B shows their traditional measure of engagement: the level of non-resident father contact with their children over time. The indicator shows the share with at least monthly contact, a rather low level. In 1971, only roughly a third of the children whose parents' union had dissolved met with their father at least once per month. By 2001, the percentage had increased to 80 percent. Figure 2C shows the share of children aged 0–18 having experienced a parental union dissolution spending half their time in each parent's residence. Unfortunately, the data source included no information on the timing of the dissolution. The numbers for each calendar year therefore refer to living arrangements for children whose parents separated up to 18 years earlier. In 1984, only two percent of the children lived with their fathers at least half the time. Up until 1998, Swedish legislation still allowed one parent, typically the mother, to refuse legal custody to the other parent, typically the father (Blomqvist & Heimer 2016). Although children's residency has never been explicitly formulated in the Swedish Parental Code (Blomqvist & Heimer 2016:802), the legislative change was part of an ideational shift in the gender presumption of children's living arrangements. Children's residency with their fathers increased dramatically over our study period, and by 2016/2017, 28 percent of all children whose parents' union had dissolved were in 50/50 joint physical custody. At the same time, the percentage of children living in the traditional single-mother care arrangement—living only with their mothers—decreased from 85 percent to 47 percent. As single-mother families constitute a significant share of all families—before the onset of joint physical custody, one-fourth of all families (Gähler 2001:16)—this shift constitutes a major change in gendered care work across all families, not just those with a single mother.

Only one data source—a survey conducted by Statistics Sweden in 2013—include information on physical custody and years since union dissolution and thus provide the ability to measure custody arrangements of newly dissolved unions. It showed that around 50 percent of all children having experienced a parental union dissolution in the previous two years split their time equally between the residences of each parent. Another three percent lived only with their fathers and four percent mostly with their fathers. In all, around 58 percent of children having experienced a parental union dissolution in the previous two years lived at least half of the time with their fathers. As two percent of children were in other care arrangements, the percentage of children reported as spending most or all of their time with

their mothers was estimated at 41 percent. Only one in five were reported to be in the traditional single-mother care arrangement, in which the child lived only with their mother (Statistics Sweden 2014:119). The vast majority of couples—86 percent—agreed on joint physical custody without any professional or judicial involvement; 14 percent sought advice on conflicts in living arrangements through the social services, and, in sharp contrast to, for example, the United States (Meyer, Cancian & Cook 2017), only two percent had their custody disputes resolved in a civil court (Fransson et al. 2016:155).

Data and methods

We used Swedish administrative register data collected by the Swedish Social Insurance Agency (sick-child leave) and the Swedish Tax Agency (biological links between parents and children, year of birth of parents and children, and property registrations). Records in each register are linked by the personal identification number and made available through Statistics Sweden. We identified different-sex parents of a common child through the multi-generational register that links each child to each of their biological parents for all children born in Sweden from 1932 onward. For each year, we identified the property at which each parent was registered through the Total Population Register. We classified a parental union dissolution as the first year during which both parents were not registered at the same property. This indicator of union dissolution has previously been validated against both census and survey reports (Thomson & Eriksson 2013). As Sweden is a context with high levels of socially accepted non-marital cohabitation, even among parents, we could not use civil status (married/divorced) as an indicator of parental union dissolution.

Our outcome was the father's percentage of the sum of the annual number of days the parental couple had taken off work to care for a sick child for which they claimed job protection and income replacement from the Swedish Social Insurance Agency. Sick-child leave benefits provide 80 percent of current earnings capped at around 125 percent of the median salary (Statistics Sweden 2022b) for up to 120 days per year to all working parents of children younger than 12. Most claims refer to shorter spells of the cold or stomach flu, during which the child is required to stay at home from preschool/school. By law, the benefits

can only be claimed when the child is absent from preschool/school and the parent is absent from the workplace to care for the child. The parent has the right to claim it on very short notice—including taking leave for the full day after discovering the child's illness in the morning—with minimal administration, and the employer is obliged to accept (Swedish Social Insurance Agency 2014:24–26). Sick-child leave is taken as both parents have returned to work following a 1–1.5-year period of parental leave benefits that covers one or the other parent caring for the child full time.

Although sick-child leave could be claimed after the child turns age one, many couples choose to extend parental leave with less pay until children are 18 months old, and are thus not eligible. By age two, 88 percent of all children are enrolled in preschool (Swedish National Agency for Education 2015), so we used sick-child leave for all years in which the (first-born) child was aged 2–11. For the parents in our analysis, mothers claimed on average 4.9 days per year and fathers 3.7 days across ages 2–11. In Figure A1 in the appendix, we show for each calendar year the percentage of sick-child leave claimed by the father along with the numbers of days claimed by fathers and mothers, respectively. Although the annual number of sick-child leave days are known to fluctuate by the severity of the yearly calicivirus and the timing of the flu season in relation to the calendar year (Swedish Social Insurance Agency 2022), fathers' percentage of days show a stable and slightly increasing trend. The number of days claimed are arguably small in comparison to around 230 workdays of an average Swedish work year (Swedish Code of Statutes 1982:673). Because it was the only data source available through which we could track couples both before and after a union dissolution and because it required absence from paid work, we used it here as an indicator for care work. Sharing of sick-child leave has been validated as a proxy for the overall gender division of household work, as measured through a survey questionnaire (Eriksson & Nermo 2010). Unfortunately, the administrative registers used here included no information on which child the leave day pertained to, and parents could stay home with multiple children at the same time. Thus, the sick-child leave we observed was not necessarily connected to the first-born child for which we determined the observation window.

Estimation selection

We selected all different-sex parental couples with a biological first-born child born in Sweden and aged 2–11 during any of the years 1994 (the first year for which sick-child leave was available in the registers) to 2017 (the last year available in the data). In order to estimate the within-couple effect of dissolution on leave-sharing, we needed to apply several exclusion criteria. Table 1 shows the numbers and percentages of couples and couple-years that were excluded by each criterion. In order to calculate sharing, at least one parent needed to claim leave in a given year. In 5.6 percent of the couples, neither parent claimed any leave in any of the years; in around 25.2 percent of the couple-years neither parent claimed any leave. Small-scale evidence suggests that not taking any leave is more common among workers with flexible work arrangements, as these workers do not need to claim the benefit to assure job protection; as many as 40 percent of white-collar private-sector workers have reported being able to stay home with a child without claiming the benefit (Unionen 2015). This exclusion was therefore likely to bias the estimation population towards blue-collar workers. As part of our robustness checks (see end of Results section), we included these couples and set their sharing to 50 percent, as theoretically, sharing could be considered 50 percent when neither parent claims any leave.

Next, sick-child leave could only be claimed in place of paid work, so we had to restrict our selection to couple-years in which both parents were in paid employment, here defined as having any income from work. In 5.1 percent of the couples, the mother was not in the labor market in any given year, and in 3.7 percent, the father was not. These exclusions may have potentially introduced selection bias into our estimation population, especially if there was differential selection into employment over the years. As the first years of our study period followed the major economic crisis of the early 1990s (see Figure 1A)—and unemployment rose primarily among the less educated (Engdahl & Nybom 2021)—the estimation population of the earlier years of our study period was likely biased toward white-collar workers.

We also made minor exclusions of couple-years following the year in which either parent had a subsequent child with someone other than the parent of our focal child. These new children would give sick-child leave eligibility to only one of the parents of the original couple. We also excluded couple-years in which the couple claimed more than 120 days of sick-child

leave in a year as only couples with seriously ill children are eligible to claim more than 120 days in a year (Swedish Social Insurance Agency 2014:26).

In order to make sure that unequal lengths of observation before and after dissolution did not affect our results, we restricted our estimation population to couple-years two years before and two years after the dissolution for all couples experiencing a union dissolution (see Analytical strategy below). As part of the robustness checks, we also estimated all models without this restriction.

Finally—after the exclusions above were made—in order to estimate couple fixed-effects, we needed to observe each couple at least twice over the time period for which our outcome was available, 1994–2017. We note that many of these exclusions may have been related to poor labor market attachment, as fewer than two observations would be more common if attachment were low. Our final estimation selection consisted of around 72 percent of all couples, and 56 percent of the couple-years, having a first child aged 2–11 in any of the years 1994–2017. The population after exclusion was 922,931 couples, producing 5,178,062 couple-years of observation.

Table 1. Exclusion criteria for estimation selection.

	N couple-years	% couple-years	N couples	% couples
All with first-born child ages 2-11 in years 1994-2017	9225762	100.0	1276884	100.0
Exclusion criteria				
No care leave of either parent*	2321798	25.2	71525	5.6
Mother not in labor market	1211556	13.1	64508	5.1
Father not in labor market	808634	8.8	47207	3.7
Mother child with new partner	192144	2.1	43474	3.4
Father child with new partner	170170	1.8	10195	0.8
Care leave for seriously ill child	294678	3.2	19109	1.5
Couple-years >2 yrs before/after diss.*	675386	7.3	0	0.0
Less than two couple-years observed	1987488	21.5	353953	27.7
Estimation sample	5178062	56.1	922931	72.3

Source: Swedish administrative register data for the years 1994-2017.
Note: To provide a better overview of the characteristics of the full population, the table shows the number and percentage of each exclusion criteria non-sequentially. The numbers and percentages therefore does not sum to the total. Overlap is considerable among some criteria, for example, in 33 percent of the couple-years for which the mother is not in the labor market, the father is also not in the labor market. Exclusions marked with an asterisk are those that are excluded in our main models but included in our robustness checks (end of Results section).

Analytical strategy

We used OLS models with couple fixed-effects to account for all time-invariant factors that determine sharing of sick-child leave. For each couple, we created a panel of the percentage of sick-child leave taken by the father for each year in which the parents were eligible for the leave (the first child age being 2–11). We entered parental union dissolution as a dummy variable equaling 1 for calendar years following a dissolution and 0 for years in which the union was still intact. To estimate the dissolution effect over time, we entered union dissolution as a set of dummy variables, one for each two-year dissolution year, equaling 1 for years following the dissolution for those couples whose union dissolved during those two-years, 0 otherwise. We estimated the dissolution effect in two-year periods to increase the stability of our estimates; i.e., the dissolution effect for those unions dissolving in 1996/1997, 1998/1999, and so forth. As we allowed each union to dissolve only once, they therefore contributed to the dissolution effect estimates only for the two-year period in which the union first dissolved. Each two-year dissolution effect therefore represented the within-couple difference in the father's sharing in the years following the dissolution from those years in which the parents were still living together.

Although we observed sick-child leave for the years 1994–2017, we could not estimate the dissolution effect for union dissolutions occurring in the first and the last year. To increase the stability of our estimates, we restricted our estimation to only those dissolution years in which we could observe two years of data before and after the dissolution. We were therefore able to estimate the dissolution effect for dissolutions occurring in the years 1996–2015.

In our first model, we included only those covariates necessary to correctly capture the baseline function of sick-child leave sharing before and after union dissolution. We entered the age of the first child to capture chronological time. The age of the child was measured in years and entered as a time-varying continuous variable. We entered the number of children as a time-varying continuous variable to capture any shift in leave-sharing following from the birth of additional children. We also entered the calendar year as a categorical variable to remove any period effects.

In our second set of models, we controlled for time-varying variables that may have biased our slope coefficient for percentage of sick-child leave by the age of the child. For both mothers and fathers, we included education as the International Standard Classification of Education (ISCED) 1997 level of education coded as the corresponding number of years in the Swedish educational system and sector of work as a categorical variable with the levels private, public, and self-employed. These two variables theoretically may have biased the measurement of the dissolution effect if individuals switched categories around the time of the dissolution, but as will be presented in the Results section, the time-varying components of these two variables around the dissolution were negligible. Income was measured as the annual declared income as reported to the Swedish Tax Agency. We chose to include it as each parent's absolute income rather than relative income because its time-varying component—the variation that went into our fixed-effects models—was in large part a function of changes to the number of hours worked (Kleven et al. 2019); thus, it mostly controlled for parents working longer hours as the child aged. This variable also functioned as a control for the possibility that a dissolution may have affected each parent's work hours, thereby also increasing their need to claim sick-child leave. Finally, we entered parental leave as a continuous variable measuring the annual number of paid days claimed by each parent. Unfortunately, claiming unpaid leave is quite common during the first year of a child's life (Eriksson 2019), so this variable did not completely capture the gender difference in time off work surrounding the birth of subsequent children. We used robust standard errors to account for any heteroscedasticity within the panels.

In a separate set of models, we performed robustness checks with a number of alternative specifications. Notably, we estimated the models using the absolute number of sick-child leave days taken by the father and the mother, respectively. The results of these models were similar to that of our main strategy. The results are included in the appendix and discussed at the end of the Results section.

Results

Descriptive statistics

Panel A of Table 2 provides the mean and standard deviations for our outcome and covariates calculated on all couple-years included in the analyses. Panel B provides within-couple differences—the difference between the last and the first couple-year for each couple in the data—for the same covariates. Along with the total calculated on all couples in our data, we show descriptive statistics separately by union status. Union intact throughout describes those couples whose unions remained intact during all years they appeared in the observation window. For clarity regarding which couples went into the estimation of the dissolution effect, we divided the dissolved unions into two groups: those dissolved during observation, for which we observed the period both before and after the dissolution, and those we observed as dissolved throughout. In the analyses, the dissolved during observation couples were the only couples to experience any variation in union status, and thus were the only couples for whom we could calculate the dissolution effect, whereas union intact throughout and dissolved throughout couples were used for the estimation of other covariates, notably the period control. As shown at the bottom of Table 2, the dissolved during observation couples amounted to around 11 percent of all couples included in the analyses. The yearly dissolution rate was around 2–2.5 percent throughout the time period: 2.22 percent in 1995 and 2.28 in 2015. Our category dissolved throughout was heterogeneous in terms of the reason why we observed only couple-years in which the union was dissolved: they consisted of out-of-union births and early dissolutions (for which we could not observe sick-child leave either before or after dissolution), those unions were already dissolved at the start of the observation window in 1994, and those for which we observed only couple-years in which the union was dissolved; i.e., although the dissolution occurred within the time window, the couple-years during which the union was still intact were excluded due to one or the other parent not being in gainful employment.

Table 2. Descriptive statistics of estimation population.

Panel A: All couple-years	Union intact throughout		Dissolved during observation		Union dissolved throughout		Total	
	Mean	sd	Mean	sd	Mean	sd	Mean	sd
Father's percentage of care leave	42.0	36.9	39.8	37.3	33.9	39.2	40.9	37.3
% Couple-years separated	0.0		57.5		100.0		16.3	
Age of child	6.4	2.8	6.5	2.5	6.5	2.8	6.4	2.8
Number of children	2.0	0.6	1.8	0.6	1.7	0.7	1.9	0.6
Mother's education (years)	13.2	2.2	12.5	2.1	12.1	2.2	13.0	2.2
Father's education (years)	12.7	2.4	12.1	2.2	11.8	2.3	12.6	2.4
Mother's sector of employment								
% Private	50.3		56.2		55.1		51.3	
% Public	48.2		42.6		43.6		47.2	
% Self-employed	1.5		1.2		1.4		1.5	
Father's sector of employment								
% Private	78.1		80.6		80.5		78.6	
% Public	16.1		14.8		14.2		15.8	
% Self-employed	5.8		4.7		5.3		5.7	
Mother's income (1000s SEK)	202.5	134.7	202.6	125.0	175.9	120.3	199.4	132.6
Father's income (1000s SEK)	335.1	202.1	301.2	176.5	267.0	194.3	324.4	200.6
Mother's parental leave (days)	40.6	67.5	24.7	56.2	26.0	58.8	37.6	66.0
Father's parental leave (days)	14.1	27.4	9.9	22.1	8.5	22.1	13.1	26.5
Number of couples	691070		101157		130704		922931	
Percent of couples	74.9		11.0		14.2		100.0	
Number of couple-years	4154313		418444		605305		5178062	
Percent of couple-years	80.2		8.1		11.7		100.0	
Mean couple-years per couple	6.0		4.1		4.6		5.6	

Panel B: Within-couple differences (difference between last and first couple-year observed)	Union intact throughout	Dissolved during observation	Union dissolved throughout	Total
	Mean diff.	Mean diff.	Mean diff.	Mean diff.
Father's percentage of care leave	-10.5	-8.4	-3.6	-9.3
% Separated	0.0	100.0	0.0	11.0
Age of child	5.7	3.4	4.4	5.3
Number of children	0.5	0.1	0.3	0.5
Mother's education	0.2	0.2	0.3	0.2
Father's education	0.1	0.1	0.1	0.1
Mother's sector of employment				
% Private	-2.5	-0.8	-1.2	-2.1
% Public	1.6	0.6	0.5	1.3
% Self-employed	0.9	0.3	0.6	0.8
Father's sector of employment				
% Private	-2.5	-0.9	-1.1	-2.1
% Public	-0.3	-0.2	-1.0	-0.4
% Self-employed	2.8	1.1	2.0	2.5
Mother's income (1000s SEK)	98.0	69.0	62.2	89.7
Father's income (1000s SEK)	102.7	48.6	64.6	91.3
Mother's parental leave (days)	-39.9	-32.3	-15.6	-35.6
Father's parental leave (days)	-5.8	-6.5	-1.9	-5.3

Source: Swedish administrative register data for the years 1994-2017.
Note: Panel A shows means and standard deviations calculated on all couple-years. Panel B shows the mean of the difference between the last and the first couple-year observed for each couple in the data. 'Union intact throughout' are those couples whose union remain intact for each couple-year for which we observe them. 'Dissolved during observation' are for which we observe years both before and after a dissolution. 'Dissolved throughout' are those for which we observe no couple-years during which the union is still intact, either through an out-of-union birth, a dissolution occurring before sick-child leave eligibility at age 2 or those couples already dissolved at the start of the observation window in 1994. Descriptive statistics for the year of dissolution and the calendar year are shown in Table A2 in the appendix.

Over all couples and years, fathers claimed on average 40.9 percent of the sick-child leave. The difference in the percentage claimed was small between those whose union was intact throughout observation and those whose union dissolved during observation, whereas those who were dissolved throughout took only 33.9 percent of the leave. The increases over time in fathers' percentages were similar for the union intact throughout and the dissolved during observation couples: a linear prediction over calendar years shows a rate of increase of 0.32 percentage points for the union intact throughout couples and a rate of 0.38 percentage points for the dissolved during observation couples. The percentage of sick-child leave uptake of fathers compared relatively well with fathers' percentage of household work over the same period, although the rate of change was lower than the yearly 0.5 percentage points in household work (see Figure 2A shown earlier).

There were only small differences across groups in the other covariates, both in the overall means (Panel A) and in the within-couple differences (Panel B). The overall number of children as well as the within-couple difference in the number of children were smaller in the dissolved during observation couples than the union intact throughout couples, which is what we expected, as no additional children were born in the couple-years following the dissolution. For education and sector of employment, the overall numbers compare well with previously documented Swedish gender differences, with mothers having a longer education and more often working in the public sector (Statistics Sweden 2020a). Both mothers and fathers in the dissolved during observation couples had slightly lower education and were more likely than the union intact throughout couples to be working in the private sector. As is clear from the differences reported, the changes to these characteristics were small and so did not contribute much to our fixed-effects estimates. Fathers in the dissolved during observation couples had lower levels of income than those in the union intact throughout couples, whereas mothers' income levels were similar. Importantly, for our fixed-effects estimates, income exhibited the largest within-couple differences for fathers as well as mothers. This was expected, as income captures changes in working hours as children age. Within-couple differences in income were larger among the dissolved during observation couples than they were in union intact throughout couples, but this was partially an effect of our estimation restriction of observing the dissolved during observation couples only two years before and two years after the dissolution, whereas the union intact throughout couples were observed for all years in which they were in the data. Finally, the much lower number of

parental leave days claimed by couples dissolved during observation was also the result of our restriction to couple-years two years preceding/following the dissolution, couple-years in which the birth of a sibling that would give parental leave eligibility is much less likely.

Within-couple differences in father's percentage sick-child leave

Table 2 displays coefficients and standard errors as estimated by OLS models with couple fixed-effects. The outcome is the percentage of sick-child leave claimed by the father, and the key explanatory variables are the set of dummy variables equaling 1 for couple-years following a dissolution for those dissolutions occurring within each two-year period. The coefficients from our two-year dissolution dummies represent the dissolution effect; i.e., the within-couple difference in the father's percentage of sick-child leave in the years following the dissolution compared to the years in which the union was still intact. By examining how the effect of dissolution on fathers' percentage is changing over time, we can examine the division of care work following a dissolution during a time in which residency with the father is becoming increasingly common. Following our theoretical discussion above, we expected the dissolution effect to reverse from the traditional negative observed across contexts for decades—in which care work is transferred to a single mother upon dissolution (Heuveline et al. 2003)—to the positive—in which the gender-unequal co-resident partners begin a 50/50 division of the child's time in each parent's residence.

Model 1 in Table 3 displays the baseline model including only the age of the child, the number of children, the dissolution effect, and the calendar year controls, and Model 2 is the full model with all controls. Because the differences between Model 1 and 2 are small, we turn first to our main results in Model 2. For couples whose union dissolved in the years 1996/1997, we found that the father took around 2.3 percentage points less of the total sick-child leave following the dissolution than he did when the union was still intact. If we compare these numbers to the average sick-child leave percentage claimed over the period by fathers in these couples—39.8 percent (see Descriptive statistics in Table 2)—this amounts to a decrease of around 5.8 percent. Although it is a small decrease compared to a complete care transfer during earlier decades, it shows the last phase of the decades in which care work was transferred toward the mother in the event of a parental union dissolution.

Table 3. Father's percentage sick-child leave, Estimated by couple fixed-effects models.

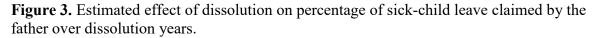|	Model 1	Model 2
Intercept	39.42 ***	32.14 ***
	(0.06)	(0.08)
Dissolution effect 1996/1997 (ref: Union intact)	-2.40 ***	-2.31 ***
	(0.35)	(0.33)
Dissolution effect 1998/1999 (ref: Union intact)	-1.22 ***	-1.03 **
	(0.35)	(0.33)
Dissolution effect 2000/2001 (ref: Union intact)	-0.61	-0.42
	(0.35)	(0.33)
Dissolution effect 2002/2003 (ref: Union intact)	0.67	0.69 *
	(0.38)	(0.35)
Dissolution effect 2004/2005 (ref: Union intact)	1.29 **	1.20 **
	(0.40)	(0.37)
Dissolution effect 2006/2007 (ref: Union intact)	0.87 *	1.14 **
	(0.42)	(0.39)
Dissolution effect 2008/2009 (ref: Union intact)	0.52	0.75 *
	(0.38)	(0.35)
Dissolution effect 2010/2011 (ref: Union intact)	0.96 *	1.10 **
	(0.37)	(0.35)
Dissolution effect 2012/2013 (ref: Union intact)	2.86 ***	2.71 ***
	(0.35)	(0.32)
Dissolution effect 2014/2015 (ref: Union intact)	2.44 ***	2.05 ***
	(0.32)	(0.30)
Age of child (years)	-3.79 ***	-1.26 ***
	(0.01)	(0.01)
Number of children	21.85 ***	10.25 ***
	(0.05)	(0.06)
Mother's education (years)		0.52 ***
		(0.05)
Father's education (years)		0.52 ***
		(0.06)
Mother's sector of work (ref: Private)		
Public		-2.96 ***
		(0.07)
Self-employed		-1.89 ***
		(0.23)
Father's sector of work (ref: Private)		
Public		2.41 ***
		(0.11)
Self-employed		-1.56 ***
		(0.12)
Mother's income (ln SEK)		-11.05 ***
		(0.03)
Father's income (ln SEK)		3.94 ***
		(0.04)
Mother's parental leave (days)		-0.01 ***
		(0.00)
Father's parental leave (days)		-0.01 ***
		(0.00)
R2	0.08	0.20
Number of couple-years	5178062	5178062
Number of couples	922931	922931

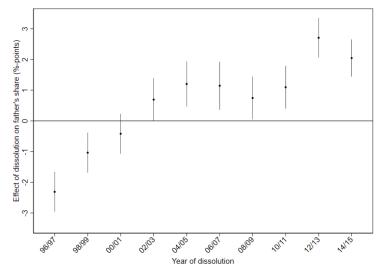*Source*: Swedish administrative register data for the years 1994-2017.
Note: Regression coefficients and panel-robust standard errors (in parentheses) as estimated by OLS models with couple fixed-effects. Continuous covariates are centered on the mean except log income that is centered at the median, unlogged, income. The dissolution effect is estimated using a dummy variable that for each couple equals 1 for calendar years following a dissolution, 0 otherwise. The reported R-squared is within R-squared. Coefficients and standard errors of calendar years are presented in Table A2 of the appendix.
*p<.05; **p<.01; ***p<.001 (two-sided test).

For unions dissolving in 2014/2015, the dissolution effect was reversed. For these couples, fathers' percentage of sick-child leave was 2.1 percentage points higher in the years following the dissolution than it was in the years when the father was still co-residing with the mother. Comparing these numbers to the grand mean as before, this resembles a shift upward by about 5.3 percent. This is consistent with our hypothesis that if intact partnerships remain gender-unequal but a majority of children whose parents' union has dissolved live with their father at least half the time, fathers will take on a larger share of care work than they did when the union was still intact. Although 2.1 percentage points is arguably a very low effect size, any positive effect stands in stark contrast to the several-decades-long universal shift of all care work being shifted toward single mothers.

Figure 3 displays the coefficients and confidence intervals of the full model (Model 2) for all two-year dissolution years included in the data. Here we can see that the dissolution effect was already reversed for dissolutions occurring in 2002/2003. In all following two-year dissolution years, fathers' percentages were higher in the years following a dissolution than they were in the years preceding it.

Figure 3. Estimated effect of dissolution on percentage of sick-child leave claimed by the father over dissolution years.

When comparing Model 1 to Model 2, we can see that the reversal in the effect of separation is also visible in our empty model. The effect size of separation is weaker both in the early and late years compared to the full model, a difference largely due to the time-varying component of income (not shown here).

The results of our control variables are consistent with previous literature. We found a slight decrease in fathers' percentage as the child aged, coupled with a large increase by the number of children. The increase by the number of children likely reflects the gender difference in time off work surrounding the birth of a subsequent child that was not captured by our income and parental leave variables. Fathers' employment in the public sector increased their percentage of sick-child leave, whereas mothers' decreased it. This is consistent with the public sector offering greater acceptance of leave-taking of both fathers and mothers (Bygren & Duvander 2006). For education, the coefficients for both mothers and fathers are negligible. The lack of an education differential may be due to the fact that increases in education are observed only at the time an individual receives a degree. Finally, we found

that income was negative for mothers and positive for fathers, most likely reflecting changes in working hours that in turn affect the need to claim sick-child leave.

Robustness checks

We estimated a series of alternate models to check the robustness of our results. Coefficients and standard errors of these models are reported in Table A5 in the appendix. First, we estimated both models also including couples in which neither parent claimed any sick-child leave, setting their leave-sharing to 50 percent. This increased the percentages we used in our model to 69 percent of all couple-years and 80 percent of all couples. With this specification, the results are similar but the positive dissolution effect appears later than in our main models. Second, we included all couple-years of all couples; i.e., we did not restrict the couple-years of the dissolved during observation couples to only two years before and after dissolution. The main results were similar. Third, we estimated the models on two different outcomes: the absolute number of sick-child days claimed by the father and the absolute number claimed by the mother, respectively. We found that the dissolution effect in fathers' sick-leave days reversed over time, meaning that the fewer days of leave he took following a dissolution at the beginning of the observation window was reversed to more days of leave at the end. For mothers, we found a reduction in sick-child leave days following dissolution for several years. For the last dissolution years, however, we found that mothers increased their days slightly, although much less than fathers. This result may suggest that couples who shared care work before dissolution may have agreed on which partner would stay at home with the child depending on the work obligations of each parent on a particular day. Such allocations might not be available to dissolved couples, and so the total number of days claimed may go up. Finally, in order to establish whether the effect is also robust within sub-populations, we estimated all models separately for couples in which both had secondary education and those in which both had tertiary education. These models are less stable but suggest an expected stronger and earlier reversal in the dissolution effect among the tertiary educated than the secondary educated. In both groups the reversal occurred earlier than in the population of our main models that included primary-educated men and women as well as education-heterogamous couples.

Limitations

This study suffers from limitations related to research design and measurement. Fathers' percentage of days off work to care for a sick child is arguably a rough indicator of care work. A time-use study including measures of primary and secondary childcare as well as time spent with children might have been preferable. We note, however, that the Swedish time-use studies do not distinguish care work by whether it requires leave from paid work or whether it can be adapted to a work schedule, a distinction that we have argued is important for self-sufficiency. Moreover, the Swedish time-use studies are not panel studies and therefore cannot be used to track within-couple changes.

Although we did observe the effect of union dissolution on the gender division of care work, we did not observe the hypothesized mechanism of its changing effects directly. While we argue for the importance of living arrangements, it remained unobserved in our models. Surveys that obtain direct reports of children's residential arrangements—such as the European Union Statistics on Income and Living Conditions (EU-SILC) and the 2013 survey from Statistics Sweden cited above—are cross-sectional only. They do not allow us to disentangle the selection into post-dissolution care arrangements from the effect of the dissolution itself. Selection into different residential forms is a well-known problem in studies of the effect of residency on other outcomes (Steinbach 2019).

Discussion

The increase in men's contributions in the household has occurred in tandem with an increase in union dissolutions. Because parental union dissolution has in the past almost always led to children living with their mother, dissolutions of all unions in which the father's contributions were non-negligible therefore slowed the overall societal increase in gender equality. The more fathers have increased their contributions in intact unions while the practice of shifting all care work to single mothers upon dissolution has stayed the same, the larger has been the counterforce of dissolution to the gender revolution. A new family form—joint physical custody—is beginning to challenge the ways in which union dissolutions affect the gender division of care work. For those couples in which fathers do not contribute equally within the

union—which is true for most co-residing parents—a 50/50 split of their children's time between the parents' residences has the potential to accelerate the gender revolution.

This study is the first to document how the effect of a parental union dissolution on care work has shifted from producing less equality to more equality. For Swedish parental unions dissolving in 1996/1997—the first years of our observation window—our results reflect the last phase of the decades-long shift in care work toward the co-residential single mother. Upon dissolution, care work is transferred from the father to the mother. If we had data further back in time, this gender difference would likely have been much larger. For union dissolutions occurring in 2014/2015, we found that this pattern has reversed: upon dissolution, fathers had taken on a larger share of the care work. If dissolving couples divide their children's time equally between the parents' households while co-residing couples still practice a gender-unequal division of care work, this is what we would observe.

In our study, we estimated the net effect of all dissolutions on care work, not the effect of joint physical custody on care work. Although the majority of Swedish children of dissolution now live with their fathers at least half the time, 42 percent do not. As the couples in which children live mostly or only with their mothers are likely to shift care work toward the mother upon dissolution, the effect of joint physical custody on care work likely outweighs these couples for the net effect of dissolution to be positive. The effect of children living half the time with their father on care work is likely much stronger than what our estimates show. Although we would have wanted to separate the effect by living arrangements, our results are perhaps more important, as they show that the overall effect of union dissolution has reversed in Sweden. The results therefore not only pertain to a limited group of couples choosing joint physical custody but to Swedish union dissolutions overall. However, it is necessary to remember that as we were not able to measure the effect of dissolution for those who met our exclusion criteria, our results refer to the net effect of dissolution for all those in our target population.

While Sweden is known for an extensive state-level policy package promoting gender equality in care work through income-replacement leave schemas—most famously the use-it-

or-lose-it daddy months that only fathers can draw on (Duvander & Johansson 2012)—there are no state-level social transfers promoting children's residency with fathers (Swedish Government Official Reports 2011). On the contrary, mandated child maintenance paid by non-resident fathers is among the lowest of the high-income countries—only around nine percent of the average net disposal income (Skinner & Davidson 2009)—and so being a resident father is typically more costly than being non-resident. The resident father would share the state-provided child allowance with the mother (Swedish Social Insurance Agency 2014:35), but this amount (around $50 USD per child) covers little of the additional costs of housing and other expenditures that come from having the child living with him half of the time. It seems that although Swedish state-level policies are arguably important for fathers to become self-sufficient caregivers, once they have become so, they seem unwilling to lose daily contact with their children as the partnership with the mother is dissolved.

Somewhat in contrast to the view of Sweden as a country with a high level of support for parents, Sweden also requires a relatively high level of self-sufficiency from a resident parent. Although Sweden is known for its universally provided public childcare from an early age, few other possibilities for non-parental care exist. High costs of labor make the affordability of childcare services low and available only to the highest earners (Morgan 2005). Because of the early onset of female labor force participation and high retirement ages, Sweden also has among the highest levels of labor force participation of grandparents, and therefore, conversely, the lowest availability of grandparental care during weekdays. On average, only 1.5 percent of 0–2-year-olds in Sweden are in informal care—including both grandparental and non-public childcare—in a typical week, compared to the Organisation for Economic Co-operation and Development average of 24 percent (OECD 2015). If a child falls ill during those weeks in which they live with the father, the possibilities of outsourcing the care of the child are therefore more limited than elsewhere.

As we expect self-sufficiency in care work—including care work that requires an absence from paid work—to be a necessary condition for 50/50 joint physical custody, we may expect joint physical custody to arise in those contexts in which fathers' self-sufficiency is made possible. The prevalence of joint physical custody follows that of father leave in the Nordic countries—in which Sweden is the forerunner and Norway, Denmark, and Finland fall behind

in both (Eydal et al. 2015:172). Looking at other parts of Europe, leave-taking and part-time work are high among fathers in Belgium and the Netherlands (Karu & Tremblay 2018), and these countries are also where we find the highest levels of joint physical custody outside the Nordic countries. The link between self-sufficiency and joint physical custody remains to be documented, as it can arise from a general increase in gender equality.

Throughout the decades following the rise in parental union dissolution, most union dissolutions produced a single-mother family. The dissolutions were accompanied by substantial declines in income for mothers, some of which can be explained by reductions in mother's paid work as the entire burden of care work is shifted to the mother (Jarvis & Jenkins 1999). The resulting experience of many single mothers was that of elevated levels of stress and fatigue (Meier et al. 2016). As our results suggest that a union dissolution may no longer be associated with the entire burden of care work for many mothers in Sweden, the meaning of being a single mother may be changing for a large group of mothers. As almost half of all Swedish children whose parents' union have dissolved now live with their fathers at least half the time, the absolute number of women experiencing the state of fatigue associated with single motherhood may have been nearly halved in just two decades.

We focused on one of the most persistent gender inequalities in contemporary high-income societies. Care work—here defined as the entirety of surplus work generated by the birth of a child—is more stubbornly unequal than unpaid work in general (Craig & Mullan 2010). Of all the activities included in caring for a child, active childcare is far more equally divided than having the full responsibility of meal planning and preparation carried out alongside childcare (Craig & Mullan 2011; Raley, Bianchi & Wang 2012). Care work that can be fit around a work schedule—such as during evenings and weekends—is more equal than that which cannot (Hook 2010, Bianchi et al. 2012). In fact, care work that cannot be fit around a work schedule is the most strikingly unequally divided type of work. Much care work generated by a child requires planned work reductions—such as leave around the birth of the child or reductions in work time —or unplanned work reductions—such as leaving work on short notice to care for a sick child. As our results show that fathers take on more care work that requires leave from paid work following a union dissolution—and caring for a sick child resembles onerous care work rather than active play—we believe that what we are in fact

observing is that these fathers are taking on the final, most stubborn, stage of the gender revolution.

Acknowledgements

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Appendix

Figure A1. Father's percentage sick-child leave and the mean yearly number of days of fathers and mothers sick-child leave over calendar years.

Source: Swedish administrative register data for the years 1994-2017.

Note: The means are calculated over all couple-years in each calendar year for all couples in our estimation population. The sudden drop in 2005 is caused by a delivery problem from the Swedish Social Insurance Agency to Statistics Sweden, in which only sick-child leave in January – September was delivered (Swedish Social Insurance Agency 2021). As father's percentage remained stable also with the fewer months, we included 2005 in our analysis but have, as a robustness check, estimated our models also without it.

Table A1. Appendix for Table 2: Descriptive statistics. Year of dissolution dummy variables and calendar year dummy variables.

	Couple-years
Year of dissolution	
1996/1997	24753
1998/1999	26854
2000/2001	25252
2002/2003	21338
2004/2005	18643
2006/2007	19550
2008/2009	21362
2010/2011	22488
2012/2013	26575
2014/2015	29447
Calendar year	
1994	190171
1995	219224
1996	213027
1997	212892
1998	215875
1999	212439
2000	208498
2001	209493
2002	205517
2003	197221
2004	185765
2005	165957
2006	194229
2007	200280
2008	206177
2009	204681
2010	212121
2011	224775
2012	236287
2013	250092
2014	250021
2015	260449
2016	266022
2017	236849

Source: Swedish administrative register data for the years 1994-2017.
Note: The table shows the total number of couple-years in the data. The year of dissolution is entered as a dummy variable equaling 1 for all years following a separation, 0 otherwise. The couple-years for year of dissolution therefore represent all couple-years following a dissolution for those couples for which the dissolution is observed.

Table A2. Appendix for Table 3: Coefficients and standard errors of calendar year covariates.

	Model 1	Model 2
Calendar year (ref: 1994)		
1995	0.06	0.20 **
	(0.08)	(0.08)
1996	-0.83 ***	-0.21 *
	(0.09)	(0.09)
1997	-0.25 **	0.32 ***
	(0.10)	(0.09)
1998	1.25 ***	1.41 ***
	(0.10)	(0.09)
1999	2.20 ***	2.25 ***
	(0.10)	(0.09)
2000	2.48 ***	2.37 ***
	(0.10)	(0.10)
2001	3.36 ***	3.17 ***
	(0.10)	(0.10)
2002	3.65 ***	3.25 ***
	(0.10)	(0.10)
2003	3.84 ***	3.31 ***
	(0.11)	(0.10)
2004	3.38 ***	2.81 ***
	(0.11)	(0.10)
2005	3.78 ***	3.61 ***
	(0.12)	(0.11)
2006	3.14 ***	2.75 ***
	(0.11)	(0.10)
2007	2.20 ***	2.13 ***
	(0.11)	(0.10)
2008	1.84 ***	2.04 ***
	(0.10)	(0.10)
2009	1.26 ***	1.52 ***
	(0.10)	(0.10)
2010	1.03 ***	1.08 ***
	(0.10)	(0.09)
2011	0.87 ***	0.96 ***
	(0.10)	(0.09)
2012	0.67 ***	0.72 ***
	(0.09)	(0.09)
2013	1.14 ***	0.90 ***
	(0.09)	(0.08)
2014	-0.96 ***	-1.04 ***
	(0.08)	(0.08)
2015	0.77 ***	0.48 ***
	(0.08)	(0.07)
2016	0.62 ***	0.53 ***
	(0.07)	(0.07)

Source: Swedish administrative register data for the years 1994-2017.
Note: The table shows the full set of calendar year controls estimated in the models represented in Table 3.

Table A3. Additional models for robustness checks.

	No leave either parent set at 50%		Without +/- 2 years restriction		Outcome: Days of fathers		Outcome: Days of mothers		Both parents secondary education		Both parents tertiary education	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept	41.02 ***	35.14 ***	39.74 ***	32.22 ***	4.75 ***	4.45 ***	7.39 ***	8.97 ***	38.19 ***	31.13 ***	41.36 ***	33.61 ***
	(0.05)	(0.06)	(0.06)	(0.07)	(0.01)	(0.01)	(0.01)	(0.02)	(0.09)	(0.32)	(0.10)	(0.39)
Diss eff. 1996/1997 (ref: U intact)	-2.65 ***	-2.60 ***	-1.39 ***	-2.31 ***	-0.22 ***	-0.22 ***	0.50 ***	0.50 ***	-3.00 ***	-2.66 ***	-1.09	-2.08 *
	(0.30)	(0.28)	(0.35)	(0.32)	(0.06)	(0.06)	(0.09)	(0.08)	(0.44)	(0.41)	(0.97)	(0.90)
Diss eff. 1998/1999 (ref: U intact)	-1.72 ***	-1.61 ***	-1.02 ***	-1.01 ***	0.05	0.04	0.36 ***	0.37 ***	-2.24 ***	-1.90 ***	0.59	0.46
	(0.30)	(0.28)	(0.33)	(0.30)	(0.06)	(0.06)	(0.08)	(0.08)	(0.45)	(0.42)	(0.90)	(0.85)
Diss eff. 2000/2001 (ref: U intact)	-1.23 ***	-1.24 ***	-0.45	-0.11	0.18 **	0.18 **	0.22 **	0.25 ***	-1.73 ***	-1.33 ***	1.48	0.88
	(0.30)	(0.28)	(0.33)	(0.30)	(0.06)	(0.06)	(0.08)	(0.08)	(0.47)	(0.44)	(0.86)	(0.81)
Diss eff. 2002/2003 (ref: U intact)	-0.04	-0.11	0.40	0.64 *	0.21 **	0.19 **	-0.05	0.01	0.04	0.41	3.42 ***	2.92 ***
	(0.32)	(0.30)	(0.35)	(0.32)	(0.06)	(0.06)	(0.08)	(0.08)	(0.52)	(0.48)	(0.87)	(0.82)
Diss eff. 2004/2005 (ref: U intact)	0.07	0.02	1.63 ***	1.58 ***	0.38 ***	0.34 ***	-0.00	0.07	1.49 **	1.46 **	0.17	0.07
	(0.33)	(0.31)	(0.38)	(0.34)	(0.07)	(0.07)	(0.09)	(0.08)	(0.55)	(0.51)	(0.92)	(0.87)
Diss eff. 2006/2007 (ref: U intact)	0.06	0.28	1.15 **	1.25 ***	0.30 ***	0.25 ***	-0.18 *	-0.24 **	0.76	1.22 *	2.50 **	2.18 **
	(0.34)	(0.33)	(0.38)	(0.35)	(0.07)	(0.07)	(0.09)	(0.08)	(0.60)	(0.56)	(0.90)	(0.84)
Diss eff. 2008/2009 (ref: U intact)	-0.08	0.05	0.59	0.69 *	0.13	0.09	-0.15	-0.18 *	0.51	1.05 *	1.01	1.04
	(0.31)	(0.30)	(0.35)	(0.33)	(0.07)	(0.07)	(0.09)	(0.08)	(0.56)	(0.52)	(0.75)	(0.71)
Diss eff. 2010/2011 (ref: U intact)	0.39	0.52	1.61 ***	1.68 ***	0.21 ***	0.17 **	0.03	0.03	1.19 *	1.66 **	0.78	0.46
	(0.30)	(0.29)	(0.34)	(0.32)	(0.06)	(0.06)	(0.08)	(0.08)	(0.58)	(0.54)	(0.71)	(0.67)
Diss eff. 2012/2013 (ref: U intact)	1.73 ***	1.82 ***	2.22 ***	2.27 ***	0.69 ***	0.64 ***	0.12	0.16 *	2.71 ***	3.02 ***	3.77 ***	3.27 ***
	(0.29)	(0.28)	(0.32)	(0.30)	(0.06)	(0.06)	(0.08)	(0.08)	(0.57)	(0.53)	(0.62)	(0.59)
Diss eff. 2014/2015 (ref: U intact)	1.58 ***	1.40 ***	1.32 ***	1.84 ***	0.83 ***	0.78 ***	0.17 *	0.28 ***	2.64 ***	2.74 ***	3.70 ***	2.38 ***
	(0.28)	(0.26)	(0.31)	(0.29)	(0.06)	(0.06)	(0.08)	(0.08)	(0.53)	(0.50)	(0.58)	(0.56)
Age of child (years)	-2.90 ***	-0.95 ***	-3.75 ***	-1.28 ***	-0.79 ***	-0.74 ***	-0.10 ***	-0.74 ***	-3.64 ***	-1.20 ***	-4.27 ***	-1.49 ***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)	(0.02)
Number of children	17.68 ***	8.50 ***	21.54 ***	10.42 ***	4.50 ***	4.24 ***	-0.16 ***	2.90 ***	22.63 ***	10.46 ***	22.09 ***	10.59 ***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.01)	(0.01)	(0.01)	(0.01)	(0.09)	(0.09)	(0.09)	(0.10)
Mother's education (years)		0.28 ***		0.50 ***		0.19 ***		0.05 ***		0.17		-1.46 ***
		(0.03)		(0.04)		(0.01)		(0.01)		(0.12)		(0.10)
Father's education (years)		0.43 ***		0.48 ***		0.06 ***		0.06 ***		0.23		1.54 ***
		(0.04)		(0.05)		(0.01)		(0.01)		(0.16)		(0.09)
Mother's sector of work (ref: Priv.)												
Public		-2.68 ***		-2.99 ***		0.06 ***		-0.18 ***		-1.51 ***		-3.59 ***
		(0.06)		(0.07)		(0.01)		(0.02)		(0.12)		(0.14)
Self-employed		-0.14		-1.95 ***		-0.14 ***		0.18 ***		0.92 *		-3.94 ***
		(0.15)		(0.22)		(0.04)		(0.03)		(0.37)		(0.39)
Father's sector of work (ref: Priv.)												
Public		1.89 ***		2.38 ***		0.22 ***		0.52 ***		0.66 **		3.80 ***
		(0.09)		(0.11)		(0.02)		(0.02)		(0.21)		(0.18)
Self-employed		-1.05 ***		-1.49 ***		-0.12 ***		0.85 ***		-3.00 ***		0.69 **
		(0.09)		(0.11)		(0.02)		(0.05)		(0.19)		(0.23)
Mother's income (ln SEK)		-7.62 ***		-11.04 ***		-0.56 ***		0.05 ***		-10.48 ***		-10.69 ***
		(0.02)		(0.03)		(0.01)		(0.01)		(0.04)		(0.06)
Father's income (ln SEK)		2.78 ***		4.07 ***		0.35 ***		1.53 ***		4.11 ***		3.06 ***
		(0.03)		(0.04)		(0.01)		(0.01)		(0.06)		(0.08)
Mother's parental leave (days)		-0.02 ***		-0.01 ***		-0.02 ***		-0.02 ***		0.00 **		-0.03 ***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Father's parental leave (days)		-0.02 ***		-0.01 ***		-0.02 ***		-0.02 ***		0.00 **		-0.03 ***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
R2	0.06	0.15	0.08	0.20	0.11	0.13	0.01	0.11	0.07	0.19	0.10	0.21
Number of couple-years	6431788	6431788	5564413	5564413	5178062	5178062	5178062	5178062	2112396	2112396	1548457	1548457
Number of couples	1019013	1019013	938632	938632	922931	922931	922931	922931	406746	406746	276854	276854

Source: Swedish administrative register data for the years 1994-2017.
Note: The table mirrors Table 3. The models have the same specification as the models underlying Table 3 with the difference that 1) couple-years in which neither parent claimed any leave is set at 50 percent instead of missing, 2) couple-years more than two years before or after the dissolution are not excluded, 3) sick-child leave days of the father is used as the outcome instead of father's percentage, 4) sick-child leave days of mother is used as the outcome instead of father's percentage, 5) only couples in which both parents hold secondary education are included, and 6) only couples in which both parents hold tertiary education are included.

Stockholm
University
Demography Unit