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Shared parenting and parents' income evolution after separation: New explorative insights from Germany

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Shared Parenting and Parents' Income Evolution after Separation – New Explorative Insights from Germany

Christina Boll and Simone Schüller

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Shared Parenting and Parents' Income Evolution after Separation – New Explorative Insights from Germany

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Abstract. Based on panel data from 1997 to 2018, we investigate the socioeconomic preconditions and economic consequences of ‘shared parenting (SP)’ forms in Germany. Referring to the post-separation year, we build SP groups from information on child residence and fathers’ childcare hours during a regular weekday. We explore the short-term gender and SP group associations with economic well-being as well as, for mothers only, its medium-term associations in the five years after separation. Our findings indicate that around separation, intense SP is a superior strategy in terms of equalized household income. This also holds true for mothers in the medium-term, but their earnings barely improve during that time. Mothers stay highly involved in childcare even in shared parenting settings and/or fail to redirect released childcare time to the labor market. Our data support the notion that even high resources do not shield mothers against remaining trapped in economic dependence post-separation.

JEL: J12; J13; J22

Keywords: union dissolution; shared parenting; childcare; child residence; household income; earnings; household composition; SOEP

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1 Introduction

A rich body of literature addresses the question how separation affects parents' well-being, differentiating between the domains of family well-being (Leopold and Kalmijn, 2016), psychological well-being (Shapiro, 1996; Mastekaasa, 1994), and economic well-being (Smock, 1994; Bianchi et al., 1999). For the latter, different measures have been employed, for example individual and family income (Poortman, 2000), housing costs (Bröckel and Andreß, 2015), and wealth (Boertien and Lersch, 2021; Kapelle and Baxter, 2021). Regarding social inequality of economic well-being after separation, a variety of studies point to the relevance of socio-demographics, such as couple and child characteristics before and after separation, and the parent's gender (Hao, 1996; Smock, 1993; Ross, 1995; Poortman 2000). Post-separation parental behavior, particularly with respect to 'Shared Parenting' (henceforth referred to as **SP**), has attracted less attention when it comes to studying post-separation income evolution. As time spent with children cannot be spent on the job, parental employment opportunities and earnings post-separation notably hinge on the ex-partner's SP involvement. This is particularly true for mothers. The interplay of labor market dynamics and family demographics produces parenthood wage gaps (van Winkle and Fasang, 2020), that can be more detrimental for women in case of 'absent fathers' after separation.

Germany is a promising case in this context. Shared parenting is still less prevalent in Germany compared to other countries (Walper et al., 2016). According to Köppen et al. (2018, p. 8), nine out of ten separated fathers have a first child who mainly lives with the biological mother, and only a very small portion of the fathers practice SP with the child's mother. An investigation based on wave 2014/15 of the German Family Panel¹ for children up to age 15 shows that only 4% of separated parents practice a symmetrical SP model (*Wechselmodell*) with a proportion of children's overnight stays up to 60% with one parent. A further 5% of parents practice an asymmetrical SP model (*erweiterter Umgang*) with a 70/30 proportion, but 23% of children have no contact at all to their nonresident father (Walper, 2018). Thus, against the political will and despite many efforts to promote gender equality via a range of policies since the turn of the millennium, responsibility for children in terms of time investments is still heavily gendered, both before and after separation.

This article aims to investigate the economic repercussions of different forms of post-separation 'SP' in Germany and the associated socioeconomic preconditions. Based on German panel data for parents and referring to parental SP-arrangements in the post-separation year, this study explores the short-term gender and group associations with economic well-being as well as, for mothers only, its medium-term group associations in the five years after separation. Our findings indicate that around separation, intense SP is a superior strategy both from a gender equality perspective and concerning parental poverty risks. The latter also applies to mothers in the 5-years-interval after separation. However, from the standpoint of women's economic independence, the picture is much less positive. Even though mothers benefit from public and private transfers to a varying degree, and equalized household income develops most favorably for women practicing intense SP, economic independence barely improves during that time. Household income satisfaction closely accords with actual income.

The **outline of the study** is as follows: Section 2 portrays the dynamics of the legal system in Germany, qualifying Germany as an interesting case for the research question of this study. Section 3 discusses theories and prior empirical work. Section 4 explains the data, Section 5 the methodology and Section 6 the results. Section 7 summarizes and concludes.

¹ Panel Analysis of Intimate Relationships and Family Dynamics, pairfam.

2 The German Case

Germany has often been classified as a country that favors a modernized male breadwinner model, which is characterised by men as main economic providers and women as part-time workers and mothers (e.g. Köppen et al., 2018, p. 1165). However, in the first decade after the turn of the millennium, major family policy reforms have been implemented to enhance parents' and particularly mothers' possibilities to reconcile work and family duties, stimulate gender equality in the division of paid and unpaid work and foster a stronger child involvement of fathers (Adler, Lenz, and Stöbel-Richter, 2016; Adler and Lenz, 2016).

In the same vein, the legal custody reform (*Kindschaftsrechtsreformgesetz*) enacted in 1998 has strengthened the rights of separated formerly unmarried fathers towards their children (Dethloff, 2015). Joint legal custody implies that major decisions concerning a child's life such as education, care, health, and property must be made jointly by the parents and those responsibilities continue after separation (Köppen et al., 2018).² Before 1998, the rights of unmarried fathers to remain involved in the lives of their children were very limited (Peschel-Gutzeit, 2009). The 1998 reform granted those fathers the right to apply for joint legal custody during pregnancy or later, and for divorced parents, joint legal custody has become the norm (Köppen et al., 2018). At the same time, the authors find that fathers without joint legal custody were more likely to lose contact with their children than fathers with joint legal custody. To date, joint legal custody of formerly unmarried parents requires them to make a joint custody declaration. A planned amendment of the legal custody reform, currently passing through interministerial coordination, plans to replace this declaration by a mother's agreement to the father's acknowledgement of paternity (Scholz and Wilke, 2020). This would remove the current two-step procedure, easing joint legal custody of unmarried parents. A broader post-separation child involvement would match articulated parental preferences (IfD Allensbach, 2017).

Child support regulations, at the national level, assume that children will mainly reside with one parent after separation (Dethloff, 2015). A resident mother can file for advance payments from the local authorities (*Unterhaltsvorschuss*), if a nonresident father does not meet his maintenance obligation towards a child. Until the end of 2007, caregiver alimony was paid after a divorce to the parent who cared for the common child until the child's eighth birthday. For formerly unmarried parents, it was usually only paid until the third birthday. With the maintenance law reform (*Unterhaltsrechtsänderungsgesetz*) introduced in 2008, the threshold for divorced parents was adapted to the one applying to formerly cohabiting parents (Deutscher Bundestag, 2007). Since then, irrespective of marital status before separation, parents are expected to work from their child's third birthday on. While before the reform the claims of children and ex-spouses were given equal priority in case that the nonresidential ex-spouse's income did not suffice to cover the demands of all alimony claimants, the reform ranked ex-spouses second, after the couple's common minor children and adult children below age 21 in education or training who reside with one of the parents (Braun, 2020). Beyond strengthening the rights of formerly unmarried parents, the reform aims at increasing separated parents' responsibility to earn their own living and at improving children's rights as alimony claimants.³

² In German family law, visitation rights exist irrespective of who actually holds legal custody (Dethloff, 2015).

³ To complete political reforms in the first decade after the millennium turn, it has to be noted that a parental leave reform came into effect in 2007, which has effectively strengthened the role of paternal involvement in nuclear families (Tamm, 2019). The 2007 reform was succeeded by another reform established in 2015, which extended parental possibilities to be gainfully employed while being on parental leave. Further, the 2015 reform introduced a financial gratification for parents' simultaneous uptake of part-time work and leave (*Partnerschaftsbonus*), in order to foster a more equal gender divide of paid and unpaid work. How these reforms will pay off in terms of post-separation paternal engagement in SP remains an open empirical question.

Summing up, while Germany can still be characterized as a country with rather unequally distributed paid and unpaid work between genders both in intact and separated couples, the legal reforms that have been undertaken in recent years are intended to stimulate a more intense engagement of fathers with their children and of mothers in the labor market. Germany therefore seems to be an interesting case for the question of this study.

3 Literature Review

Social scientists have employed a variety of theories to explain how union dissolution affects adults and children (cf. Amato, 2000; 2010). From the economic standpoint conveyed in the resource model (Soons et al., 2009, Johnson and Wu, 2002; McLanahan and Sandefur, 1994), separation is related to economic costs such as lost economies of scale in the household and foregone earnings due to increased childcare obligations. Depending on their individual endowments with human capital, social networks and physical attractiveness, parents are differently protected against these risks. Individual resources act as moderators, determining the speed with which parents manage to adjust (Amato, 2000).⁴ The chronic strain model (Amato, 2000) postulates that parents with poor resources may suffer from separation for a long time after separation. Parents (mostly mothers) who have been specializing in unpaid work during marriage suffer from decreased employment and earnings capacities since their human capital depreciated during that time (Sørensen, 1994; Duncan and Hoffman, 1985). This decline in individual resources is partly compensated by public and private transfer receipts, which rely on social policies and spousal alimony obligations, respectively. However, alimony payments often do not suffice to fully cover child maintenance, inducing a further decline in resources (Leopold and Kalmijn, 2016). By contrast, the crisis model (Amato, 1993; 2000; Johnson and Wu, 2002; McLanahan and Sandefur, 1994) frames divorce as a process in which unhappiness and psychological distress begin to rise a few years prior to marital separation, peak around the divorce and rapidly decline in the years thereafter as soon as parents have adapted to the new situation. Further, repartnering proves to be an effective strategy combatting material hardship after separation, especially for women (Duncan and Hoffman, 1985).

Studies based on German data come to different conclusions on the permanence of income losses after separation, depending on the data and sample. Radenacker (2020), who focuses on the process of divorce spanning from two years before to two years after divorce, finds that employment and earnings of West German mothers who divorced between 2008 and 2015 increased considerably during that time. However, her study reveals considerable cross-cohort differences in this respect. Moreover, she states that the average earnings of divorced West German mothers are far below the levels necessary for financial independence, both around the time of divorce and thereafter. Brüggmann (2020) explores the employment and income effects of divorce for West German women between 2000 and 2005 and finds that marginal employment is reduced and regular employment is increased after divorce, but there is no impact on daily earnings. Leopold and Kalmijn (2016) focus on a period spanning one year before separation to five years thereafter and find that the decline in well-being was sharper in the presence of children, especially when they are younger, and that mothers sustained deeper declines in economic well-being than did fathers. However, according to their findings, most of declines were only temporary, with divorced parents approaching childless divorcees over time. Bröckel and Andreß (2015) refer to a

⁴ Resources are also a relevant predictor of separation. As Hogendoorn et al. (2020) find out for Dutch mothers, divorce increased poverty risks particularly for the lower educated, due to both higher risk of divorce and greater vulnerability to divorce, whereas among fathers, divorce was unrelated to poverty. Further, in the context of social norms, earnings-relevant resources are heavily gendered, and resulting sex differences in primary incomes are differently buffered by social policies (DiPrete and McManus, 2000). Thus, sex differences in secondary incomes are more pronounced in countries with a rather low income redistribution such as the US (Smock, 1993; Duncan and Hoffman, 1985) compared to countries with higher redistributive effects such as the Netherlands (Poortman, 2000).

time span that covers the year before divorce up to two years thereafter. They find that economic consequences of divorce in terms of equalized disposable income were still more negative for women than for men after the turn of the millennium, although female labor participation has increased and the public childcare system has been expanded.

The role of SP arrangements for parental economic well-being after separation is not straightforward. According to a study based on Dutch data, pre-separation resources dominate post-separation family obligations (Poortman, 2000). Indeed, women who are sufficiently attached to the labor market and anticipating union dissolution may increase their labor market integration several years before the event takes place to protect themselves against material hardship (Johnson and Skinner, 1986; Poortman, 2005; Van Damme and Kalmijn, 2014).⁵ However, human capital pays off in terms of earnings only in case of a sufficient time budget for gainful employment. For the resident parent, which is mostly the mother, the engagement of the non-resident father is crucial in this context.⁶ Own analyses based on the German Family Panel (pairfam) and the German Time Use Survey 2012/13 (**Appendix 1**) support the well-known gender gap in childcare time, irrespective of with whom the child resides. They further suggest a higher residence-gradient in childcare time for fathers than for mothers although residence matters for both (Koster et al., 2021 come to similar conclusions).⁷

This study

In contrast to previous studies, which have mostly focused on mothers and/or single aspects of parenting, this study presents a more comprehensive and economically integrated approach. With respect to the change in economic well-being over time, we explore (1) the *short-term* group and gender differentials for the time around separation and (2), for mothers only, the *medium-term* group differentials. Using long-term German panel data for parents, we focus on parental economic well-being, which we measure by equalized net household income (ENHI). This allows us to infer parents' monetary poverty risks around separation, which cannot be learnt from subjective indicators such as satisfaction with household income (which we examine as well). Further, ENHI allows us to monitor underlying mechanisms such as changes in household composition, earnings, and public and private transfers. We extend the study of Bröckel and Andreß (2015) by using a more recent panel, by extending the focus to include also non-married separated couples, and by exploring the medium-term dynamics post-separation in addition to the short-term.

Second, we take a closer look at *real (ex-)couples'* economic well-being around separation, linking post-separation economic outcomes to post-separation decisions on 'SP' and to pre-separation conditions. Comparing *(ex-) partners of real couples instead of unrelated mothers and fathers* allows us to establish a common point of reference, i.e. the joint household of the couple before separation. That is, gender gaps in economic outcomes after separation are more 'pure' in our analysis since cross-couple heterogeneity in within-couple gender differences is filtered out. Different from Bianchi et al. (1999), who also investigate real (ex-)couples, we additionally consider non-married separated couples and exploit variance in child residence after separation.

⁵ Such strategic behavior might lead to an overstatement of the effect of women's employment on separation risk (Vignoli et al., 2018).

⁶ The literature points to several relevant predictors of father-child-contact after separation, such as spatial distance (Stephen et al., 1994; Hubert and Schier 2018), time since separation (Stephens, 1996; Köppen et al., 2018), child custody (Smock, 1994; Köppen et al., 2018), the children's age (Leopold and Kalmijn, 2016), the family's and particularly fathers' socioeconomic status (Kalmijn, 2015; Köppen et al., 2018, p. 5; Hubert and Schier, 2018), paternal childcare involvement pre-separation (Haux et al., 2015), and gender.

⁷ The role of a new partner is less clear-cut. This applies at least to the biological mother (Walper et al., 2016; Pryor, 2008), while there seems to be evidence for the notion that fathers tend to shift their attention to children with whom they live (Fuerstenberg and Cherlin, 1991).

Third, we provide a comprehensive ‘SP’ measure based on parental childcare during a typical weekday and child residence after separation. Alongside the three combinations of these two criteria, we stratify our separation groups. Daily parenting practices should have direct implications for parents’ post-separation employment and partner market opportunities, both shaping parental economic well-being after separation. At the same time, as the literature has shown, parenting decisions after separation are arguably influenced by individual traits and the former couple constellation. Thus, our approach allows us to at least qualitatively assess potential selection into post-separation conditions. For example, different from Köppen et al. (2018) we take fathers’ involvement *before* separation into account when exploring fathers’ time investments into children *after* separation.

Hypotheses

Gendered income gap–H1: Relying on fathers’ stronger labor market attachment, we expect fathers to achieve higher incomes post-separation ($t+1$) in all SP groups compared to their female ex-partners.

SP arrangement and income–H2: Second, across maternal groups, we postulate that mothers with ex-partners who are more intensely involved in SP in the year post-separation should experience a more favorable income evolution, compared to mothers practicing sole maternal residence and care. This should hold one year (H2a) and five years after separation (H2b).

Economic independence–H3: Third, we hypothesize that mothers with ex-partners who are more intensely involved in SP in the year post-separation should experience a stronger increase in paid hours and earnings, compared to mothers practicing sole maternal residence and care. This should hold one year (H3a) and five years after separation (H3b).

4 Data

We use the unique survey data from the German Socio-Economic Panel (SOEP), which is a representative longitudinal survey of over 25,000 individuals from about 16,000 households (Goebel et al., 2019; SOEP, 2020).

4.1 Samples

The sample consists of separating couples (1) with children under age 16 and cohabitating in the year preceding the separation, (2) in which mother and father⁸ did not continue cohabitation after separation, and (3) for whom interviews were successfully conducted in the mother’s and father’s households annually from the pre-separation year (t_1) at least up until the calendar year post-separation (t_{+1}). The year of separation (t_0) refers to the information provided by the respondents in the annual survey’s individual questionnaire asking for a change of one’s family situation.⁹ In case of several observed consecutive separations, we refer to the first separation that occurred after the birth of a mother’s firstborn child.

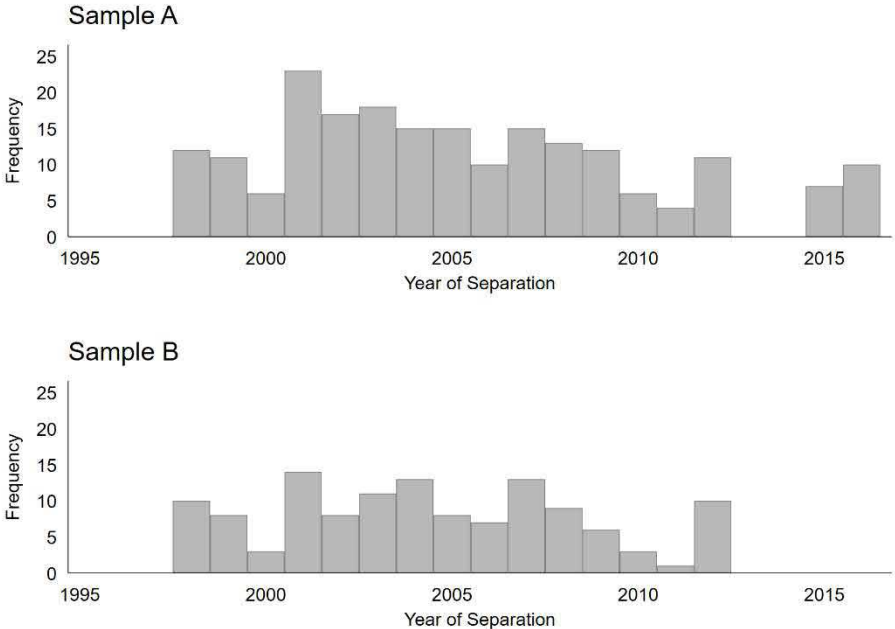
Our final main analysis sample (Sample A) consists of 205 separating couples for which we observe the immediate pre- and post-separation period over the years 1997 to 2018. Additionally, we generate a

⁸ The sample is restricted to mixed-sex couples. We require that the father in the separating couple is the father of at least one biological child of the mother in the separating couple that has been under age 16 and present in the household in the year pre-separation. We either identify fatherhood via the SOEP BIOBIRTH data (82 percent), the KIDLONG data (1 percent) or define the mothers’ partner in the year of a child’s birth as a father (16 percent).

⁹ In more detail, the question reads “*Has your family situation changed since December 31, xxxx? Please indicate if any of the following apply to you and if so, when this change occurred.*” and the following answer has been marked: “*I separated from spouse / partner*”.

subsample (Sample B) comprising 124 mothers, for which we obtain full information annually over an extended period from the pre-separation year (t_{-1}) at least up until five years post-separation (t_{+5}). **Figure 1** displays the distribution of separation years for the separating couples in our main analysis sample (Sample A) as well as its subsample (Sample B).

Figure 1. Sample Distribution of Year of Separation (t_0)



Source: SOEP v.35, own calculations.

4.2 Variables

Dependent variables

Regarding economic outcomes, individual gross annual labor earnings capture regular income from paid work.¹⁰ According to neoclassical models, gross earnings are closely related to market productivity. In economic theories, gross earnings reflect a partner’s market productivity and thus, together with household productivity, her comparative advantage for market work (Becker 1965) and her economic autonomy after union dissolution, impacting bargaining power during marriage (Manser and Brown, 1980, McElroy and Horney 1981). However, individual earnings are not appropriate to measure individual economic well-being. If, as a standard in economic theory, one assumes that economic well-being arises from consumption opportunities and leisure, net income is more adequate than gross income. Further, household size must be taken into account.

We therefore generate *equivalized net household income (ENHI)*, using the weights from the OECD’s modified scale (OECD, 1982). Net household income, from which ENHI is derived, is measured for the previous year and relies on the variable “household post-government income” (i111102) provided by the SOEP team in the \$PEQUIV dataset (Grabka, 2020). We modify the original variable in several

¹⁰ Grabka (2020, p.50): “Labor earnings include wages and salary from all employment including training, primary and secondary jobs, and self-employment, plus income from bonuses, overtime, and profit-sharing. Specifically labor earnings is the sum of income from primary job, secondary job, self-employment, 13th month pay, 14th month pay, Christmas bonus pay, holiday bonus pay, miscellaneous bonus pay, and profit-sharing income.”

ways. First, we recode the variable to represent the net household income of each respective survey year (instead of the calendar year preceding the interview). Second, we aim at measuring household income after exchange of alimony and child maintenance payments among the ex-partners. Hence, received child support and alimony payments reported by the recipient partner are included in the recipients' household income and are subtracted from the ex-partners' household income post-separation.¹¹ Note that it is our unique sample of parental separations for which we observe both ex-partners pre- and post-separation that allows us to subtract monthly spouse and child maintenance payments *received* by one ex-partner from the paying ex-partner's net household income.¹²

We build the ENHI variable for mothers' and fathers' income around separation (from t_{-1} to t_{+1}), and additionally for mothers for the 5-year-period post-separation to trace medium-term effects.

Since mean income changes are likely to mask individual heterogeneity in terms of losses and gains, we finally generate a **binary change score variable**, referring to losses only, for the time around separation. The variable is defined as

$ENHI_LOSS = 1$ if $ENHI_{t+1} < ENHI_{t-1}$, and 0 otherwise.

Core explanatory variables

Concerning parents' time investments into children after separation, which potentially affect parents' economic well-being after separation, we explore the **two dimensions of child residency and childcare time** post-separation.

We focus on **fathers' childcare time**, since in only 11.71% of separations in our sample mothers spend zero hours on childcare in the year after separation. By contrast, this holds true for 67.8% of fathers (see Table A.1 in the Appendix). Childcare time is reported as average hours on a usual weekday, which we employ as an indicator of "zero hours" vs. "more than zero hours" spent on childcare by fathers. We observe this measure in the year before separation and the year after separation. Childcare time during the weekend is not included in this measure since it is not available continuously throughout our observation period.

Separate own investigations based on German survey data (see Annex 1) indicate that childcare time on a typical weekday is positively related to **child residence**. Parents with whom the child lives invest more time into daily childcare than non-resident parents do.¹³ Therefore, it seems plausible that resident parents dedicate more time to other child-related tasks such as child-related housework (cooking children's meals, cleaning up children's rooms, washing children's clothes, running child-related

¹¹ The original variable of net household income provided in the SOEP \$PEQUIV dataset includes received spouse and child maintenance payments, but it does not subtract paid spouse and child maintenance payments. Grabka (2020, p.42). In fact, the amount of maintenance payments to ex-partners and children outside the household is not easily identifiable in the data. The SOEP surveys payments to ex-partners and children outside the own household as annual rather than monthly amounts (while components to household net income are surveyed as monthly amounts and subsequently aggregated to the annual level), which might bias reporting towards one-time payments, gifts and donations rather than regular monthly payments.

¹² Specifically, to compute annual spouse and child maintenance payments, we use the IALIM\$\$-variable from 2001 to 2014. As of 2015, we use the aggregate of ISPOU\$\$ and ICHSU\$\$. There is no respective information available in the raw data before 2001, but fortunately, only a minor part of the separations in our samples allocate to that time (see Figure 1). We refrain from subtracting received advance child payments as reported by the receiving partner from the other partner's income since advance child payments are paid directly by the state and we do not observe in our data whether the state was successful in collecting the debt from the defaulter.

¹³ There is no direct information on child custody available in the data, which is why Bröckel and Andreß (2015) use the existence of minor children in the household post separation as an indicator. For non-custodial fathers, childcare cannot span the same range as for custodial fathers and child residency with a non-custodial father will barely exist. As Köppen et al. (2018, p.15) show, the odds of frequent father contact declined by about 58% if the mother had sole legal custody. For joint custody, the authors found a strong positive association with father-child contact, particularly if the father was either married or not living with the mother of their child at childbirth, thus has to be controlled for.

errands, arranging the child’s social contacts to peers, grandparents, the other parent etc.). This includes the time that is spent on planning and organizing the aforementioned activities, which is referred to as ‘mental labor’ in the literature (Hochschild, 2012). All these tasks are arguably much more time-consuming for the parent with whom the child lives. The two categories referring to child residency are “all minor children reside with mother” and “all or some minor children reside with father” in the year post-separation.¹⁴ In our main sample, all minor children stay with the mother post-separation in 69.08% of separations. Note that, via the channel of household composition, altered child residency arrangements can materialize in equivalized net household income (ENHI) in the year succeeding separation (t_{+1}).

Table A.1 in the Appendix depicts the mean values of our core dependent and explanatory variables for mothers and fathers in our main Sample A and additionally for mothers in Sample B. The gender comparison in Sample A reveals that fathers exhibit higher income levels but a lower ENHI growth rate, compared to mothers. Additionally, fewer fathers suffer an ENHI loss, indicating that fathers’ income dynamics around separation are more stable compared to mothers. Unsurprisingly, fathers are less engaged in both childcare hours and residence. Roughly one third (32.20%) of fathers (and 88.29% of mothers) exhibit non-zero childcare hours on a typical weekday¹⁵ and roughly one in twelve fathers (7.80%) are a resident father for at least some of the minor children in the post-separation year. Further, income-related indicators are very similar for mothers in samples A and B at that point in time, indicating that selection is not a major issue here. Sample-B-mothers (and their ex-partners) are more intensely engaged in childcare, compared to sample A-mothers.

To further explore the interrelations between parental arrangements regarding childcare and child residence and parents’ economic well-being, each of the samples A and B is stratified into three groups alongside the two key explanatory variables post-separation paternal childcare involvement and child residence.

In Sample A (and Sample B, respectively),

- **Group 1** encompasses separations where all children stay with the mother and the father’s childcare time is zero (**137 (78) separations**). This is the group, which most strongly adheres to traditional gender roles, shifting the burden of childcare and other child-related time on the mother.¹⁶
- **Group 2** is defined by separations where all children live with the mother, and where the father spends at least some regular time with them during weekdays (**52 (39) separations**).
- **Group 3** consists of separations where at least some children live with the father (**16 (7) separations**). 88 percent of these fathers report non-zero regular childcare time during weekdays.¹⁷ The zero hours of the remaining 12 percent of fathers might be due to the fact that those fathers live with a new partner who takes on the care responsibility for her (step) children.

¹⁴ A child cannot have two household identifiers in the SOEP data, that is, each child is assigned to one and only one household. We aggregate the categories “all minor children reside with father” and “some minor children reside with father” due to low observation numbers.

¹⁵ The share of fathers with non-zero hours on a weekday is plausible since, as Keil and Langmeyer (2020) review the empirical evidence for Germany, 16-32% of fathers break up contact with their children and 43-70% of those who stay in contact have contact to their children less than once a week.

¹⁶ This situation is often termed Sole Physical Custody (SPC; Steinbach and Augustijn, 2021).

¹⁷ It is the one where joint physical custody (JPC) is most likely, although we are unable to isolate JPC with our data. A parental arrangement is termed Joint Physical Custody (*Wechselmodell*), if the child lives with each parent about equally after separation (Steinbach and Augustijn, 2021). As the authors point out for 463 families practicing Joint Physical Custody in Germany, 44.5% report a symmetric (50/50) and 55.5% an asymmetric care arrangement (up to 30/70). Those practicing symmetric JPC have older children, both parents have higher education, and parents’ relationship quality is higher.

We refer to SP as those situations where either the father’s childcare share during weekdays is above zero or at least some of the children reside with the father.¹⁸ Of the abovenamed three groups, groups 2-3 refer to SP in this sense, where group 3 represents the most intense form. Unfortunately, we cannot identify children with multiple residencies (*Wechselmodell*), since according to the German Framework Registration Act (§12 *Melderechtsrahmengesetz*), each citizen can have only one main domicile and accordingly, the SOEP requires unambiguous assignment of each individual to one (and only one) household. As can be seen from **Table 1**, group 3’s sample share is slightly smaller in sample B, compared to sample A, which explains the higher paternal childcare intensity of sample B-mothers’ ex-partners (see Table A.1 in the Appendix).

Table 1. Three Groups According to Minor Children’s Residence and Paternal Childcare Time in the Post-Separation Year ($t+1$)

	Sample A		Sample B	
	Frequency	Percent	Frequency	Percent
Group 1: All children reside with mother, no paternal childcare on weekdays	137	66.83	78	62.90
Group 2: All children reside with mother, some paternal childcare on weekdays	52	25.37	39	31.45
Group 3: All/some children reside with father	16	7.80	7	5.65
Total	205	100.00	124	100.00

Source: SOEP v.35, own calculations.

Controls

Relying on previous findings, we control for a range of individual socio-demographic characteristics and household context variables pre- and post-separation as potential confounders in our regression-based analyses. Specifically, we take into account whether the couple was married in the year before separation. The age of the youngest child present in the household in the year before separation is measured as a categorical variable with the options 0-1 (reference), 2-4, 5-7, 8-10, and 11-17. Regarding the employment constellation pre-separation, we distinguish between male sole earner-, male main earner-, female main earner households, households where both partners work full-time, where none of the partners works, and households for which one of the residual categories applies (e.g., both work part-time). Further, we control for homeownership and a dummy for residing in an East German federal state. Regarding individual socio-demographic characteristics, we take fathers’ and mothers’ age and age squared, their individual migration background, their health status and their education in years into account (all the above measured the year prior to separation). Further and different from Poortman (2000), we incorporate parents’ full-time and part-time work experience reflecting their job-related human capital, which might shape post-separation employment opportunities. Regarding post-separation characteristics ($t+1$), we control for the year of separation and whether there is a new partner in the household one year post-separation. In the fixed effects models, unobserved individual heterogeneity in time-invariant factors is fully controlled for.

¹⁸ Driven by low observation numbers, we thereby deviate from the common notion for asymmetrical SP (referring to a minimum paternal childcare share of 30%) and set an even lower threshold.

5 Methodology

Group differences in demographic and socio-economic characteristics around separation

We present descriptive statistics for the three subgroups of separations by post-separation child residency and the paternal childcare time described above. We explore the statistical significance of group differences via one-sided t-tests. We compare group differences of each group compared to Group 1 since Group 1 (all minor children reside with mother and zero paternal childcare on weekdays) is the dominant group in our sample (see Table 1).

Predicted group means of parents' economic well-being around separation and related indicators

For the abovenamed three groups of separated couples, we calculate and plot predicted group means of the outcome variables with their 95% confidence intervals for two points in time relative to the year of separation (t) – t_{-1} and t_{+1} . We do the same for a selected number of additional key variables. We adjust for calendar year fixed effects in all analyses. This way, inflation is filtered out, which is necessary to compare monetary terms across time, and any other time-specific effects are filtered out, too. Note that although a differentiation by divorce cohorts would be desirable to trace e.g. policy reforms, this is not possible in our case due to small observation numbers.

Regarding outcome variables and referring to the time around separation, we employ the *adjusted equivalized net household income* (ENHI) to test our hypotheses **H1** and **H2a**. We further use the binary income change score (ENHI_LOSS).

Regarding additional key variables, we calculate and plot their mean predicted values to be able to detect underlying changes in ENHI components. These are mothers' and fathers' gross annual labor earnings, public and private transfers, actual and contractually agreed weekly working hours, and childcare hours. Maternal earnings and paid hours are used to test hypothesis **H2b**.

Predicted group means of mothers' economic well-being in the 5 years succeeding separation and related indicators

For mothers only and still referring to the three groups of separated couples, we calculate and plot predicted group means of the outcome variable ENHI with its 95% confidence intervals for two points in time relative to the year of separation (t) – this time, t_{-1} and t_{+5} . That is, we trace the ENHI variable from the year before separation to the fifth year thereafter to check whether our data supports hypothesis **H3a**.¹⁹ Again, we adjust for calendar year fixed effects. Further, we calculate and plot the predicted values of the abovenamed additional variables. Parts of them are used to test **H3b**. Third, as contextual information for maternal medium-term income evolution, we explore mothers' financial worries, their satisfaction with household income and their overall life satisfaction.

Multivariate analysis

Based on our main Sample A, we run OLS and individual fixed effects models for mothers and fathers and separately for ENHI and NHI. Referring to the pre-separation income level as a reference, we estimate the average income change over time and the group-specific income changes, conditional on a list of controls delineated in Section 5.

¹⁹ In contrast to the analyses for the time around separation (Sample A) where information on alimony and child support paid to the other parent was available from the survey reports of the respective ex-partner that received these payments, this is not the case any more for years 2-5 after separation (Sample B), where we follow only mothers. Thus, we have to rely on the unadjusted ENHI in this respect. Note however that, since mothers are seldom in the payer position, the unadjusted ENHI equals the adjusted one for the majority of mothers.

6 Results

6.1 Parents' Economic Well-being around Separation: Gender and Group Differences

6.1.1 Group Differences in Demographic and Socio-economic Characteristics

In what follows, we report differences between the three separation groups referring to variables regarding children and partnership, parental characteristics and economic well-being (Tables A.2-A.4 in the Appendix). Comparisons refer to group 1-parents. Due to very unequal observation numbers, statistical significance must be interpreted together with effect sizes.

Starting with *children- and partnership-related characteristics* (Table A.2), it turns out that there are no significant group differences before separation regarding marital status and the number of minor children in the household and after separation with respect to the share of repartnered fathers. In contrast, group 3-mothers are significantly more likely to be repartnered at time $t+1$. A speedy divorce within two years after separation is more likely for group-1-separations. Group-3 mothers (fathers) are significantly less (more) likely to reside with children below age 14. This also holds true, though to a smaller extent, for group 2- mothers and fathers. Group 3-fathers, but also group 2-fathers, show significantly more childcare hours in the year after separation compared to group 1-fathers. In the year before separation, group 2-fathers had the highest childcare hours. Among mothers, there were no significant group differences with respect to childcare hours before separation, but group 3-mothers spent roughly half as much time with their children in the year after separation as group 1-mothers (albeit the significance of this group difference is rather weak). Group 2 and group 3-separations occurred somewhat later than group 1-separations.

Turning to *parental characteristics*, Table A.3 shows that the only significant group difference applies to migration background, which is higher among group 3-fathers. Groups do not differ with respect to other socio-demographic characteristics such as age, education, full-time experience, or their pre-separation work constellation.

Concerning *economic well-being*, Table A.4 reveals that group 3-mothers and -fathers exhibit a significantly higher ENHI post separation, and this was also the case for the intact couple in the years before separation. While there are no significant earnings differences among mothers, group 3-fathers stand out with highest earnings at both points in time. Further, group 3-fathers (and to a lesser extent group 2-fathers) report higher public transfers after separation, compared to group 1-fathers, while at the same time, group 2-fathers are the ones who stand out regarding private transfers. Transfer receipt after separation does not feature significant group differences among mothers, and the same holds true for couples' joint transfer receipt before the separation event.

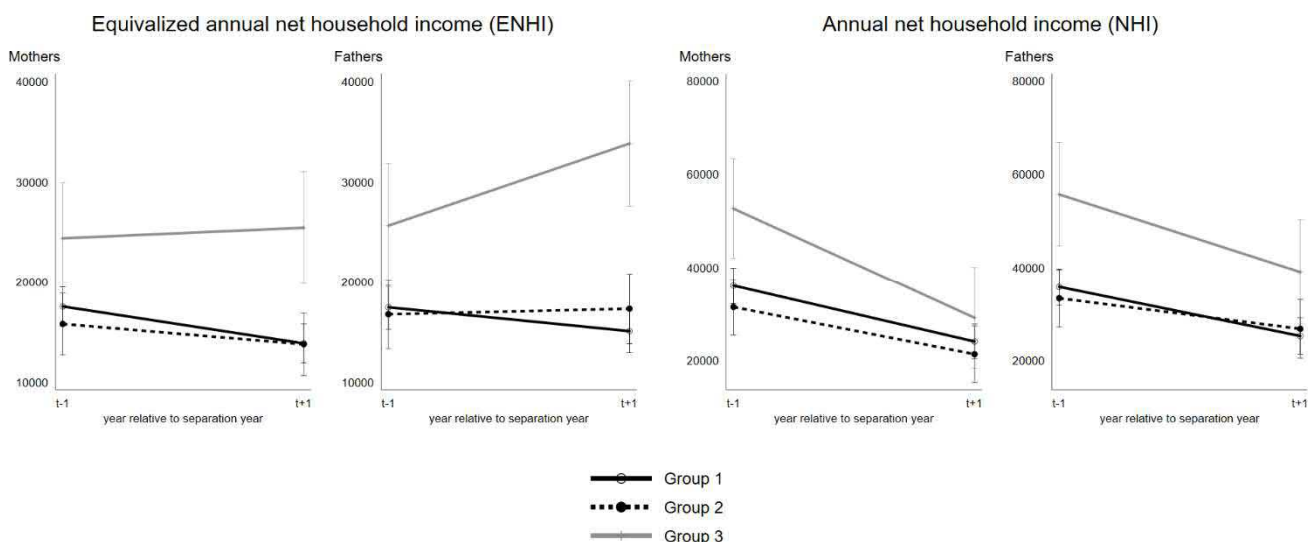
To summarize, compared to group 1, there are no significant group differences in human capital (education, full-time experience, age), neither among mothers nor fathers. This also holds true for earnings among mothers, while group 3-fathers clearly stand out with highest earnings before and after separation. Thus, for mothers, differences in economic well-being cannot be attributed to different labor market resources. Group 3 peaks in terms of ENHI before separation, and this remains the case for group 3-mothers and -fathers post-separation. Group 3-fathers (mothers) are significantly more (less) likely to live with children below age 14 in the household. Although residing with at least some of the children is the requirement for group 3-fathers, it is interesting to see that this apparently applies to rather young children. Consequently, group 3-fathers (mothers) have the highest (lowest) childcare hours after separation. Note however that among fathers, the difference to group 2 is marginal. Apparently, in contrast to our pairfam-based analyses mentioned earlier, residing with the children after separation or not does not matter much among caring fathers (groups 2 and 3), but it does for mothers. Before separation, group 2 stood out with particularly high childcare hours, this applies to fathers and mothers.

In this regard, group 2-mothers remain in the leading position among mothers after separation (but the difference is not significant).

6.1.2 Predicted group means for household income and related indicators

Note that the y-axis intercept denotes pre-separation selection into couple traits.²⁰ Group 1- and group 2-couples exhibit a lower pre-separation ENHI, compared to group 3. From the gender perspective, starting from the same equivalized net household income (ENHI) in the intact couple (t-1), mothers and fathers experience diverging incomes thereafter. Among mothers, ENHI increases for group 3-mothers only, confirming **H2a**. Among fathers, ENHI stagnates for group 2-fathers while it decreases for group 1-fathers. The sole ENHI increase refers to group 3-fathers, which is steeper compared to mothers. In all groups, fathers end up with a higher ENHI in the year post-separation than mothers, supporting **H1**.

Figure 2: Predicted group means of equivalized annual net household income (ENHI) of mothers and fathers (to the left) and of annual net household income (NHI) of mothers and fathers (to the right), both in €.



Source: SOEP v.35; own calculations.

Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

If one looks at net household income, a different picture emerges. As can be seen from **Figure 2**, net household income (NHI) decreases in all groups of mothers and fathers. Obviously, the positive ENHI trend for group 3-parents is exclusively due to changes in household composition.

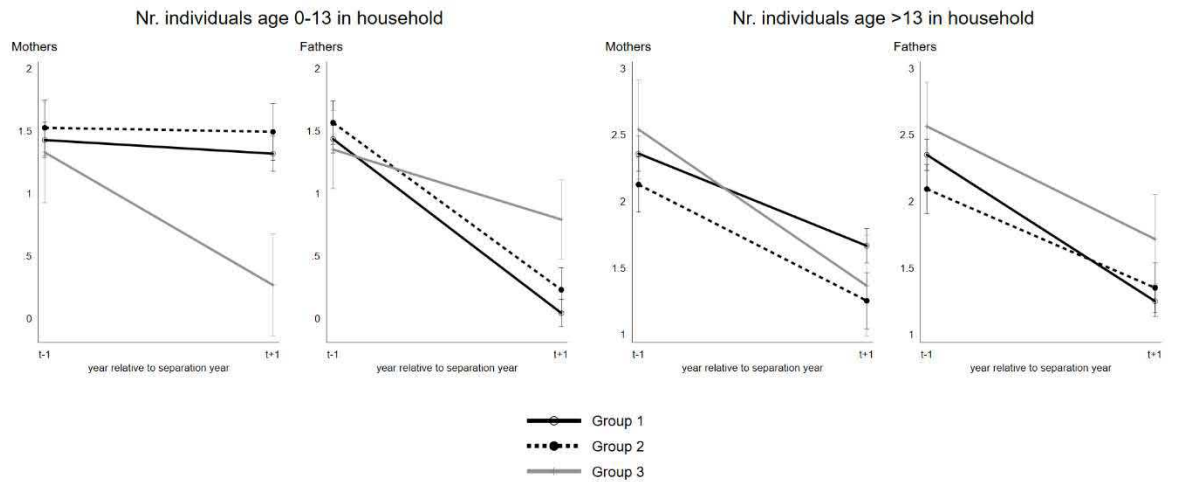
Figure 3 depicts predicted group means of the number of individuals aged below 14 (U14) and of age 14 and older in the household, respectively. We set the age threshold according to the modified OECD equivalence scale (see Section 5). As expected, mothers and fathers of each of the three groups exhibit

²⁰ The group-specific y-axis intercept should be identical between fathers and mothers, since the values in t-1 refer to the pre-separation year in which the parental couples shared a household. The minimal differences in our data stem from cases, for which the exact separation year is unknown; that is, respondents state that they separated from their partner since the last survey interview, but there is missing information on whether the separation happened in the current or the prior calendar year. In these cases, we assume that the separation happened in the current calendar year to avoid that the year we declare t+1 includes months in which the couple still shared a household.

a decline in household size referring to individuals aged 14 and older. Group 3-mothers (fathers) experience the starkest (weakest) decrease in U14-children.

Taking Figures 2 and 3 together, the advantageous ENHI trend of group 3-mothers is exclusively driven by the fact that part of the U14-children lived with their fathers after separation. Note that apart from SP decisions, a household's need-weighted per capita income is affected by parents' repartnering behavior and children's ageing.

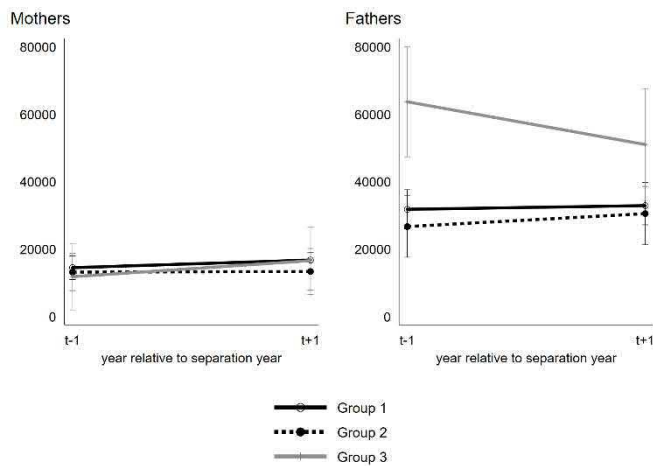
Figure 3: Predicted group means of number of individuals by age group in the household



Source: SOEP v.35; own calculations.

Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

Figure 4: Predicted group means of parents' annual earnings (in €) around separation



Source: SOEP v.35; own calculations.

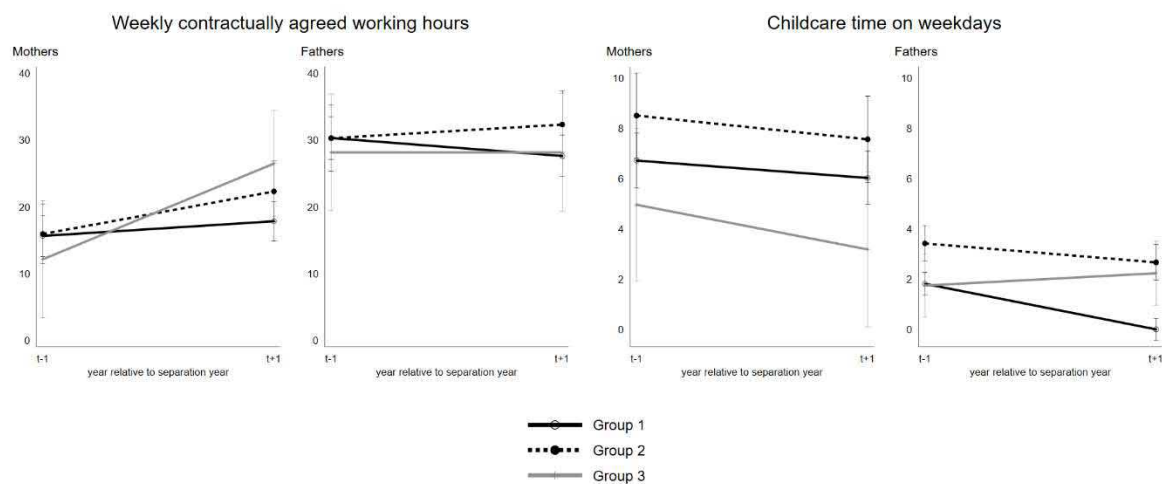
Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

Figure 4 illustrates the evolution of parents' annual earnings around separation. The well-known gender gap in earnings becomes apparent: Paternal earnings lie well above maternal ones, throughout groups and at both points in time, while the gap is highest among group 3-parents. Further, fathers' earnings

are less evenly distributed across separation groups (compared to mothers), with group 3-fathers exhibiting the highest earnings. The latter are also the only ones with a declining trend.

One interpretation would be that group 3-fathers struggle with work-family compatibility. Hence, we explore the evolution of actual and contractually agreed working hours, respectively, for each of the three groups. **Figure 5** plots agreed hours.²¹ It turns out that group 3-fathers' hours stagnate (both actual and agreed), whereas group 2-fathers are the only ones exhibiting an hours increase in both forms. However, reconciliation strategies are manifold: Group 3-fathers might switch to a job with more flexible schedules, holding hours constant but being paid less.

Figure 5: Predicted group means of weekly contractually agreed working hours (on the left) and of parents' childcare time on a typical weekday (in hours, on the right)



Source: SOEP v.35; own calculations.

Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

For group 3-mothers, the modest earnings increase is accompanied by a much stronger increase in hours, with this group ranking first in the intergroup comparison in terms of post-separation contractually agreed hours. Hence, **H3a** gains support for paid hours but not for earnings and thus cannot be fully confirmed. Yet, the time release entailed with SP led to a slight improvement of group 3-mothers' earnings situation in the year after separation. Most importantly, group 3 is the only one where mothers' reach fathers' agreed working hours in the course of separation. Regarding agreed hours, group 1- and group 2-mothers' hours are less dynamic than those of group 3. Presumably, strategic behavior in terms of increased hours of work before separation is partly inhibited here, due to anticipated childcare obligations. Brüggmann (2020) confirms this strategic behavior for German women divorcees. What cannot be examined here is whether mothers trade earnings for higher flexibility (Gangl and Ziefle, 2009).

To compare investments in paid vs. unpaid work, we contrast weekly work hours with parents' childcare time on weekdays. **Figure 5 on the right** reveals a significant gender gap in unpaid work. This well-known phenomenon still holds after separation and irrespective of partners' SP arrangements. Interestingly, gender parity is reached in terms of both paid and unpaid hours after separation in group 3: Mothers caught up to fathers in terms of paid hours, and fathers caught up to mothers in terms of

²¹ Results for actual hours are available upon request.

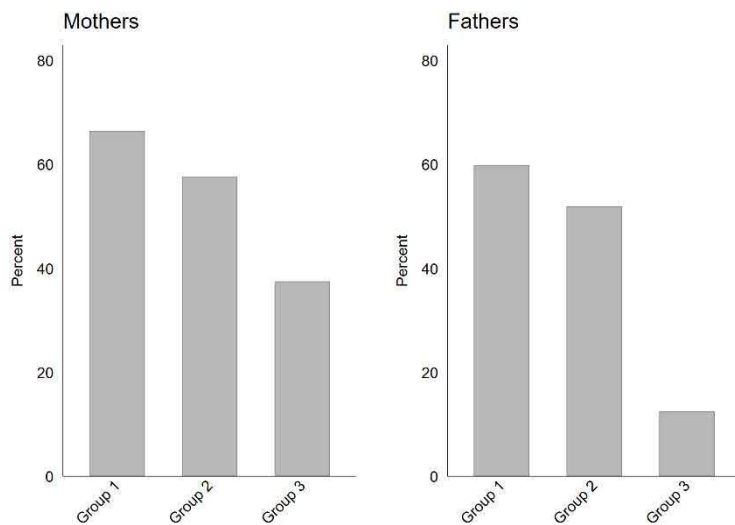
childcare hours. The latter was possible only due to a relatively low level of childcare engagement among these mothers, which further decreased in the course of separation.

Next, we explore the role of public and private transfers for parents' economic well-being after separation. As **Figure A.1 in the Appendix** illustrates, group 1-mothers are the only ones exhibiting an increase in public transfer receipt around separation. **Figure A.2 in the Appendix** depicts the evolution of private transfer receipt. While private transfers are virtually irrelevant to fathers, mothers experience a notable increase, which is starkest for mothers with whom all the children reside (for group 1-mothers in particular). These findings are still valid if one focuses on alimony and child maintenance receipt only, which represent 2 out of 5 components of aggregate private transfers (see **Figure A.3 in the Appendix**).

6.1.3 Predicted income losses by gender and group

As discussed in Section 5, income averages might mask significant heterogeneity. If a few fare very well, this might obscure that many fare worse. Therefore, **Figure 6** depicts the share of mothers and fathers who experience an ENHI loss around separation. For mothers and fathers, the risk of loss continuously decreases with increasing intensity of SP. Maternal income losses seem to be mitigated most effectively by paternal residence. However, mothers are more at risk compared to fathers throughout groups. Fourth, the gender gap in income loss risk is most pronounced for group 3-parents.

Figure 6. Share of individuals with ENHI loss wrt. pre-separation year by group

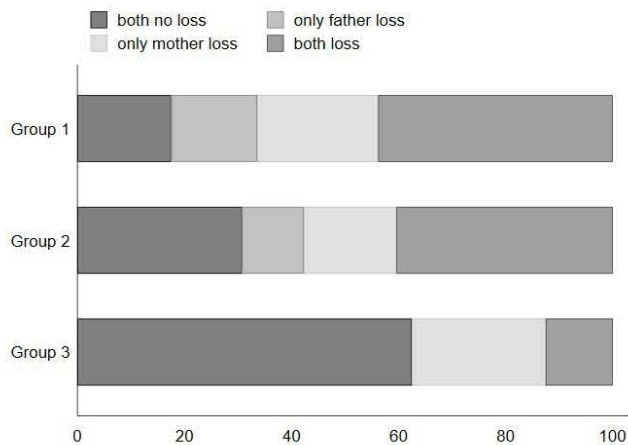


Source: SOEP v.35; own calculations.

Notes: Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

Figure 7 combines mothers' and fathers' ENHI loss risks and shows that the likelihood that neither the father nor the mother suffers a loss is lowest in group 3. In a different perspective, income losses can be sorted by the couple's employment constellation pre-separation. **Figure A.4 in the Appendix** shows that an asymmetric loss of the mother is the less likely the stronger her relative earnings position in the intact couple was, or if both parents were not working that time and thus lack foregone partner earnings in the event of separation. Note that calculations of loss dynamics say nothing about income levels.

Figure 7. Separated couples' ENHI loss combinations (wrt. pre-separation year) by group



Source: SOEP v.35; own calculations.

Notes: Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

6.1.4 Multivariate analysis: Conditional gender and group effects regarding income change around separation

In contrast to Section 6.1.2, where we controlled for calendar year fixed effects only, we now condition our results on an extended list of controls as delineated in Section 4, incorporating variables such as pre-separation household income, individual human capital and the existence of a new partner in the household in t_{+1} . The aim is to isolate the association of parental SP-behavior with economic success post-separation. The coefficients of time-group interactions in the OLS estimations and of the respective basic terms indicate the group differences in household income *change* net of the controlled individual and couple traits (OLS models) and net of any time-invariant individual effects (FE models), respectively.

Starting with ENHI (**Table 2**), the multivariate results based on the OLS and the fixed effects model confirm the predicted values in Figure 2 for both parents. Compared to group 1-mothers (fathers), group 3-mothers' (fathers') ENHI change around separation is the most advantageous, with the group difference being more pronounced for fathers than for mothers. Note that group 3-fathers' ENHI is significantly higher than that of group 1-fathers in the fully controlled OLS model from the outset. This does not apply to group 3-mothers, whose ENHI difference to group 1-mothers seems to be driven by socio-demographic disparities. Regarding NHI (**Table A.5 in the Appendix**), the results for the FE models confirm the findings from Figure 2, stating that NHI decreases for all three groups of fathers and mothers, with group 3-parents ending up with the highest NHI post-separation.

Table 2. Log equivalized annual net household income—ENHI

Dep.var.: ln(ENHI)	Mothers			Fathers		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Group 1 (ref.)</i>						
Group 2	-0.119 (0.101)	-0.132 (0.092)		-0.013 (0.090)	-0.002 (0.074)	
Group 3	0.017 (0.255)	-0.037 (0.219)		0.271 (0.164)	0.281** (0.114)	
t ₊₁	-0.226*** (0.079)	-0.241*** (0.075)	-0.279*** (0.102)	-0.217** (0.088)	-0.297*** (0.075)	-0.101 (0.189)
t ₊₁ × Group 2	0.131 (0.132)	0.144 (0.120)	0.111 (0.106)	0.221 (0.138)	0.272** (0.113)	0.205** (0.082)
t ₊₁ × Group 3	0.478 (0.290)	0.455* (0.235)	0.471** (0.204)	0.572** (0.251)	0.552*** (0.170)	0.530*** (0.127)
Constant	9.622*** (0.059)	8.603*** (0.648)	9.848*** (0.180)	9.615*** (0.056)	8.084*** (0.787)	9.489*** (0.278)
Survey year FE	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>
Individual FE	<i>no</i>	<i>no</i>	<i>yes</i>	<i>no</i>	<i>no</i>	<i>yes</i>
Controls	<i>no</i>	<i>yes</i>	<i>no</i>	<i>no</i>	<i>yes</i>	<i>no</i>
<i>N</i>	410	391	410	410	391	410

Source: SOEP v.35; own calculations.

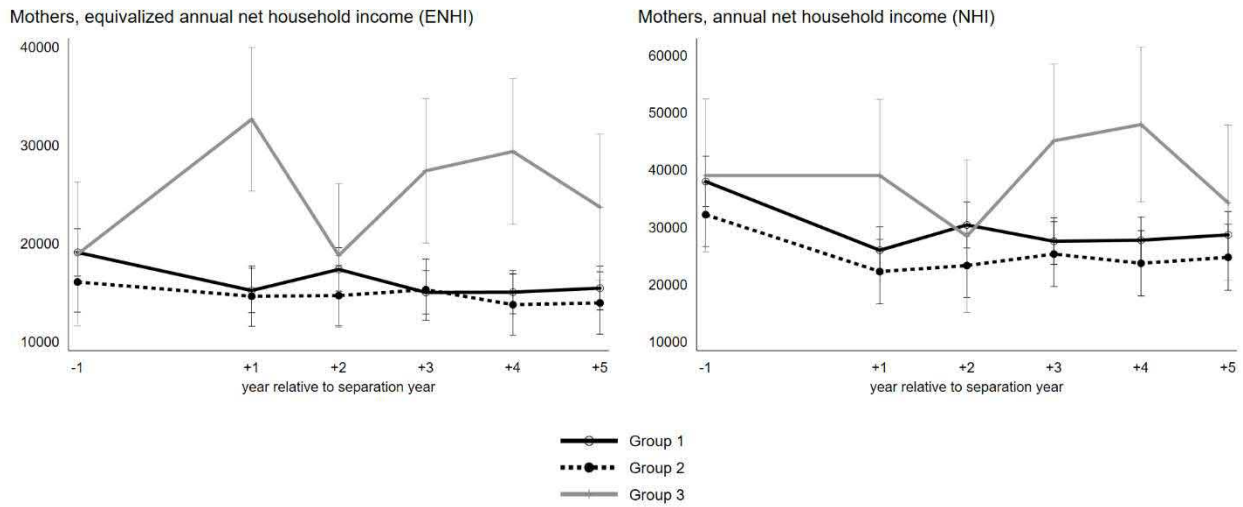
Notes: Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father. Controls include (measured at t-1) age of youngest child, age mother, age mother squared, age father, age father squared, migration background mother, migration background father, fulltime labor market experience mother, fulltime labor market experience father, married, male sole earner, house owner, years of education mother, years of education father, health mother, health father, and (measured at t+1) new partner in household mother, new partner in household father. Robust standard errors in parentheses.

6.2 Mothers' economic well-being in the 5 years succeeding separation: Predicted group means

Next, we widen the time horizon and portray mothers' economic well-being up to five years after separation. As introduced in Section 4, we can do this for mothers only. To this end, we use Sample B.

As **Figure 8** shows, group 3-mothers fare better than group 1- and group 2-mothers also in the five subsequent years after separation, supporting **H2b**. However, while group 3-mothers' ENHI increases during this time, their NHI drops.

Figure 8. Predicted group means of mothers' economic well-being up to five years post-separation in terms of equivalized annual net household income—ENHI (€, to the left), and in terms of annual net household income—NHI (€, to the right)

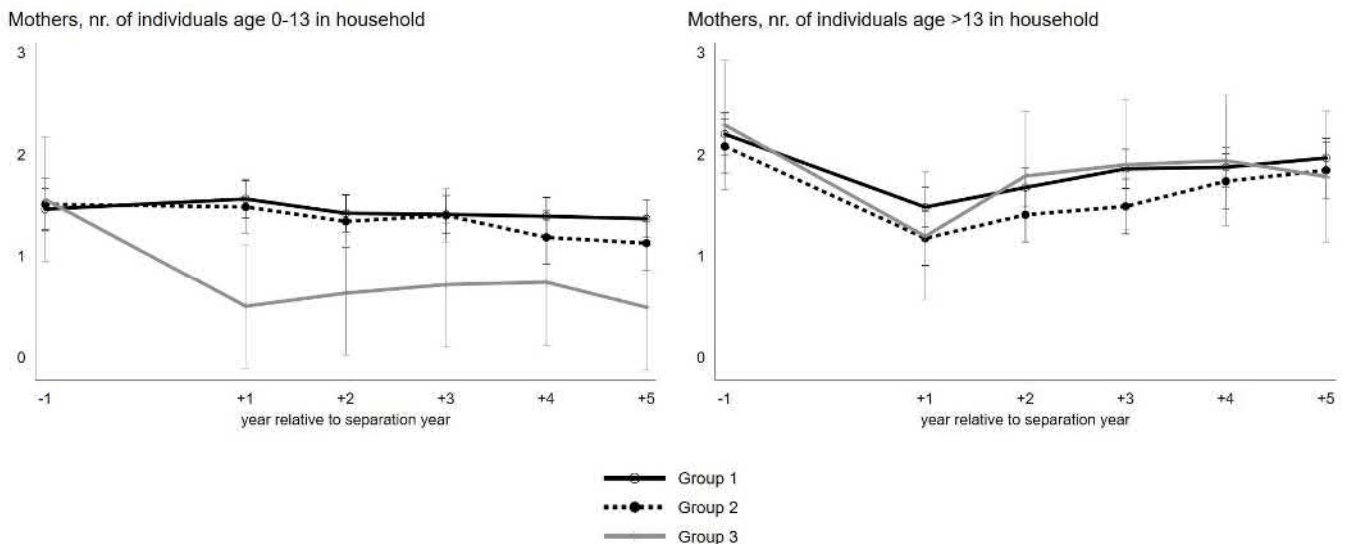


Source: SOEP v.35; own calculations.

Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

Once again, ENHI evolution is shaped by household composition (Figure 9). Due to ageing and repartnering processes as well as parents' SP decisions, the number of U14 children decreases in groups 2 and 3, but much stronger in group 3. Group 3-mothers realize a new increase in household members of both age groups from year 2 onwards, which partly answers for the fluctuation in ENHI during that time. However, their ENHI decline between the fourth and fifth year after separation cannot be attributed to household composition. Instead, this is due to a decrease in earnings (Figure 10).

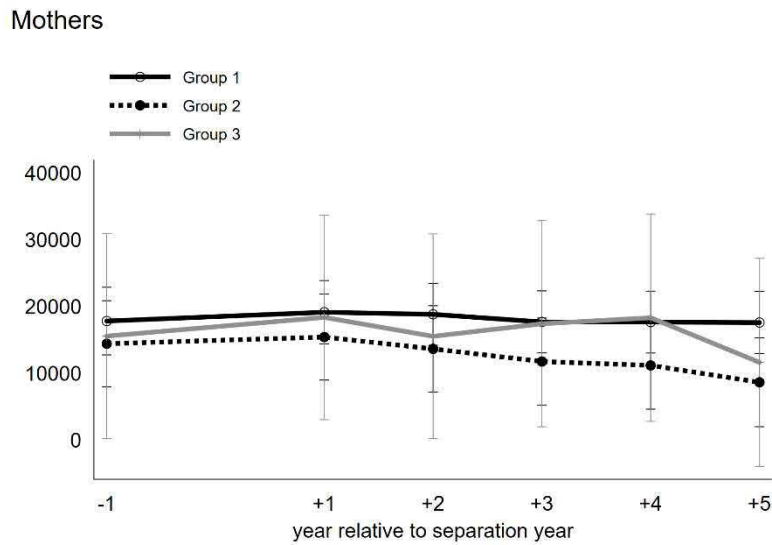
Figure 9: Predicted group means of the number of individuals by age in the household



Source: SOEP v.35; own calculations.

Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

Figure 10: Predicted group means of mothers' economic well-being up to five years post-separation. Annual labor earnings (in €)



Source: SOEP v.35; own calculations.

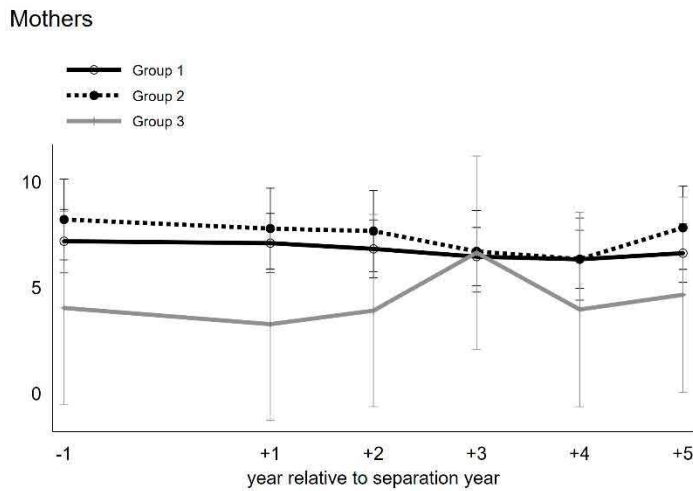
Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

Specifically, mothers whose ex-partners are more intensely involved in shared parenting in the year post-separation (Group 3) do not suffer an earnings disadvantage in t_{+5} , compared to group 1-mothers. Thus, our data does not confirm hypothesis **H3b** with respect to earnings and thereby contradicts the findings of Leopold and Kalmijn (2016). Since women in our sample are very similar regarding human capital endowments pre-separation, our data is unable to review Poortman's finding that maternal pre-separation resources trump maternal post-separation childcare obligations (Poortman, 2000). However, group 3-mothers fare better than group 2-mothers. Group-2 mothers fall behind, possibly due to their high childcare intensity (see below Figure 11).

There is no clear advantage of group 3-mothers in terms of hours either, as **Figure A.5** in the Appendix shows for actual hours²² and **Figure A.6** in the Appendix for agreed hours. Thus, **H3b** is fully rejected by our data. Fluctuating hours may be due to the move-in of U14 (step-) children between year 1 and year 4 after separation (Figure 9). Indeed, the dynamics in childcare hours is more clear-cut (**Figure 11**), pointing to an upward trend post-separation for group 3-mothers. However, the direction of causality between childcare and hours of work remains an open question. In the group comparison however, the *main takeaway* from Figure 11 is that group 3-mothers are less engaged in childcare post-separation than group 1- and group 2-mothers. To the detriment of earnings, they seem unable to devote freed-up time budgets to paid work.

²² Note that as we use annual hours, actual working time is not biased by seasonal effects.

Figure 11: Predicted group means of mothers' childcare hours on weekdays (in hrs) up to five years post-separation.



Source: SOEP v.35; own calculations.

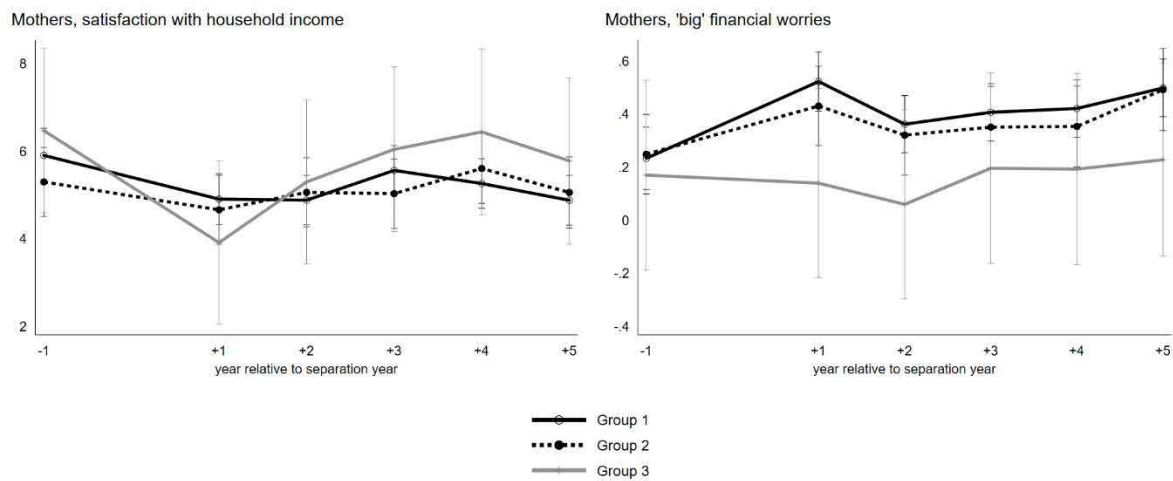
Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

Mothers' medium-term public transfer receipts are quite inconclusive (**Figure A.7** in the Appendix). If anything, they seem quite stable for group 1 and show a downward (upward) trend for group 3 (2). Concerning private transfers (**Figure A.8** in the Appendix), the trend, which had been visible around separation for sample A-mothers continues thereafter for sample B-mothers. Those with whom all children reside and who exclusively care for them (group 1) experience highest private transfers throughout the observation period, although the difference to group 2-mothers decreases over time. Group 3-mothers' private transfers receipt is clearly lowest as of year 3.

Subjective income evaluations

Finally, we explore to what extent mothers' economic well-being is associated with subjective evaluations such as satisfaction and the prevalence of 'big' financial worries. Although, in terms of ENHI, group 3-mothers are better off in year 5 (compared to the situation pre-separation), they end up with a slightly lower satisfaction with household income in year 5 (**Figure 12, to the left**). Note that this result is driven by an only recent decline in the last year, preceded by an upward trend post-separation (after a sharp decline around the event). Group 1- and group 2-mothers' satisfaction hardly changes over time, lagging behind group 3-mothers' satisfaction as of year 2 post-separation. Fitting into this picture, financial worries are highest among group 1- and group 2-mothers and lowest among group 3-mothers throughout the 5-years-time span after separation (**Figure 12, to the right**). Overall, the SP gradients retrieved from subjective income evaluations fit quite well into the picture derived from monetary indicators.

Figure 12: Predicted group means of mothers' satisfaction with household income and 'big' financial worries up to five years post-separation.



Source: SOEP v.35; own calculations.

Notes: Adjusted for survey year fixed effects. Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father.

7 Summary and Conclusion

Analysing panel data from 1997 to 2018 based on a sample of separating couples for which we observe the immediate pre- and post-separation period (Sample A) and on a subsample of mothers, who are observed the five years subsequent to separation (Sample B), we elucidate the economic consequences of shared parenting in the context of parents' individual and couple traits. We build the SP variable from the information on whether fathers invest non-zero childcare hours during a regular weekday and on whether at least some of the children reside with the father after separation.

Around separation, mothers with the most intense SP form (group 3) are the only ones who experience an increase in equivalized net household income. However, this is exclusively due to a change in household composition: These mothers experience a stronger decline in the number of children below age 14 than mothers with less intense SP. In terms of equivalized household income and across separation groups, the risk of income loss decreases with increasing intensity of SP. This holds true for mothers and fathers. Intense SP seems to be a superior strategy not only from a gender equality perspective but also with respect to parental poverty risks post separation. Nonetheless, fathers outearn mothers in terms of both earnings and ENHI, supporting our hypothesis H1 and findings from Bröckel and Andreß (2015).

In the five-years-time horizon and from the standpoint of women's economic independence, the picture is much less positive. Group 3-mothers are the only ones who end up with a higher equivalized household income by the end of year 5. This fully confirms our hypothesis H2. However, all groups fail to significantly improve their earnings and working hours post-separation. Group 3-mothers do not stand out here, which clearly contradicts our hypothesis H3. The gender gap in childcare seems to outlast union dissolution, supporting previous evidence (Walper 2018, Poortman 2000). As labor market resources are quite similar among the mothers in our samples who are of the same age, possessing 6-7 years of full-time employment experience and 12-13 years of schooling, we are unable to review Poortman's (2000) finding that in terms of maternal earnings, high childcare obligations post-separation can be as detrimental as poor pre-separation resources. Rather, we have to reject the crisis model

postulating that high-resources parents rapidly recover from the crisis event. We conclude that at least for mothers, even high resources do not shield against being trapped in economic dependence. In light of the overwhelming majority of mothers who provide sole residency for their children and the fact that roughly one third of fathers spend non-zero hours on childcare during weekdays, feminists' call for a better balance of parental rights and contributions following divorce (Carbone 1994) seems plausible. Finally, we saw that subjective indicators of economic well-being accord the findings based on monetary indicators.

The **limitations** of this study are evident. Driven by low observation numbers, our broad measures of SP mask the true granularity of actually practiced care arrangements between ex-partners. For the same reason, differentiations by cohorts, age groups, or family constellations were not possible. As stated in the beginning, tracking population subgroups over their further life course requires data that combines high observation numbers with rich household context and valid income information. Hopefully, data of this kind will be available in the near future.

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Appendix

The role of a parents' gender and post-separation child residence for parental time investments into children in Germany

It is difficult to evaluate the role of child residence for separated parents' childcare engagement based on German micro data, since available data provide either rich information on the family context or on daily time use, not both. While surveys like the SOEP or the German Family Panel (pairfam) allow for a detailed analysis of life-course events, information on time use is rather broad. However, own analyses based on data from the *German Family Panel (pairfam)* show that for childcare time during a normal weekday's afternoon²³, **child residence plays a significant role for separated mothers' and fathers' childcare involvements, although mothers' involvement is on a higher level.** Specifically, while 52% of separated resident fathers are involved in childcare during that time, this is the case for 6% of non-resident fathers. For mothers, the respective values are 77% and 21%. Note that there is hardly any difference in terms of care involvement between separated resident mothers and mothers in intact families²⁴ (79%), while separated resident fathers are much more engaged than fathers in intact families (38%).

It is not possible to explore the link between separation, child residence and parental time use based on the *German Time Use Study (Zeitverwendungserhebung; German Federal Statistical Office 2015)*, due to lacking information such as family constellation and marital status. However, this data also corroborates the well-known finding of **gender-stereotyped childcare behavior of fathers and mothers, which is even more pronounced in couple households compared to single parent households.** Based on aggregate data from wave 2012/13 and referring to persons with non-zero values, separate analyses show that single fathers spend 1h32min on daily childcare, compared to 1h42min for single mothers. The respective values for men (women) in couples with children are 1h20min (2h02min). That is, while fathers' childcare time is higher in single compared to couple households, the opposite applies to mothers. This finding also holds true if individuals with zero values are included: The respective values for fathers amount to 0h46min (single households) and 0h44min (couple households), compared to 1h09min for mothers in single vs. 1h31min in couple households.

²³ Only normal weeks have been considered, no vacation time.

²⁴ Intact families refer to couples where the partner is still the same as in the previous wave, where the child is the biological child from the current partner of the anchor person who lives with her in the same household, and where the firstborn child was below 18 in the previous wave.

Table A.1. Key Variables Measured in the Post-Separation Year (t_{+1}): Mean Values

	Sample A		Sample B	
	Mean	SD	Mean	SD
Mother: annual net household income—NHI (€)	24,167.15	15681.73	24,002.06	15,829.62
Father: annual net household income—NHI (€)	26,726.18	17540.43	–	–
Mother: equivalized annual net household income—ENHI (€)	15,233.70	10183.91	15,420.94	11,087.61
Father: equivalized annual net household income—ENHI (€)	17,470.48	13386.46	–	–
Mother: ENHI growth rate (%)	18.34	115.87	17.62	117.80
Father: ENHI growth rate (%)	8.39	66.94	–	–
Share of mothers with ENHI loss (%)	61.95	48.67	63.71	0.48
Share of fathers with ENHI loss (%)	54.15	49.95	–	–
<i>Childcare:</i>				
Share of mothers with nonzero childcare time during weekdays (%)	88.29	32.23	94.35	23.17
Share of fathers with nonzero childcare time in during weekdays (%)	32.20	46.84	37.10	48.50
<i>Residence:</i>				
All minor children reside with mother (%)	92.20	26.89	94.35	23.17
All or some minor children reside with father (%)	7.80	26.89	5.65	23.17
<i>N</i>	205		124	

Source: SOEP v.35; own calculations.

Notes: t_{+1} indicates the year after separation.

Table A.2: Separation Groups 1-3. Children and Partnership

	(1) Group 1	(2) Group 2	(3) =(2)-(1)	(4) Group 3	(5) =(4)-(1)
Mother: hrs childcare on weekdays (t_{-1})	6.88 (6.00)	8.27 (7.16)	1.39 (1.03)	5.00 (5.59)	-1.88 (1.58)
Father: hrs childcare on weekdays (t_{-1})	1.77 (2.64)	3.37 (4.15)	1.60*** (0.51)	1.88 (1.75)	0.10 (0.68)
Mother: hrs childcare on weekdays (t_{+1})	6.06 (5.86)	7.27 (6.06)	1.21 (0.96)	3.31 (3.50)	-2.75* (1.50)
Father: hrs childcare on weekdays (t_{+1})	0 (0)	2.65 (3.54)	2.65*** (0.30)	2.69 (1.85)	2.69*** (0.15)
# minor children in hh (t_{-1})	1.71 (0.90)	1.63 (0.74)	-0.07 (0.14)	1.94 (0.77)	0.23 (0.23)
Mother: child below age 14 in hh (t_{+1})	0.83 (0.38)	0.94 (0.24)	0.11** (0.06)	0.25 (0.45)	-0.58*** (0.10)
Father: child below age 14 in hh (t_{+1})	0.03 (0.17)	0.12 (0.32)	0.09** (0.04)	0.75 (0.45)	0.72*** (0.06)
Married (t_{-1})	0.81 (0.39)	0.73 (0.45)	-0.08 (0.07)	0.88 (0.34)	0.06 (0.10)
Divorce within 2 yrs post-separation	0.42 (0.49)	0.25 (0.44)	-0.17** (0.08)	0.38 (0.50)	-0.04 (0.13)
Mother: new partner (t_{+1})	0.05 (0.22)	0.02 (0.14)	-0.03 (0.03)	0.31 (0.48)	0.26*** (0.07)
Father: new partner (t_{+1})	0.12 (0.33)	0.12 (0.32)	-0.01 (0.05)	0.00 (0.00)	-0.12 (0.08)
Year of separation	2004.53 (4.82)	2006.79 (4.33)	2.26*** (0.76)	2007.19 (5.64)	2.65** (1.30)
<i>N</i>	137	52		16	

Source: SOEP v.35; own calculations.

Notes: Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father. t_{-1} and t_{+1} stand for “referring to the year before separation”, “referring to the year after separation”.

Table A.3: Separation Groups 1-3. Parental Characteristics

	(1) Group 1	(2) Group 2	(3) =(2)-(1)	(4) Group 3	(5) =(4)-(1)
East	0.19 (0.39)	0.29 (0.46)	0.10 (0.07)	0.25 (0.45)	0.06 (0.11)
Mother: migration background	0.14 (0.35)	0.19 (0.40)	0.05 (0.06)	0.19 (0.40)	0.05 (0.09)
Father: migration background	0.12 (0.33)	0.12 (0.32)	-0.01 (0.05)	0.38 (0.50)	0.25*** (0.09)
Mother: age (t ₁)	34.77 (7.73)	33.48 (6.93)	-1.29 (1.23)	37.38 (5.69)	2.60 (2.00)
Father: age (t ₁)	37.53 (7.92)	37.21 (7.62)	-0.31 (1.28)	40.81 (5.59)	3.29 (2.04)
Mother: yrs of education (t ₀)	12.04 (2.56)	12.36 (2.38)	0.32 (0.42)	12.28 (2.86)	0.24 (0.68)
Father: yrs of education (t ₀)	12.02 (2.46)	12.45 (2.56)	0.43 (0.41)	12.81 (2.60)	0.79 (0.65)
Mother: yrs fulltime experience (t ₀)	6.29 (5.97)	6.77 (5.28)	0.47 (0.94)	6.63 (4.67)	0.34 (1.55)
Father: yrs fulltime experience (t ₀)	15.28 (8.18)	13.98 (7.92)	-1.29 (1.32)	17.14 (6.15)	1.87 (2.11)
Homeowner (t ₁)	0.41 (0.49)	0.37 (0.49)	-0.04 (0.08)	0.50 (0.52)	0.09 (0.13)
Male sole earner (t ₁)	0.36 (0.48)	0.25 (0.44)	-0.11 (0.08)	0.25 (0.45)	-0.11 (0.13)
<i>N</i>	137	52		16	

Source: SOEP v.35; own calculations.

Notes: Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father. t₋₁ t₊₁ and t₀ stand for “referring to the year before separation”, “referring to the year after separation” and “referring to the year of separation”.

Table A.4: Separation Groups 1-3. Economic Well-Being

	(1) Group 1	(2) Group 2	(3) =(2)-(1)	(4) Group 3	(5) =(4)-(1)
Pre-separation ENHI (t ₁)	16,699.75 (9,418.20)	16,031.03 (10,536.05)	-668.71 (1,585.77)	24,849.62 (31,997.17)	8,149.87** (3,560.22)
Mother: ENHI (t ₊₁)	14,022.17 (7,844.22)	14,783.71 (8,206.59)	761.54 (1,294.03)	27,069.90 (21,449.23)	13,047.73*** (2,656.73)
Father: ENHI (t ₊₁)	15,228.84 (9,831.51)	18,121.56 (9,878.95)	2,892.71* (1,603.47)	34,548.45 (29,503.01)	19,319.60*** (3,480.20)
Mother: annual earnings (t ₁)	10,800.62 (17,903.81)	12,018.31 (21,384.14)	1,217.69 (3,081.14)	12,702.13 (16,975.27)	1,901.50 (4,706.31)
Father: annual earnings (t ₁)	30,401.60 (23,253.63)	33,352.79 (46,568.05)	2,951.19 (5,111.15)	45,322.94 (43,654.22)	14,921.34** (6,680.73)
Mother: annual earnings (t ₊₁)	14,633.37 (19,512.70)	13,265.85 (14,532.00)	-1,367.52 (2,978.98)	17,182.25 (14,757.99)	2,548.89 (5,044.40)
Father: annual earnings (t ₊₁)	31,882.55 (22,650.84)	28,833.62 (21,153.04)	-3,048.94 (3,624.47)	61,393.81 (112,787.25)	29,511.26*** (10,975.30)
Household public transfers (t ₁)	5,769.94 (5,644.50)	6,472.67 (5,443.07)	702.73 (910.55)	4,771.94 (3,791.96)	-998.00 (1,450.04)
Mother: household public transfers (t ₊₁)	6,301.49 (5,435.41)	5,722.35 (4,059.14)	-579.14 (830.21)	4,742.19 (5,834.29)	-1,559.30 (1,446.82)
Father: household public transfers (t ₊₁)	1,999.93 (3,342.84)	3,489.77 (5,194.52)	1,489.83** (640.97)	4,166.69 (5,400.00)	2,166.75** (951.15)
Household private transfers (t ₁)	208.76 (1,385.03)	54.92 (396.06)	-153.84 (195.31)	0 (0)	-208.76 (347.27)
Mother: household private transfers (t ₊₁)	2,474.78 (3,969.05)	1,892.83 (3,147.94)	-581.95 (612.91)	1,786.94 (4,573.18)	-687.84 (1,065.53)
Father: household private transfers (t ₊₁)	17.30 (143.59)	335.58 (1,283.58)	318.28*** (110.99)	71.00 (284.00)	53.70 (43.07)
<i>N</i>	137	52		16	

Source: SOEP v.35; own calculations.

Notes: Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father. t₁ and t₊₁ stand for “referring to the year before separation”, “referring to the year after separation”.

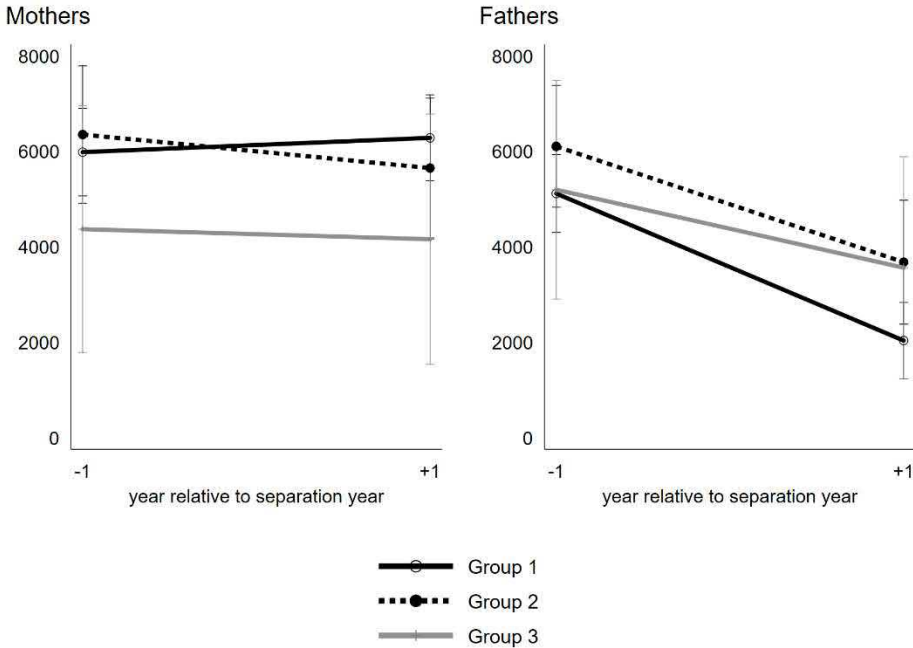
Table A.5. Log annual net household income—NHI

Dep.var.: ln(NHI)	Mothers			Fathers		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Group 1 (ref.)</i>						
Group 2	-0.149 (0.100)	-0.136 (0.094)		-0.043 (0.088)	-0.005 (0.074)	
Group 3	0.052 (0.234)	-0.077 (0.208)		0.306** (0.146)	0.241** (0.108)	
t ₊₁	-0.439*** (0.081)	-0.447*** (0.079)	-0.548*** (0.131)	-0.430*** (0.086)	-0.503*** (0.070)	-0.370** (0.181)
t ₊₁ × Group 2	0.080 (0.133)	0.087 (0.126)	0.064 (0.110)	0.170 (0.131)	0.214** (0.108)	0.158* (0.081)
t ₊₁ × Group 3						
Constant	0.139 10.350*** (0.058)	0.118 8.706*** (0.657)	0.132 10.578*** (0.190)	0.233 10.342*** (0.054)	0.215 8.187*** (0.740)	0.191* 10.218*** (0.283)
Survey year FE	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>
Individual FE	<i>no</i>	<i>no</i>	<i>yes</i>	<i>no</i>	<i>no</i>	<i>yes</i>
Controls	<i>no</i>	<i>yes</i>	<i>no</i>	<i>no</i>	<i>yes</i>	<i>no</i>
<i>N</i>	410	391	410	410	391	410

Source: SOEP v.35; own calculations.

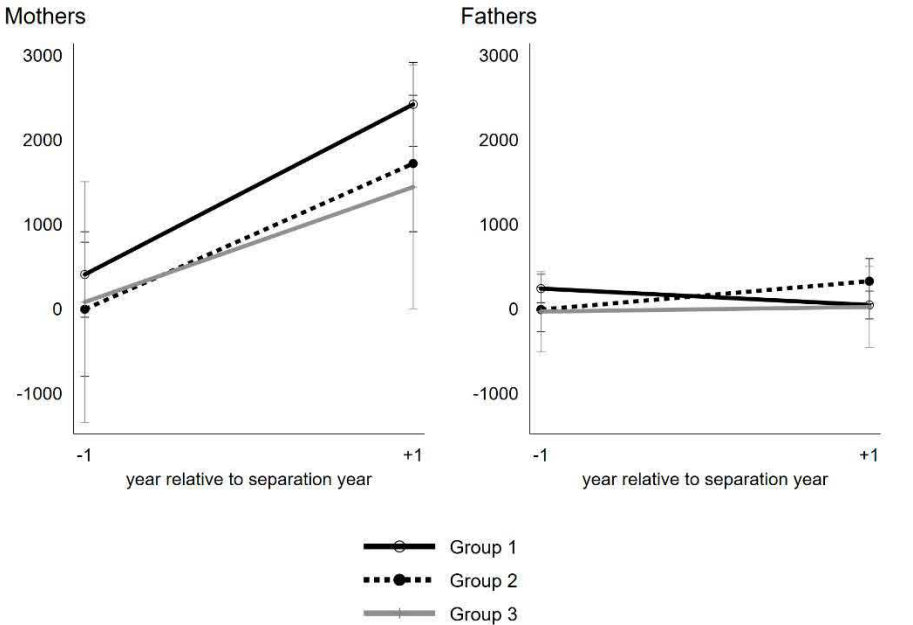
Notes: Group 1: all children reside with mother, no paternal childcare on weekdays. Group 2: all children reside with mother, some paternal childcare on weekdays. Group 3: all/some children with father. Controls include (measured at t-1) age of youngest child, age mother, age mother squared, age father, age father squared, migration background mother, migration background father, fulltime labor market experience mother, fulltime labor market experience father, married, male sole earner, house owner, years of education mother, years of education father, health mother, health father, and (measured at t+1) new partner in household mother, new partner in household father. Robust standard errors in parentheses.

Figure A.1: Predicted group means of parents' public transfers received (in €) around separation.



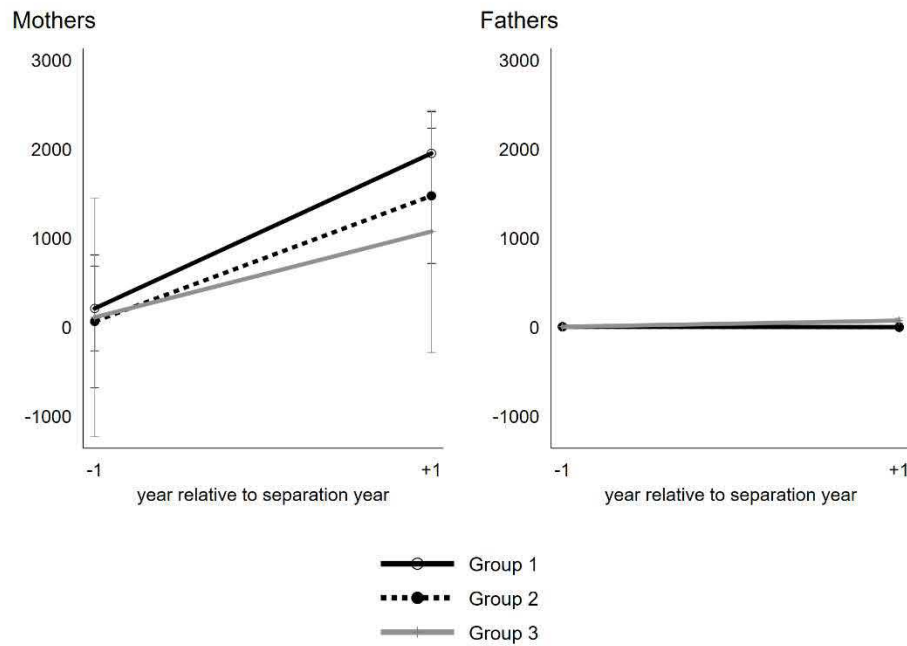
Source: SOEP v.35; own calculations.
 Notes: Adjusted for survey year fixed effects.

Figure A.2: Predicted group means of parents' private transfers received (in €) around separation.



Source: SOEP v.35; own calculations.
 Notes: Adjusted for survey year fixed effects.

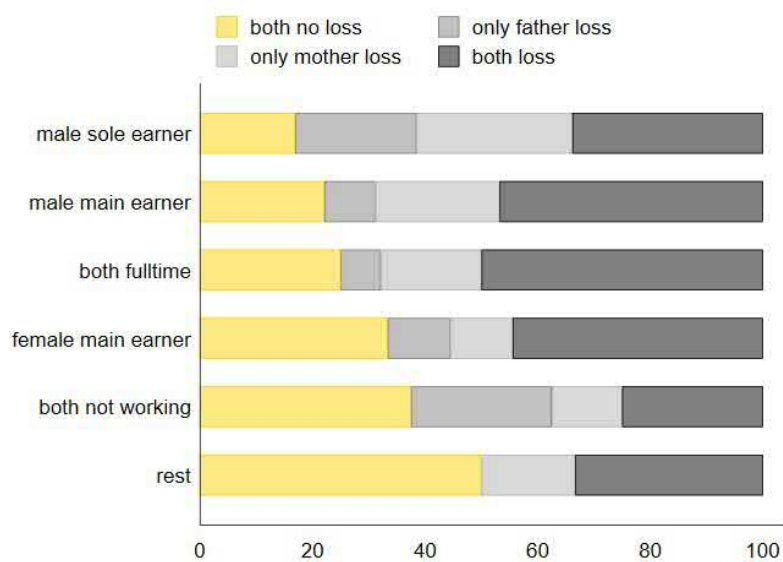
Figure A.3: Predicted group means of parents' annual alimony and child maintenance payments received (in €)



Source: SOEP v.35; own calculations.

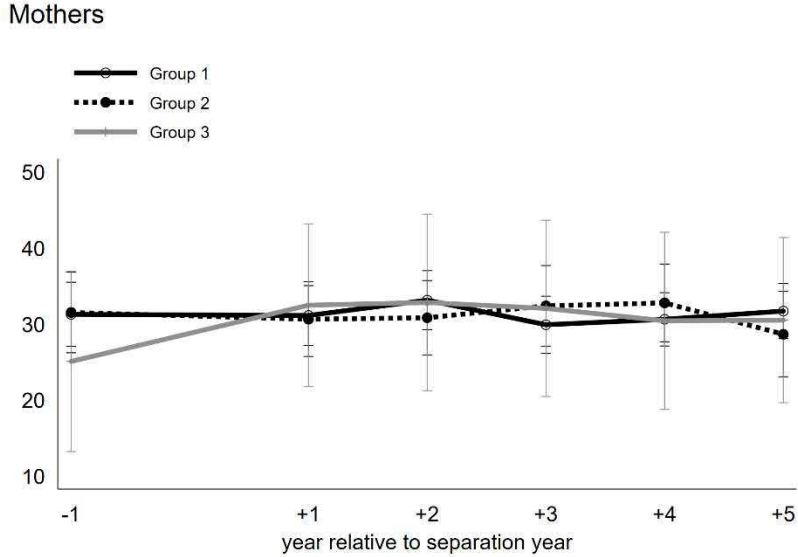
Notes: Adjusted for survey year fixed effects.

Figure A.4. Separated couples' ENHI loss combinations (wrt. pre-separation year) by pre-separation employment constellation in the couple



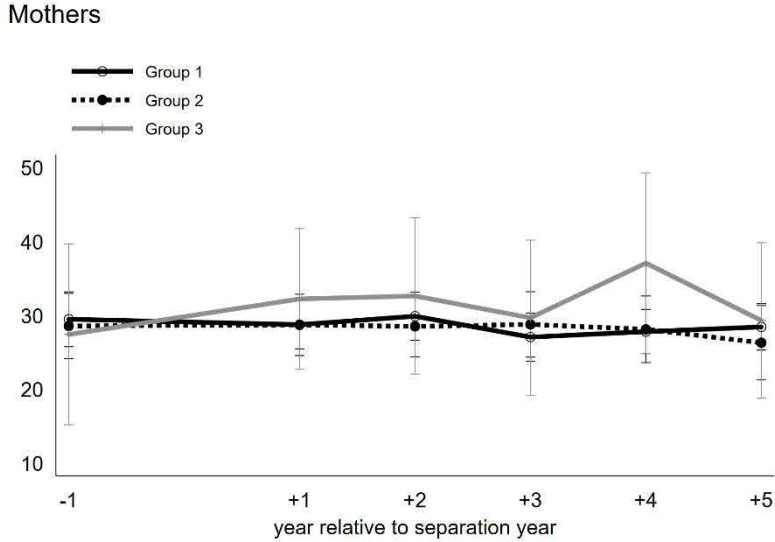
Source: SOEP v.35; own calculations.

Figure A.5: Predicted group means of mothers' actual weekly work time (in hrs).up to five years post-separation.



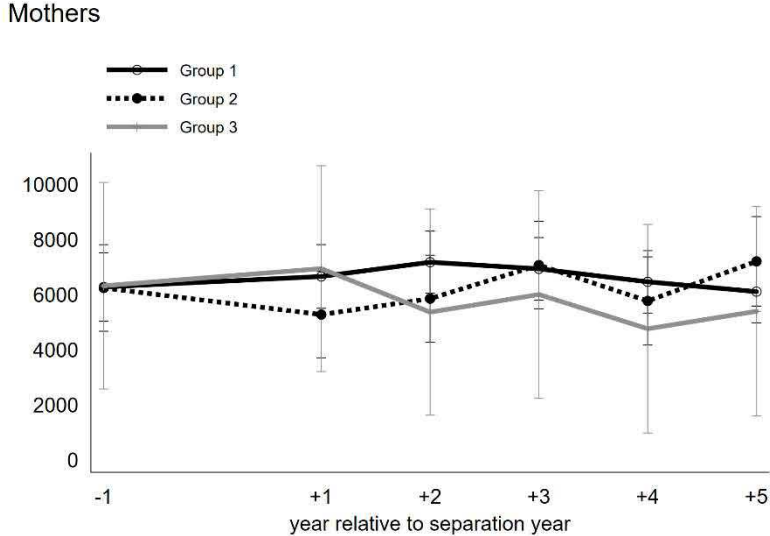
Source: SOEP v.35; own calculations.
 Notes: Adjusted for survey year fixed effects.

Figure A.6: Predicted group means of mothers' weekly contractually agreed work time (in hrs) up to five years post-separation.



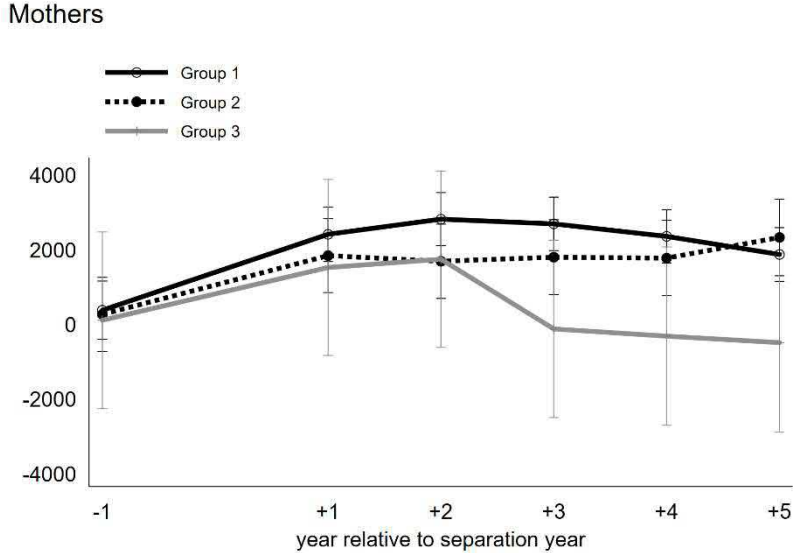
Source: SOEP v.35; own calculations.
 Notes: Adjusted for survey year fixed effects.

Figure A.7: Predicted group means of mothers' public transfers received (in €) up to five years post-separation.



Source: SOEP v.35; own calculations.
Notes: Adjusted for survey year fixed effects.

Figure A.8: Predicted group means of mothers' private transfers received (in €) up to five years post-separation.



Source: SOEP v.35; own calculations.
Notes: Adjusted for survey year fixed effects.