Family Size and Economic Wellbeing following Divorce in Cross-National Perspective

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Abstract

Studies have documented the negative association between divorce and women's economic wellbeing in several countries. Less is known about whether the effects of divorce on women's economic wellbeing vary by family size. The relevance of family size is twofold: larger families are more vulnerable to the economic consequences of divorce and larger families include more children exposed to these consequences. With the current study, we present the first comprehensive assessment of how the short-term and medium-term economic consequences of divorce vary by family size. Data come from the Cross-National Equivalent File (CNEF), a harmonized set of long-running socio-economic panel surveys from Australia (HILDA), Germany (GSOEP), Switzerland (SHP), the United Kingdom (BHPS), and the United States (PSID). We use hybrid models to estimate changes in women's household income and risk of poverty up to six years following divorce. Our focus is on how these changes vary by the number of children in the household before divorce. We find that the short-term negative effects of divorce on the risk of poverty increase with family size. In the medium term, these differences vanish. In terms of losses in household incomes, short-term losses are hardly stratified by family size and in the medium term, larger families tend to recover faster. Countries differ substantially in the initial change in economic wellbeing, how it varies by family size, and the rate of recovery.

Keywords: Divorce, Poverty, CNEF, Family Size, Comparative

Introduction

Since the mid-20th century, divorce rates have increased across most countries in Europe, North America, and beyond (e.g., Cherlin, 2010; Macura, Adams, & Holzer-Zelazewska, 1990). Extensive research has been conducted on both the causes and consequences of marital separation (see Amato, 2010 for a review pertaining to the United States). A ubiquitous finding across decades of research is that divorce is negatively associated with women's economic wellbeing (Amato, 2000; 2010; see Espenshade, 1979; Furstenberg, 1990 for reviews). Specifically, divorce has been shown to decrease women's household incomes and increase their risk of poverty (e.g., Andreß & Hummelsheim, 2009; Leopold, 2018; Smock, 1993; Smock, Manning, & Gupta, 1999; Sørensen, 1994).

Women's economic hardship following divorce and its deleterious consequences have always been closely associated with the presence of children (Holden & Smock, 1991; Poortman, 2000). The presence of children, who most commonly reside with their mothers after divorce, is a major obstacle to economic recovery, because they increase the economic needs of the household (Bianchi, Subaiya, & Kahn, 1999), limit women's human capital investments and labor supply (Smock, 1994), and involve direct costs of childrearing that are often not compensated by alimony and child maintenance (Bartfeld, 2000). The presence of children also turns divorced women's economic hardship into a major social problem, as the experience of poverty is associated with numerous problems in children, ranging from deviance and health problems to reduced educational and occupational attainment (Amato, 2000, 2010; Furstenberg, 1990). In the US, growing up in neighborhoods with a high proportion of single parents has been identified as an important obstacle to social mobility (Chetty, Friedman, Hendren, Jones, & Porter, 2018).

Although it is universally acknowledged that the economic and social consequences of divorce crucially depend on whether and how many children are involved, empirical knowledge about such differences remains scarce. Most notably, no studies have examined how the economic consequences of divorce vary with family size. With the current study, we present the first comprehensive assessment of how the short-term and medium-term economic consequences of divorce vary by family size. Family size not only determines women's economic needs and pathways to economic recovery after divorce, but also how many children are negatively affected by financial hardship. This means that the relevance of family size is twofold: Larger families are more vulnerable to the economic consequences of divorce and larger families include more children exposed to these consequences.

To study how the economic impact of divorce varies by family size, we use long-running data from the cross-national equivalent file (CNEF). Our data comprise the British Household Panel Study (BHPS), the German Socio-Economic Panel Study (GSOEP), the Household, Income, and Labour Dynamics in Australia Survey (HILDA), the Swiss Household Panel (SHP), and the US Panel Study of Income Dynamics (PSID). These surveys comprise high-quality harmonized data on household income and risk of poverty. To study how the impact of divorce on these outcomes varies by family size, we use hybrid models allowing us to estimate within-person changes following divorce as well as between-person differences before divorce. We also include a control sample of individuals who stay married to adjust our analyses for overall age trends and family size effects.

We assess the role of family size in cross-national perspective. Comparative data from five countries substantially enhance the scope of our study in terms of population coverage. Moreover, these data allow us to gain initial insight into the role of institutional context in ameliorating the

consequences of divorce for adults and children and the extent to which family size moderates the association between divorce and economic wellbeing. (Andreß, Borgloh, Bröckel, Giesselmann, & Hummelsheim, 2006; Holden & Smock, 1991).

Theoretical Background

Divorce & Economic Wellbeing

Two classes of theories link divorce to negative economic outcomes: selection and causation (for a discussion, see Amato, 2010). According to the selection perspective, socioeconomically disadvantaged men and women are more likely to divorce. Therefore, the negative association between divorce and economic wellbeing is spurious and attributable to individuals' prior earning capabilities. In contrast, the causation perspective maintains that marital breakdown generates negative outcomes over and above selection into divorce.

A second aspect of debate relates to whether the effects of divorce are temporary or persistent. According to the "crisis model", the effects of divorce are short lived. Individual and structural factors, such as personal and social resources, determine how quickly individuals recover. According to this model, most individuals eventually return to their pre-divorce level of economic wellbeing. In contrast, the "chronic strain" model suggests that marital separation involves lasting negative effects on individuals' socioeconomic position that do not dissipate.

Amato (2000) integrates the crisis and chronic strain models into a divorce-stress-adjustment perspective to conceptualize how divorce negatively affects individuals both in the short term and in the long term. Stressors related to divorce induce short-term negative effects. One important stressor related to economic wellbeing is the loss of economies of scale: when family members live

together, fixed costs such as housing are shared so that the per-capita cost of a given standard of living is less for a family with two earners compared to a single earner (Espenshade, 1979). However, protective factors, such as individual and structural resources as well as household composition, may ameliorate short-term effects directly following divorce.

Earlier studies used cross-sectional data to compare divorced men and women with married men and women to estimate the relationship between marital separation and change in household income. For example, Sørensen (1994) observed that the household incomes of single-mother households were 80 percent lower than those of two-parent households in Germany, 71 percent lower in the United States, and 63 percent lower in the Sweden. However, cross-sectional studies are unable to address whether the negative effects of divorce reflect selection or causation. Further, these studies cannot untangle whether the negative relationship between divorce and economic wellbeing is transient or persistent.

Studies using longitudinal data can more adequately indicate whether divorce is causally associated with change in economic status and whether those effects depreciate with time. Sociological and economic studies indicate that the effects of divorce on economic wellbeing are not completely attributable to selection (e.g., Amato, 2010; Ananat & Michaels, 2008). For example, Smock, Manning & Gupta (1999) used endogenous switching regression models with data from the National Survey of Families and Households to demonstrate that divorced women's economic wellbeing would be substantially higher had they not divorced. Further, if married women were to divorce, their economic wellbeing would be about the same as divorced women's economic wellbeing.

There is mixed evidence as to whether the effects of divorce on household income and the risk of poverty represent a crisis or chronic strain. Findings suggest that the answer to this question

depends on national context (e.g., Andreß et al., 2006; Leopold, 2018). For example, de Vaus and colleagues (2017) demonstrate using CNEF data that divorce had substantial and negative effects on women's household income in the short term. In the medium term, there was no evidence of recovery in the US and South Korea, whereas women recovered very quickly in Switzerland. Leopold's (2018) analyses using the German Socio-Economic Panel indicate that divorce represents a chronic strain for both women's household incomes and poverty risk.

A number of studies have demonstrated that divorce decreases women's household incomes and increases their probability of falling into poverty (e.g., Andreß, 2003; Andreß et al., 2006; de Vaus et al., 2017; Leopold, 2018; Smock, 1993, 1994). For men, divorce increases the risk of poverty to a much smaller degree, if at all (Peterson, 1996). There are three explanations for these gendered consequences (see Holden & Smock, 1991). First, women are more affected by lost economies of scale following divorce than men, because women commonly retain custody of children. Second, women profit more from income sharing, because men's incomes are on average higher. Following divorce, women's incomes decrease disproportionately, a loss that is often not compensated by alimony, child maintenance, and other transfer payments. Finally, women's human capital and earnings capacities are lower than men's, and this difference increases during marriage as women's human capital depreciates, particularly after parenthood. Further, women with resident children after divorce will have greater difficulty combining work and family commitments.

The Role of Family Size for Divorce & Economic Wellbeing

A number of studies that estimate the effects of divorce adjust their analyses for the number of children in the household (e.g., Smock, 1993, 1994). However, family size is not just confounded with divorce and economic status, but it changes the association. The mechanisms that exacerbate

the economic consequences of divorce for women – lost economies of scale, disproportionate income loss, and human capital deficits – intensify with family size. Not only are the economic needs of households with children higher than those without (Bianchi et al., 1999), but the income and human capital differences between former spouses increase with family size (Smock, 1994). Women with larger families during marriage exit the labor market longer and more often, which depreciates their human capital to a greater degree than women with fewer children (Angrist & Evans, 1996; Cools, Markussen, & Strøm, 2017). Moreover, women with children will have greater difficulties finding gainful employment following divorce than childless women (van Damme, Kalmijn, & Uunk, 2009). Finally, re-partnering is another important pathway to women's economic recovery that is impeded by the presence and number of children (Ivanova, Kalmijn, & Uunk, 2013; Manting & Bouman, 2006).

Despite the relevance of family size, only few studies have considered the presence of children as a moderator of divorce effects. The most recent available study used data from the German Socio-Economic Panel to show that divorce-related declines in a subjective measure of women's economic wellbeing were larger if at least one child was present before divorce (Leopold & Kalmijn, 2016). To our knowledge, no study has examined family size – i.e., the number of children – as a moderator of the association between divorce and economic wellbeing. Other studies have examined depression (Williams and Dunne-Bryant 2006; Kalmijn and Monden 2006; Liu and Chen 2006), psychological distress (Mandemakers, Monden, & Kalmijn, 2010; Strohschein, McDonough, Monette, & Shao, 2005), and self-rated health (H. Liu & Umberson, 2008; Williams, 2003). All of these studies found that larger family sizes exacerbated the negative consequences of divorce for women's wellbeing.

We conceptualize family size as a protective factor within Amato's (2000) divorce-stress-adjustment perspective. Specifically, the absence of children in the household will likely shield childless women from the short-term and medium-term stressors that associate divorce with lower economic wellbeing. The initial stressors of divorce related to economic wellbeing, such as the loss of economies of scale, will increase with the number of children. Moreover, in larger families, it will take longer for medium-term stressors of divorce, such as depreciated human capital, and their negative effects to dissipate. Not only does women's vulnerability on the labor market increase with the number of children, but transfer payments, such as child support, are insufficient to compensate for these disproportionate income losses following divorce (Bartfeld, 2000). Based on these considerations, our central hypothesis is that *the number of children in the household increases the association between divorce and women's economic wellbeing both in the short term and in the medium term*.

Family Size, Divorce, & Economic Wellbeing across Countries

The association between divorce and economic wellbeing varies considerably across countries (e.g., Andreß, 2003; Sørensen, 1994). Andreß and colleagues (2006) and de Vaus and colleagues (2017) demonstrate that the consequences of marital separation on individuals' economic wellbeing following divorce also vary across countries. Using the 1994-2000 European Community Household Panel, Uunk (2004) showed that institutional arrangements influence the short-term economic consequences of divorce for women within 14 European countries. Specifically, income-related policies such as social benefits payments reduce the negative effects of divorce on women's household incomes to the greatest degree, followed by employment-related policies such as public childcare arrangements.

Income-related policies, such as public spending on families and child maintenance enforcement, affect the stressors that link divorce with lower economic wellbeing for women with children directly. Specifically, external income sources make women less dependent on the labor market to meet the economic needs of the household as a sole-earner. Employment-related policies alieve the issues surrounding lost economies of scale, disproportionate income losses, and human capital deficits following divorce to a lesser degree and only indirectly. Affordable childcare and paid parental leave may hinder the depreciation of women's human capital during marriage and help divorced women to be active on the labor market. However, employment-related policies only make it easier for women to meet the economic needs of their households as a sole-earner through labor market income.

In this study, we focus on five countries with high quality longitudinal panel data: the United States, Switzerland, the United Kingdom, Australia, and Germany. The long-running panel data available for these countries allows us to study both the short-term and the medium-term impact of divorce on economic wellbeing for different family sizes. The following discussion is based on the family policy regimes identified by Thévenon (2011) using data on 28 OECD countries, a selected set of income-related policies displayed in Figure 1 and employment-related policies in Figure 2, as well as information on child allowances and child support regimes.

Figure 1: Income-Related Policies across Time in Study Countries:

a) Public Spending on Cash Benefits for Families

b) Adequacy of Income and Housing Benefits for Single Households with and without Children

Our countries can be broadly assigned to two family policy regimes. The United States, the United Kingdom, Australia, and Switzerland belong to an "Anglo-Saxon" or liberal cluster, which is characterized by low levels of income and employment support for families. These countries tend to provide targeted support for low-income and single parent families in the form of income supplements. Further, they are not characterized by high support for families with two earners. For example, parental leave provisions are usually short and unpaid. Although childcare enrolment rates are generally high, early and preschool childcare is non-public and expensive. Germany, in contrast, is a prime example of a Continental European conservative welfare state. Monetary transfers and tax breaks tend to be more generous than in liberal countries, although support for employed parents with young children remains low.

However, these countries differ in ways that are masked by broad family policy regime types. As can be seen in panel A of Figure 1, public spending on cash benefits for families in Australia and the UK is with 2 percent of GDP twice as high as in Germany and Switzerland. Spending on child allowances, i.e. monthly cash transfers based on the number of children, are a major component of public spending on families. While there are no unconditional child allowances in the US, child allowances are considerable in Australia and to a lesser extent in Germany (see Gauthier & Monna, 2004). In 2008, families received 302 Australian dollars per child, which is equivalent 6 percent of average earnings for one child, 12 percent for two children, and over 18 percent for three children. Child allowances were less generous and more stratified in Germany before 1996, but equaled 154 Euros or 4 percent of average earnings in 2008. In terms of public transfers to families, Australia and the UK outperform Germany, Switzerland, and especially the US.

Our countries also differ in their ability to alleviate the economic circumstances of unemployed women with children in single households. This is especially important for women with children

who are unable to find work following divorce. The adequacy of income and housing benefits for single and coupled households is displayed in panel B of Figure 1. The minimum-income benefits in the UK seem to be most effective and increase the incomes of unemployed single-headed households with children to 60 percent of the median household income. In contrast, benefits in Australia, Germany and Switzerland range between 40 and 50 percent, and the US only reaches 20 percent of the national median. Interestingly, differences between single households with and without children are small in many countries, especially the UK and Switzerland in more recent years. Differences in economic wellbeing between divorced mothers with and without children may be greater in these countries, because childless women are profiting as much from minimum benefits as are women with children.

Child support and maintenance from non-custodial fathers are another important source of income for divorced mothers. However, countries differ greatly with respect to the percentage of child support recipiency and the level of payments. While over 65 percent of divorced mothers in Switzerland receive child support payments, the proportion is much lower in other countries: between 30 and 35 percent in Australia, Germany, and the US, and only 20 percent in the UK.[1] In Switzerland, where child support payments are common and other income benefits are low, child maintenance makes up nearly half of divorced mothers' net incomes and over 70 percent of all income transfers. In the US, child support payments also constitute over half of women's income transfers, but those payments are under 20 percent of disposable incomes. Therefore, Switzerland and the US seek to alleviate divorced mothers' precarious economic situation through generous child maintenance regulations rather than public spending, however only Switzerland seems to strictly enforce payment.

[1] Source: OECD Family Database report PF1.5: Child Support. See: www.oecd.org/els/social/family/database

Figure 2: Employment-Related Policies across Time in Study Countries:

a) Paid Maternity and Parental Leave for Mothers

b) Net Cost of Childcare Services for Single and Dual Earner Household

Figure 2 displays trends for two employment-related policies. First, the number of weeks of paid and job-protected maternity leave and parental leave for mothers is displayed in panel A of Figure 2. Paid and job protected parental leave, as opposed to unpaid and unprotected leave, is important for women to return to work following childbirth, which limits human capital depreciation due to exiting the labor market. The US stands alone as the only country in our sample without any paid leave. Australia and Switzerland implemented a short period of paid and protected leave in 2010 and 2005, respectively. The UK has increased its parental leave scheme to just under 1 year following a reform in 2007, while Germany decreased the length of paid and protected leave from two to one year in 2000. High childcare costs may inhibit coupled mothers from re-entering the labor market after parental leave schemes have run out, but can also make it more difficult for divorced mothers to meet the economic needs of their household despite employment. Childcare costs are low for both single and coupled households in Australia and Germany, as can be seen in panel B of Figure 2. However, childcare coverage in 2006 was considerably lower in Australia compared to Germany (Thévenon, 2011). And while childcare costs for single-parent households are also low in Switzerland and the UK, childcare expenditures constitute between 40 and 60 percent of net incomes for coupled households. In contrast, childcare costs are equal to 40 percent of net incomes for two-parent households in the US, but are often well over 100 percent for single-

parent households. Among our study countries, Germany and the UK seem to have the most generous employment-related policies, followed by Australia, Switzerland, and the United States.

In summary, these country contrasts in family policies uncover interesting differences in the strategies that countries follow – if any – to support women, especially after divorce. The UK and Australia rely on a mix of income- and employment-related policies aiming to prevent the depreciation of women's human capital during marriage, meet the minimum economic needs of their households through public income transfers, and support returns to employment after divorce. The effects of divorce and differences by family size are likely smaller in these countries compared to our other study countries. Germany has relatively generous employment-related policies, although Germany's income-related policies are less targeted towards single-parent households. Switzerland provides moderate income support, but relies nearly exclusively on child support payments from former spouses to support divorced mothers. While income losses may be less disproportionate in Switzerland due to child support, women with children will have more difficulty finding gainful employment compared to childless women after divorce. Finally, the US is characterized by low to negligible public support to families, even after divorce in the form of child maintenance enforcement. It is here that we expect the initial impact of divorce to be greatest, the effects most persistent, and differences by family size largest.

Data & Methods

Study Samples

We use prospective panel studies that participate in the Cross-National Equivalent File (CNEF) to analyze how women's household incomes and risk of poverty changed following divorce. The data

we use come from the UK British Household Panel Study (BHPS 1991-2008), the German Socio-Economic Panel (GSOEP 1984-2014)[2], the Household, Income, and Labour Dynamics in Australia Survey (HILDA 2001-2015), the Swiss Household Panel (SHP 1999-2015), and the US Panel Study of Income Dynamics (PSID 1970-2007).

We restrict our samples to women who were observed transitioning from a marital union to divorce (divorce age bounds 18 to 60) or who were continuously observed in marriage. The year of divorce is defined as the year of separation which does not always coincide with the year of legal divorce due to obligatory separation periods in some of the countries. To gage pre-divorce levels of economic wellbeing, we begin our observation period one year before divorce and include all observations up to six years following the divorce. We exclude individuals who were divorced when first sampled and include only the first observed divorce.

Outcome Variables

We include two measures of economic wellbeing: net equivalized household income and whether the respondent lives in a household under the relative poverty threshold. Annual post-government household income is calculated as the sum income of all household members from labor earnings, asset flows, retirement income, private transfers, public transfers, and social security pensions minus taxes. Private transfers include alimony and child support payments, and public transfers include housing allowances, child benefits, subsistence assistance, and maternity benefits. Net household incomes, i.e. disposable income following taxes and government transfers, are equivalized by dividing each value by the square root of the number of household members.

[2] Note we remove the 2002 High Income Sample G.

Further, incomes are adjusted for inflation to represent their respective national currencies in 2015 values. We include the logarithm of household incomes in the hybrid random effects regressions discussed below for two reasons: First, logarithmic income is closer to a normal distribution than nominal income. Second, regression coefficients on logarithmic income represent multiplicative changes in income, which facilitates comparison across countries. Relative poverty is measured in accordance with the EUROSTAT definition of at-risk of poverty or social exclusion. Individuals with equivalized household incomes under 60 percent of the annual median (calculated using the full annual samples of each survey) are considered to be in relative poverty.

Independent Variables

As we are interested in both the initial and the medium-term changes in the outcomes following divorce, we include both a binary and a continuous indicator for divorce. Our binary indicator takes the value of 1 when individuals are divorced and 0 when they are married. The continuous indicator counts the number of years following divorce and is zero during marriage and in the year of divorce. When these variables are simultaneously included in the regression models, the binary indicator captures the initial change following the transition to divorce and the continuous indicator captures changes after the year of divorce. We also tested non-parametric specifications using dummy variables for years after divorce. A quadratic specification of years after divorce was more parsimonious and fits closely with non-parametric results.

Family size is measured as the number of children in the household before divorce categorically as either no children, one child, two children, or three or more children. For individuals who did not divorce, family size is measured as the maximum number of children observed in the household.

Analytical Approach

We use hybrid random effects regression models with observation years nested in individuals to estimate changes in economic wellbeing after divorce. Hybrid random effects models combine the advantages of fixed effects and random effects models. These models consistently estimate the within-person effects of divorce on our outcomes controlled for all time-constant covariates, while simultaneously estimating between-person effects. To accomplish this, all time-varying covariates are included twice: as time-constant individual means and as time-varying deviations from those individual means. A hybrid random effects model can be formulated as:

$$y_{it} = \beta_0 + \bar{X}_i\beta^{BE} + (X_{it} - \bar{X}_i)\beta^{FE} + u_i + e_{it}$$

where log household income or relative poverty, y, for an individual, i, at time point, t, is a function of time-constant predictors and their vector of between-individual coefficients, and time-varying predictors and their within-individual coefficients as well as an individual random intercept and idiosyncratic error term. In our case, the association between divorce and economic wellbeing is captured through four terms in the regression models: two derived from the binary divorce indicator and two from the continuous measure for years after divorce.

$$y_{it} = \beta_0 + \bar{D}_i\beta_{1a}^{BE} + (D_{it} - \bar{D}_i)\beta_{1b}^{FE} + \overline{Dur_i}\beta_{2a}^{BE} + (Dur_{it} - \overline{Dur_i})\beta_{2b}^{FE} + \bar{X}_i\beta^{BE} + (X_{it} - \bar{X}_i)\beta^{FE} + u_i + e_{it}$$

where β_{1b} and β_{2b} are our within-effects of interest, i.e. the association between the transition from marriage to divorce and economic wellbeing, and its change as individuals progress from one year within divorce to the next, respectively. The between-effects are captured by β_{1a} and β_{2a}, which denote the difference between married and divorced individuals and how that difference varies between individuals with longer and shorter durations within divorce. Note that we include the continuous divorce indicator as a quadratic term to model non-linear changes in the association between divorce and economic wellbeing in the years that follow. We interact these terms with family size to estimate how the associations between our divorce indicators and economic wellbeing vary by the number of children in the household. We therefore need to include five additional terms[3]:

$$
\begin{aligned}
y_{it} = {} & \beta_0 + \bar{D}_i\beta_{1a}^{BE} + (D_{it} - \bar{D}_i)\beta_{1b}^{FE} + \overline{Dur}_i\beta_{2a}^{BE} + (Dur_{it} - \overline{Dur}_i)\beta_{2b}^{FE} \\
& + FAM_i\beta_3 \\
& + \bar{D}_i FAM_i\beta_{4a}^{BE} + (D_{it} - \bar{D}_i)FAM_i\beta_{4b}^{FE} + \overline{Dur}_i FAM_i\beta_{5a}^{BE} + (Dur_{it} - \overline{Dur}_i)FAM_i\beta_{5b}^{FE} \\
& + \bar{X}_i\beta^{BE} + (X_{it} - \bar{X}_i)\beta^{FE} + u_i + e_{it}
\end{aligned}
$$

where the within-effects β_{4b} and β_{5b} represent how the initial impact of a transition into divorce on economic wellbeing and its change over time vary by family size. The between-effect of family size and economic wellbeing is captured by β_3. All models include a sample indicator, i.e. whether

[3] Note that family size is a categorical and not a continuous variable as is displayed in the equations for simplicity. A more explicit notation would need to display the main and interaction terms for each level of the family size variable.

an individual ever divorces or remains married during the observation window, quadratic between- and within-individual age terms, as well as respondents' average observation year.

Robustness Checks

An important issue in identifying the role of family size was to address potential confounding with socioeconomic position and the age of youngest child. If family size is larger and divorce consequences more severe among the lower educated, for example, we might incorrectly interpret socioeconomic differences in the impact of divorce as family size differences. Similarly, if the age of the youngest child is lower and divorce consequences more severe in the presence of a younger child, we might incorrectly interpret child age differences in the impact of divorce as family size differences.

To examine these possibilities, we estimated models that included more complex and higher-order interactions between the divorce indicators, family size, women's educational attainment (in years), and the age of the youngest child. Specifically, we included main effects of each of these variables along with two-way interactions with the divorce indicators, two-way interactions with family size, and three-way interactions with the divorce indicators and family size. In additional models, we also included these interactions simultaneously to jointly control for both potential confounders. The results obtained from these robustness checks were substantively similar to the more parsimonious models presented below.

In further robustness checks we included interactions between our age and family size indicators to account for variation in the growth profiles of our outcomes by family size. These checks addressed the risk of unobserved time-varying heterogeneity confounded with the divorce process.

The results obtained from these checks did not show any bias associated with different growth profiles of our outcome measures. We additionally estimated models where family size is measured as the number of children in the year of divorce rather than the year prior to divorce. The results from these models are also substantively similar to those presented below.

Results

Descriptive Statistics

Summary statistics for both the divorced and control samples are presented in Table 1 separately by family size and study. The proportion of observations in relative poverty as well as average equivalized household incomes, years of education, age of the youngest child in the household, and the number of children in the household are shown for both the control and divorce samples. The average year of divorce and age at divorce is additionally displayed for the divorce samples. As can be seen in Table 1, the differences in the proportion of observations in relative poverty and average household incomes between the divorce and control samples grow larger with increasing family size. For example, while 14 percent of GSOEP divorce observations without children live in relative poverty compared to 9 percent of the control sample, 29 percent of observations in the divorce sample with three or more children live in poverty compared to 12 percent of the control sample. Interestingly, there are few substantial differences in educational attainment between the divorce and control samples by survey and family size. There are also few differences in the average age of the youngest child in the household, although children in the divorce samples with one or two children tend to be somewhat older than children in the respective control samples. Note that there are no children in the household in the childless control sample per definition. However, we do observe children in the household for some of the observations of the childless divorce

sample, because younger women may enter parenthood after divorce and older women may have children that no longer live in the household prior to divorce. That also explains why the average age at divorce for our childless sample is higher than for the samples that transitioned into divorce with children in the household.

Table 1: Summary Statistics by Family Size and Study

Average household incomes and the proportion of respondents in relative poverty across each study's observation window are displayed in Figures 3a and 3b, respectively. Figure 3a shows that across all countries, household incomes of married women without children are higher than those of married women with children as well as divorced women with and without children. In some countries, divorced women without children have household incomes that are comparable with those of married women with children.

Figure 3a: Average Equivalized Household Income across Studies' Observation Window for Married (Black) and Divorced (Blue) Respondents by Family Size

Figure 3b: Proportion of Married (Black) and Divorced (Blue) Respondents in Relative Poverty across Studies' Observation Window by Family Size

As was the case for household income, the proportion of married women without children living in relative poverty is lower than that of divorced women with and without children. These patterns

are shown in Figure 3b. However, the differences between married women with children and without children are small in many countries. For example, in 2010 there are no significant differences between married women who are childless, those with one child, and those with two children in both Germany and the US. Married women with three or more children are at a higher risk of poverty than other married women in most countries. For example, in the UK roughly 30 percent of women with three or more children lived in households under the poverty threshold in 2005, compared to approximately 10 percent of women without children and 15 percent of women with two children. Family size differences between divorced women are much larger. For example, over 80 percent of US divorced women with three or more children lived in relative poverty in 1990, compared to 40 percent of childless divorced women.

Results for Hybrid Random Effects Regressions

Figures 4 and 5 provide answers to the central questions guiding our study. The figures show estimated changes (4a and 5a) and predicted levels (4b and 5b) in women's household income and risk of poverty up to six years following divorce. The hybrid random effects regression models on which these figures are based are located in the appendix (Table A1 for log household income and Table A2 for the risk of poverty). The estimates and their 95 percent confidence intervals are displayed in black for women who were childless in the year before divorce, yellow for women who had one child, orange for women who had two children, and red for women who had three or more children in the household.

Figure 4a: Estimated Change in Log Equivalized Household Income following Divorce

Figure 4b: Predicted Log Equivalized Household Income following Divorce

For women, divorce is initially associated with a substantial loss of household income in every country. As can be seen in Figure 4a, the initial impact of divorce on the relative loss of household income is largest in the UK and the US, followed by Germany. In these countries, women's equivalized household incomes decrease by an average of 40 to 50 percent in the year of divorce. These initial losses are smaller in Australia and Switzerland, averaging between 20 and 40 percent.

Looking at the role of family size, we find little variation in the initial impact of divorce on household income. Although family size tends to intensify declines in household incomes in Germany and alleviate declines in Australia, we did not find clear-cut gradients across the categories of family size in any country. Figure 4b shows predicted levels of log equivalized household incomes, revealing larger differences by family size. In Germany, the UK, and the US, equivalized log household incomes in the year of divorce were negatively related to family size. It is important to note, however, that these differences are already present before divorce.

Looking at the role of family size in medium-term losses in household income, Figures 4a and 4b reveal an unexpected pattern. In all countries, childless women hardly recovered from the initial impact of divorce, whereas women with children recovered faster. The UK showed a clear gradient by family size. Initial losses of roughly 50 percent, regardless of the number of children in the household, dissipated four years after divorce for women with three or more children. For smaller families, recovery was still considerably faster than for childless women. We found similar patterns of faster recovery among mothers in all other countries. In these countries, gradients across the categories of family size were less clear-cut, suggesting that two or more children did not involve additional boosts in terms of economic recovery.

An important limitation of the results on log equivalized household income is that all changes are treated equal. However, if divorce-related losses mean that women cross the poverty line, these losses are qualitatively different from losses that are similar in size but occur higher up in the income distribution. Similarly, post-divorce recovery still involves economic hardship for women who stay under the poverty line. Given that poverty is one of the most intensely studied outcomes in the divorce literature and associated with negative consequences in various domains both for adults and children (Amato, 2000, 2010), the findings presented in Figures 5a and 5b are central to our conclusions about how divorce effects vary by family size.

Figure 5a: Estimated Change in the Probability of Poverty following Divorce

Figure 5b: Predicted Probability of Poverty following Divorce

The results show greater variation by family size in the association between divorce and relative poverty. Figures 5a and 5b depict the estimated within-individual associations between divorce and women's probability of poverty from the year of divorce to the sixth year following divorce. Figure 5a shows that the initial impact of divorce on the probability of relative poverty is smallest for women without children. The transition into divorce for childless women is associated with a roughly 10 percentage point increase in the probability of poverty in Switzerland, compared to an approximate 20 percentage point increase in Germany, the UK, and the US. In Germany, the family size gradient in the initial impact of divorce is most pronounced: the risk of poverty for women with one child increases by just under 30 percentage points, compared to a 40 and 35 percentage point increase for women with two and women with three or more children, respectively. In all

other countries, the initial impact of divorce on poverty does not differ between women without children and women with one child in the household preceding divorce. However, the risk of poverty is greater for women with two children and women with three or more children compared to women without children or women with one child in all countries. Averaged across countries, the increase in the probability of relative poverty for women with two or more children increases by 30 percentage points, compared to 20 percentage points for women with one child or less.

Similar to household income, the association between divorce and the probability of relative poverty is constant for childless women. In contrast, women with children recovered in all counties. In Australia and Switzerland, mothers of two or more children approached pre-divorce poverty levels towards the end of our observation window. In Germany and the US, mothers of two or more children also recovered, but their poverty risk remained elevated throughout our observation window. This means that disproportionate increases compared to childless women vanished, but increases compared to pre-divorce levels did not. The lack of recovery was especially pronounced in the US, where initial increases in the risk of poverty declined slowly and remained at least 15 percentage points above pre-divorce levels for women of all family sizes.

In absolute terms, as shown in Figure 5b, divorced mothers' probability of relative poverty in the medium term is comparable in all countries except for the US, where probabilities are at least 10 percentage points higher. Looking at women without children, economic vulnerability to divorce is unexpectedly high both in the short and in the long term, especially in Australia and the US. Regarding family size differences, Figure 5b shows that women with two or more children had the highest risk of poverty before divorce, in the year of divorce, and up to three years after divorce; subsequently, differences by family size tended to vanish. The only exception to this is Australia where childless women were most likely to be in poverty throughout the observation window,

creating a large gap of 20 percentage points between women with and without children six years after divorce.

Discussion

In this article, we addressed two research questions in comparative perspective: how does women's economic wellbeing change in the years following divorce and how do these changes vary by family size? Our main theoretical and empirical contribution to the literature on the economic consequences of divorce is to study the role of family size as a moderating factor. We conceptualized family size as a protective factor within Amato's (2000) divorce-stress-adjustment perspective. We expected that the absence of children in the household shields childless women from the short-term stressors that associate divorce with lower economic wellbeing, such as lost economies of scale, disproportionate income loss, and human capital deficits. With an increasing number of children, the economic needs of households also increase (Bianchi et al., 1999), and mother will have greater difficulties finding gainful employment following divorce (van Damme et al., 2009). Moreover, the economic stress of divorce may be exacerbated if women with larger families during marriage exited the labor market longer and more often (Angrist & Evans, 1996; Cools et al., 2017) and if transfer payments do not compensate for disproportionate income losses (Bartfeld, 2000).

Based on these considerations, we hypothesized that the number of children in the household increases the initial association between divorce and economic wellbeing as well as the recuperation period needed for the association between divorce and economic wellbeing to dissipate. We examined this hypothesis in five countries – Australia, Germany, Switzerland, the UK, and the US – to broaden the scope of our results and to gain initial insight into how family

policies might ameliorate the negative consequences of divorce for women with different family sizes.

Our hybrid random effects models estimated changes in household income and the probability of relative poverty as well as variation in these changes by family size. The analysis supports three main conclusions. First, we provide additional evidence that divorce is related to an initial decrease in economic wellbeing for women with and without children in all study countries (e.g., Andreß, 2003; Andreß et al., 2006; de Vaus et al., 2017; Leopold, 2018; Peterson, 1996; Smock, 1993, 1994). Second, and most important, we demonstrate that family size moderates the initial association between divorce and economic wellbeing as well as how that association develops in the years following divorce. However, findings on the role of family size provided only partial support to our guiding hypothesis. In line with expectations, we find that the short-term negative effects of divorce on the risk of poverty increase with family size. In contrast to our hypothesis, however, these differences vanished in the medium term. Moreover, in terms of relative losses of equivalized household incomes, short-term losses are hardly stratified by family size and in the medium term, larger families tended to recover faster.

Third, countries differed substantially in the initial change in economic wellbeing, how it varies by family size, and the rate of recovery. The initial association between divorce and poverty was strongest and most stratified by family size in Germany and smallest and least stratified by family size in Australia. Whether and to what extent the association between divorce and economic wellbeing dissipated varied by family size for both household incomes and the risk of poverty. In all countries, women without children did not recover from the economic losses associated with divorce even six years following divorce. Women with children fully recovered in Australia, Switzerland, and the UK. For these three countries our results indicate that divorce is a chronic

strain for childless women, whereas it is better conceived as a medium-term crisis for women with children. In Germany and the US, the impact of divorce for women with children reached the level of women without children towards the end of the observation window. In these countries, however, a chronic economic strain in terms of substantial losses in economic wellbeing persisted for all family sizes.

These findings contribute to understanding how and why the association between divorce and women's economic wellbeing varies across countries (e.g., Andreß, 2003; de Vaus et al., 2017; Sørensen, 1994; Uunk, 2004). Our results indicate that the impact of divorce for women with two or more children is smallest and least persistent in Australia, the UK, and Switzerland, but larger and more persistent in Germany and the US. This corresponds with our arguments on how policies might affect the association between divorce and women's economic wellbeing and mitigate family size differences. We argued that differences in the UK and Australia are relatively small, because of their relatively supportive mix of income- and employment-related policies. In these countries, women with children are able to prevent the depreciation of their human capital during marriage, meet the minimum economic needs of their households through public income transfers, and find work after divorce. Switzerland, on the other hand, provides only moderate public support, but enforces generous child support payments from former spouses to support divorced mothers. Therefore, Swiss women are less dependent on the labor market to secure their economic wellbeing and that of their children. In contrast, German income- and employment-related policies are less targeted towards single-parent households, and the US is characterized by a near absence of public and private support to single-parent families. Although cross-country differences in results for mothers were broadly in line with expectations, the findings on childless women remain puzzling. Future research should dig deeper to better understand why divorce is a chronic strain for childless women.

Children who experience divorce and the economic consequences following divorce often suffer from problems, such as deviance and health problems, reduced educational and occupational attainment, and even barriers to social mobility (Amato, 2000, 2010; Chetty et al., 2018; Furstenberg, 1990). Therefore, the presence of children turns divorced women's economic hardship into a major social problem. As we have shown, larger families are more vulnerable to the short-term economic consequences of divorce in terms of falling into poverty, which in turn means that more children are exposed to these consequences in larger families. In our study countries, generous income benefits and the enforcement of child maintenance appear to be the most effective strategy of reducing the initial impact of divorce and its persistence for women with children. A limitation of our design is that we could not directly assess the role of institutional factors and adjudicate between different policy packages that target the core associations between divorce, family size, and economic wellbeing. Future research should broaden the comparative scope along these lines and include other national contexts, in particular Nordic welfare states.

Regarding family size as a moderator of divorce effects, our study contributes an analysis of objective economic outcomes to previous findings on divorce and subjective measures of wellbeing (Leopold & Kalmijn, 2016), depression (Kalmijn & Monden, 2006; R. Liu & Chen, 2006; Williams & Dunne-Bryant, 2006), psychological distress (Mandemakers et al., 2010; Strohschein et al., 2005), and self-rated health (H. Liu & Umberson, 2008; Williams, 2003). Taken together, this line of research suggests that the number of children in the household intensifies the negative consequences of divorce in various domains of life. However, this conclusion is more strongly supported for short-term (crisis) effects than for medium-term and long-term effects. In this regard, our findings suggest that the presence of children contributes to economic recovery following divorce. This unexpected finding and potential underlying mechanisms warrant further investigation in future research.

Works Cited

Amato, P. (2000). The Consequences of Divorce for Adults and Children. *Journal of Marriage and Family*, *62*, 1269–1287.

Amato, P. (2010). Research on divorce: Continuing trends and new developments. *Journal of Marriage and Family*, *72*(3), 650–666. https://doi.org/10.1111/j.1741-3737.2010.00723.x

Amato, P., & James, S. (2010). Divorce in Europe and the United States: Commonalities and differences across nations. *Family Science*, *1*(1), 2–13. https://doi.org/10.1080/19424620903381583

Ananat, E. O., & Michaels, G. (2008). The Effect of Marital Breakup on the Income Distribution of Women with Children. *Journal of Human Resources*, *43*(January 2009), 611–629. https://doi.org/10.3368/jhr.43.3.611

Andreß, H.-J. (2003). Resources, Standard of Living and Lebenslagen — And What Does All This Have To Do With Poverty? BT - Reporting on Income Distribution and Poverty. In R. Hauser & I. Becker (Eds.) (pp. 91–104). Berlin, Heidelberg: Springer Berlin Heidelberg.

Andreß, H.-J., Borgloh, B., Bröckel, M., Giesselmann, M., & Hummelsheim, D. (2006). The economic consequences of partnership dissolution - A comparative analysis of panel studies from Belgium, Germany, Great Britain, Italy, and Sweden. *European Sociological Review*, *22*(5), 533–560. https://doi.org/10.1093/esr/jcl012

Andreß, H.-J., & Hummelsheim, D. (Eds.). (2009). *When Marriage Ends: Economic and Social Consequences of Partnership Dissolutions*. Cheltenham, UK: Edward Elgar Publishing.

Angrist, J., & Evans, W. (1996). *Children and Their Parent's Labor Supply: Evidence from Exogenous Variation in Family Size* (NBER Working Paper Series No. 5778). Cambridge, MA.

Bartfeld, J. (2000). Child support and the postdivorce economic well-being of mothers, fathers, and children *. *Demography*, *37*(2), 203–213.

Bianchi, S. M., Subaiya, L., & Kahn, J. R. (1999). THE GENDER GAP IN THE ECONOMIC WELL-BEING OF NONRESIDENT FATHERS AND CUSTODIAL MOTHERS. *Demography*, *36*(2), 195–203.

Cherlin, A. (2010). Demographic Trends in the United States: A Review of Research in the 2000s. *Journal of Marriage and the Family*, *72*(3), 403–419. https://doi.org/10.1111/j.1741-3737.2010.00710.x

Chetty, R., Friedman, J., Hendren, N., Jones, M., & Porter, S. (2018). *The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility* (NBER Working Paper No. 25147).

Cools, S., Markussen, S., & Strøm, M. (2017). Children and Careers : How Family Size Affects Parents ' Labor Market Outcomes in the Long Run. *Demography*, *54*(1), 1773–1793. https://doi.org/10.1007/s13524-017-0612-0

de Vaus, D., Gray, M., Qu, L., & Stanton, D. (2017). The economic consequences of divorce in six OECD countries. *Australian Journal of Social Issues*, *52*(2), 180–199. https://doi.org/10.1002/ajs4.13

Espenshade, T. J. (1979). The Economic Consequences of Divorce. *Journal of Marriage and Family*, *41*(3), 615–625.

Furstenberg, F. F. (1990). Divorce and the American family. *Annual Review of Sociology*, *16*, 379–403. https://doi.org/10.1146/annurev.so.16.080190.002115

Gauthier, A., & Monna, B. (2004). Family Allowances in Industrialized Countries: Historical Landmarks. *Max-Plank-Insitute for Demographic Research, Comparative Family Policy Database*. Retrieved from https://www.demogr.mpg.de/cgi-bin/databases/FamPolDB/index.plx

Holden, K. C., & Smock, P. J. (1991). The Economic Costs of Marital Dissolution: Why Do Women Bear a Disproportionate Cost? *Annual Review of Sociology*, *17*(1), 51–78. https://doi.org/10.1146/annurev.so.17.080191.000411

Ivanova, K., Kalmijn, M., & Uunk, W. (2013). The Effect of Children on Men ' s and Women ' s Chances of Re-partnering in a European Context. *European Journal of Population*, *29*, 417–444. https://doi.org/10.1007/s10680-013-9294-5

Kalmijn, M., & Monden, C. (2006). Are the negative effects of divorce on well-being dependent on marital quality? *Journal of Marriage and Family*, *68*, 1197–1213.

Leopold, T. (2018). Gender Differences in the Consequences of Divorce: A Study of Multiple

Outcomes. *Demography*, *55*(3), 769–797. https://doi.org/10.1007/s13524-018-0667-6

Leopold, T., & Kalmijn, M. (2016). Is Divorce More Painful When Couples Have Children? Evidence From Long-Term Panel Data on Multiple Domains of Well-being. *Demography*, *53*(6), 1717–1742. https://doi.org/10.1007/s13524-016-0518-2

Liu, H., & Umberson, D. (2008). The times they are a changin': Marital status and health differentials from 1972 to 2003. *Journal of Health and Social Behavior*, *49*, 239–253.

Liu, R., & Chen, Z. (2006). The effects of marital conflice and marital disruption on depressive affect: A comparison between women in and out of poverty. *Social Science Quarterly*, *87*, 250–271.

Macura, M., Adams, E., & Holzer-Zelazewska, D. (1990). Changing Patterns of First Marriage, Divorce and Remarriage in Europe and North America. In *United Nations International Conference on Ageing Populations in the Context of the Family*. Kitakyushyu, Japan.

Mandemakers, J. J., Monden, C., & Kalmijn, M. (2010). Are the effects of divorce on psychological distress modified by family background. *Advances in Life Course Research*, *15*, 27–40.

Manting, D., & Bouman, A. M. (2006). Short- and Long-Term Economic Consequences of the Dissolution of Marital and Consensual Unions . The Example of the Netherlands. *European Sociological Review*, *22*(4), 413–429. https://doi.org/10.1093/esr/jcl005

Peterson, R. R. (1996). A Re-Evaluation of the Economic Consequences of Divorce. *American Sociological Review*, *61*(3), 528–536. https://doi.org/10.2307/2096363

Poortman, A. (2000). Sex Differences in the Economic Consequences of Separation A Panel Study of the Netherlands. *European Economic Review*, *16*(4), 367–383.

Smock, P. J. (1993). The economic costs of marital disruption for Young Women over the past two decades. *Demography*, *30*(3), 353–371. https://doi.org/10.2307/2061645

Smock, P. J. (1994). Gender and the Short-Run Economic Consequences of Marital Disruption*. *Social Forces*, *73*(1), 243–262. Retrieved from http://dx.doi.org/10.1093/sf/73.1.243

Smock, P. J., Manning, W., & Gupta, S. (1999). The Effect of Marriage and Divorce on Women ' s Economic Well-Being. *American Sociological Review*, *64*(6), 794–812.

Sørensen, A. (1994). Women's Economic Risk and the Economic Position of Single Mothers. *European Sociological Review*, *10*(2), 173–188. Retrieved from http://dx.doi.org/10.1093/oxfordjournals.esr.a036328

Strohschein, L., McDonough, P., Monette, G., & Shao, Q. (2005). Marital transitions and mental health: Are there gender differences in the short-term effects of marital status change? *Social Science & Medicine*, (2293–2303).

Thévenon, O. (2011). Family Policies in OECD Countries: A Comparative Analysis. *Population and Development Review*, *37*(1), 57–87. https://doi.org/10.1111/j.1728-4457.2011.00390.x

Uunk, W. (2004). The Economic Consequences of Divorce for Women in the European Union: The Impact of Welfare State Arrangements. *European Journal of Population/ Revue Europenne de Demographie*, *20*(3), 251–285. https://doi.org/10.1007/s10680-004-1694-0

van Damme, M., Kalmijn, M., & Uunk, W. (2009). The Employment of Separated Women in Europe: Individual and Insitutional Determinants. *European Sociological Review*, *25*(2), 183–197.

Williams, K. (2003). Has the future of marriage arrived? A contemporary examination of gender, marriage, and psychological well-being. *Journal of Health and Social Behavior*, *44*, 470–487.

Williams, K., & Dunne-Bryant, A. (2006). Divorce and adults psychological well-being: Clarifying the role of gender and child age. *Journal of Marriage and Family*, *68*, 1178–1196.

Tables

Table 1: Summary Statistics by Study Sample and Family Size

GSOEP	*Childless*		*One Child*		*Two Children*		*Three or More Children*	
	Divorce	Control	Divorce	Control	Divorce	Control	Divorce	Control
Proportion in Poverty	0.14	0.09	0.18	0.07	0.22	0.07	0.29	0.12
Eq. HH Income	24.61	24.77	21	25.7	19.9	23.93	16.71	21.78
Number of Years of Education	11.57	11.01	11.86	11.6	11.68	11.79	11.15	11.38
Age of Youngest Child	2.59	0	8.63	6.5	9.45	8.78	9.95	9.81
Year of Divorce	2001.64		2001.56		2002.56		2005.67	
Age at Divorce	44.59		38.08		36.31		36.95	
Number of Children in HH	0.35	0	1	0.86	1.43	1.63	2.58	2.59
Year of Birth	1957.05	1945.34	1963.48	1962.48	1966.25	1966.38	1968.72	1967.26
Observations	5,313	52,557	4,998	27,752	4,425	41,815	1,655	21,493
Respondents	354	8,032	346	3,801	315	5,040	159	2,883

Table 1, continued

HILDA	*Childless*		*One Child*		*Two Children*		*Three or More Children*	
	Divorce	Control	Divorce	Control	Divorce	Control	Divorce	Control
Proportion in Poverty	0.25	0.25	0.15	0.11	0.18	0.08	0.29	0.13
Eq. HH Income	52.15	55.57	51.35	61.17	44.41	58.61	37.54	52.5
Number of Years of Education	12.11	11.62	12.4	12.5	12.54	13.03	12	12.52
Age of Youngest Child	1.62	0	7.88	4.8	8.73	7.64	9.24	8.13
Year of Divorce	2008.52		2008.23		2008.22		2006.98	
Age at Divorce	47.92		39.39		38.58		37.28	
Number of Children in HH	0.35	0	1.12	0.67	1.55	1.34	2.51	2.21
Year of Birth	1960.6	1961.01	1968.84	1971.33	1969.63	1971.46	1969.7	1971.91
Observations	2,734	25,542	1,632	9,426	2,554	15,978	1,270	11,476
Respondents	242	4,314	138	1,554	202	1,932	105	1,310

Table 1, continued

SHP	*Childless*		*One Child*		*Two Children*		*Three or More Children*	
	Divorce	Control	Divorce	Control	Divorce	Control	Divorce	Control
Proportion in Poverty	0.16	0.16	0.22	0.09	0.31	0.11	0.22	0.2
Eq. HH Income	60.15	62.13	47.63	63.71	43.35	54.96	53.07	48.68
Number of Years of Education	12.81	12.14	13.34	12.79	13.07	12.96	12.96	12.7
Age of Youngest Child	1.96	0	9.35	6.2	10.01	8.76	10.19	9.18
Year of Divorce	2007.81		2007.76		2007.04		2007.09	
Age at Divorce	50.28		43.6		40.47		41.41	
Number of Children in HH	0.4	0	1.12	0.8	1.72	1.6	2.56	2.42
Year of Birth	1957.54	1954.12	1964.16	1966.6	1966.57	1967.85	1965.68	1967.64
Observations	1,517	23,044	685	7,149	1,045	12,599	461	6,896
Respondents	145	4,445	67	1,190	89	1,703	34	770

Table 1, continued

BHPS	*Childless*		*One Child*		*Two Children*		*Three or More Children*	
	Divorce	Control	Divorce	Control	Divorce	Control	Divorce	Control
Proportion in Poverty	0.18	0.07	0.25	0.09	0.34	0.11	0.5	0.24
Eq. HH Income	18.98	19.88	16.06	20.94	13.26	19.11	11.62	16.52
Number of Years of Education	12.73	12.02	12.91	12.81	12.87	13.12	12.89	12.81
Age of Youngest Child	1.95	0	8.35	5.32	9.59	7.71	9.54	8.67
Year of Divorce	1999.37		2000.49		2000.14		1999.39	
Age at Divorce	42.47		36.69		36.3		34.82	
Number of Children in HH	0.35	0	0.93	0.69	1.6	1.35	2.46	2.3
Year of Birth	1956.92	1949.1	1963.78	1963.22	1963.85	1963.57	1964.57	1964.8
Observations	2,302	32,237	2,191	11,840	2,753	19,813	1,515	10,570
Respondents	181	5,032	179	1,609	220	2,069	121	1,154

Table 1, continued

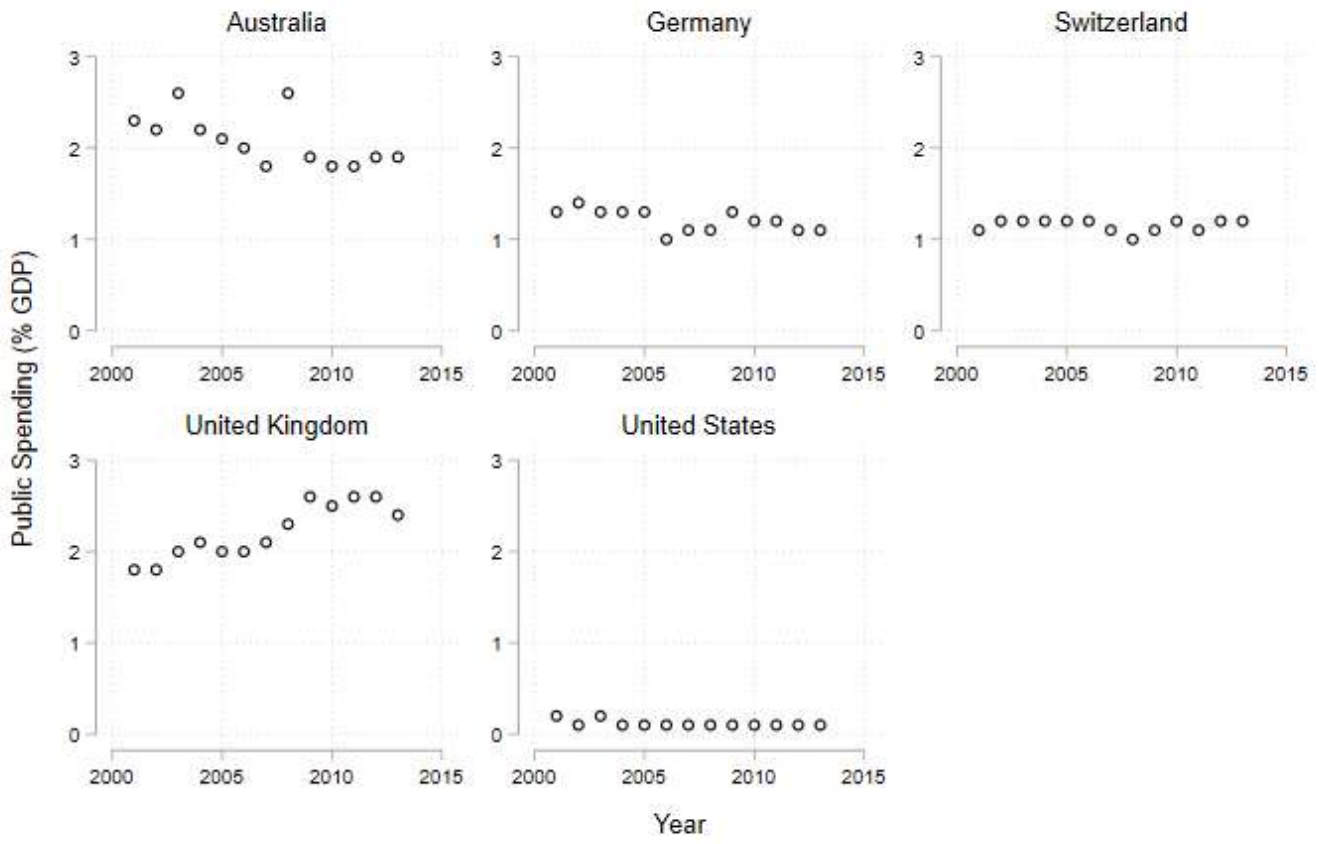
PSID	*Childless*		*One Child*		*Two Children*		*Three or More Children*	
	Divorce	Control	Divorce	Control	Divorce	Control	Divorce	Control
Proportion in Poverty	0.27	0.19	0.32	0.15	0.36	0.12	0.48	0.22
Eq. HH Income	33.93	42.64	28.61	41.8	27.4	42.73	22.31	35.09
Number of Years of Education	12.38	12.14	12.38	12.56	12.4	13.14	11.51	12.17
Age of Youngest Child	3.48	0	7.66	5.3	7.5	6.9	7.69	7.48
Year of Divorce	1984.03		1984.23		1984.16		1982.12	
Age at Divorce	35.88		29.88		32.05		33.68	
Number of Children in HH	0.36	0	0.73	0.6	1.09	0.96	2.18	1.85
Year of Birth	1948.15	1947.56	1954.35	1958.18	1952.11	1959.46	1948.44	1955.18
Observations	7,637	17,555	8,699	16,087	10,405	34,659	7,388	40,906
Respondents	399	2,615	429	1,921	484	2,828	345	2,839

Note: Averages and standard deviations in parentheses displayed. Equivalized household incomes displayed in steps of 1,000 and are adjusted for inflation to 2015 values in national currencies.

Figures

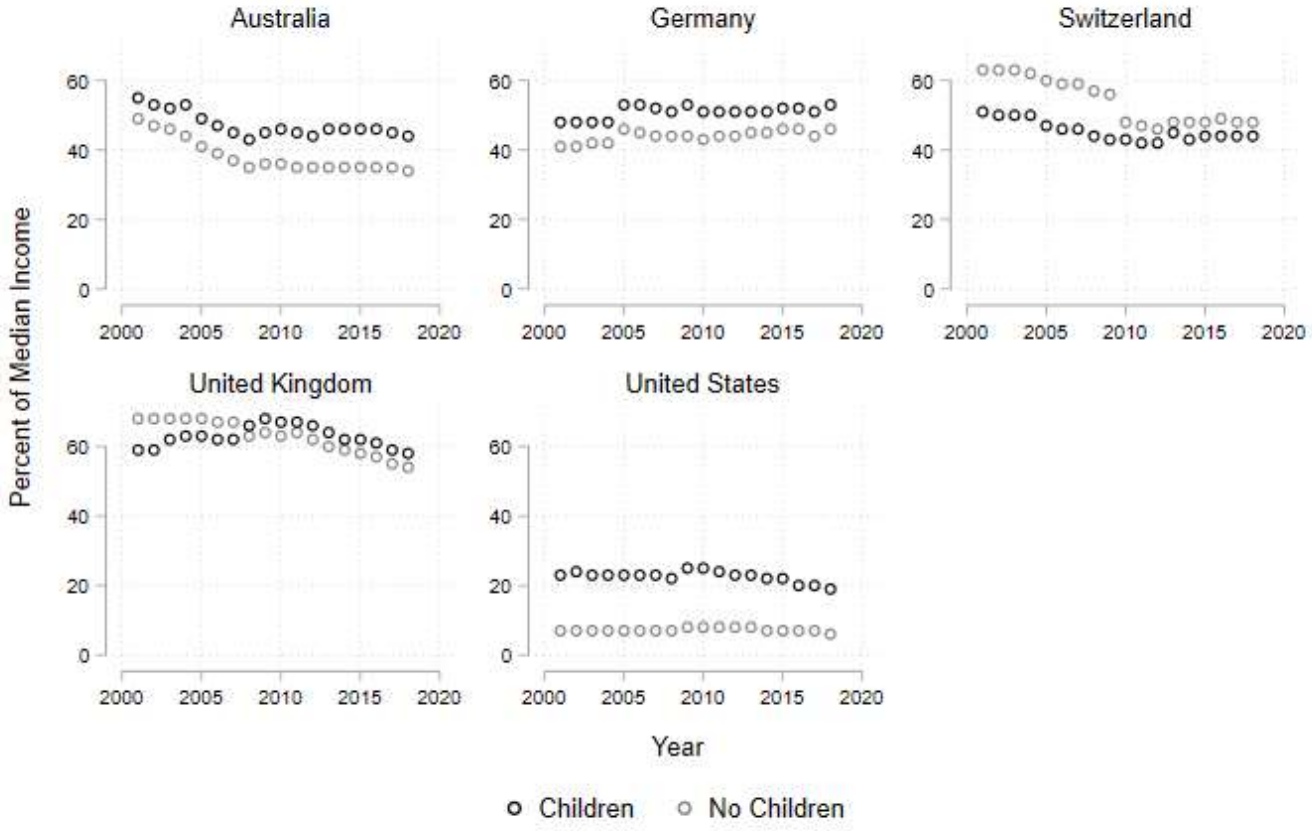
Figure 1: Income-Related Policies across Time in Study Countries:

a) Public Spending on Cash Benefits for Families



Note: Cash benefits include all child-related cash transfers to families with children, e.g. child allowances, income support during parental leave, income support for single parent families. Source: OECD Family Database.

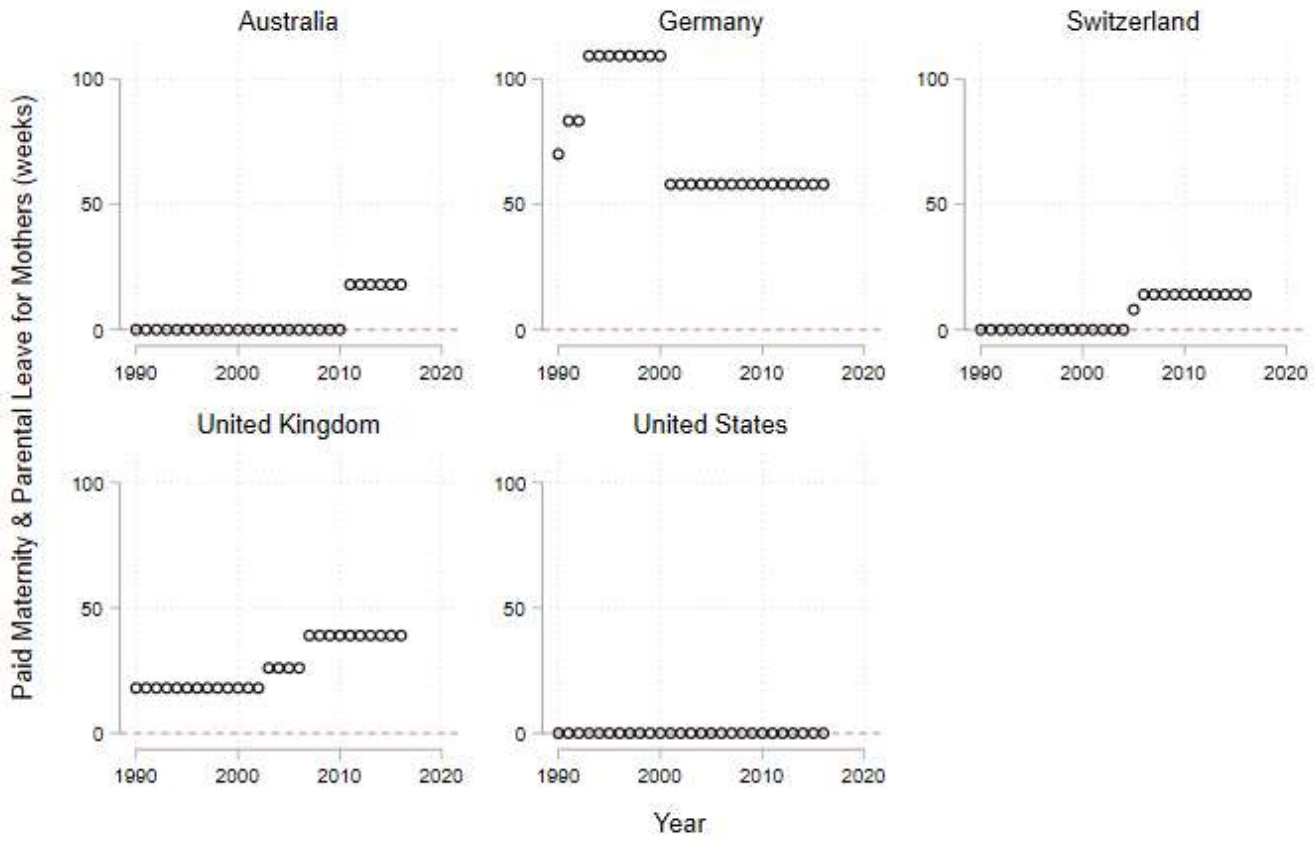
b) Adequacy of Income and Housing Benefits for Single Households with and without Children



Note: The income of jobless families relying on minimum-income safety-net benefits including housing benefits is displayed as a percentage of the median disposable income in the population. Source: OECD Tax-Benefit Database.

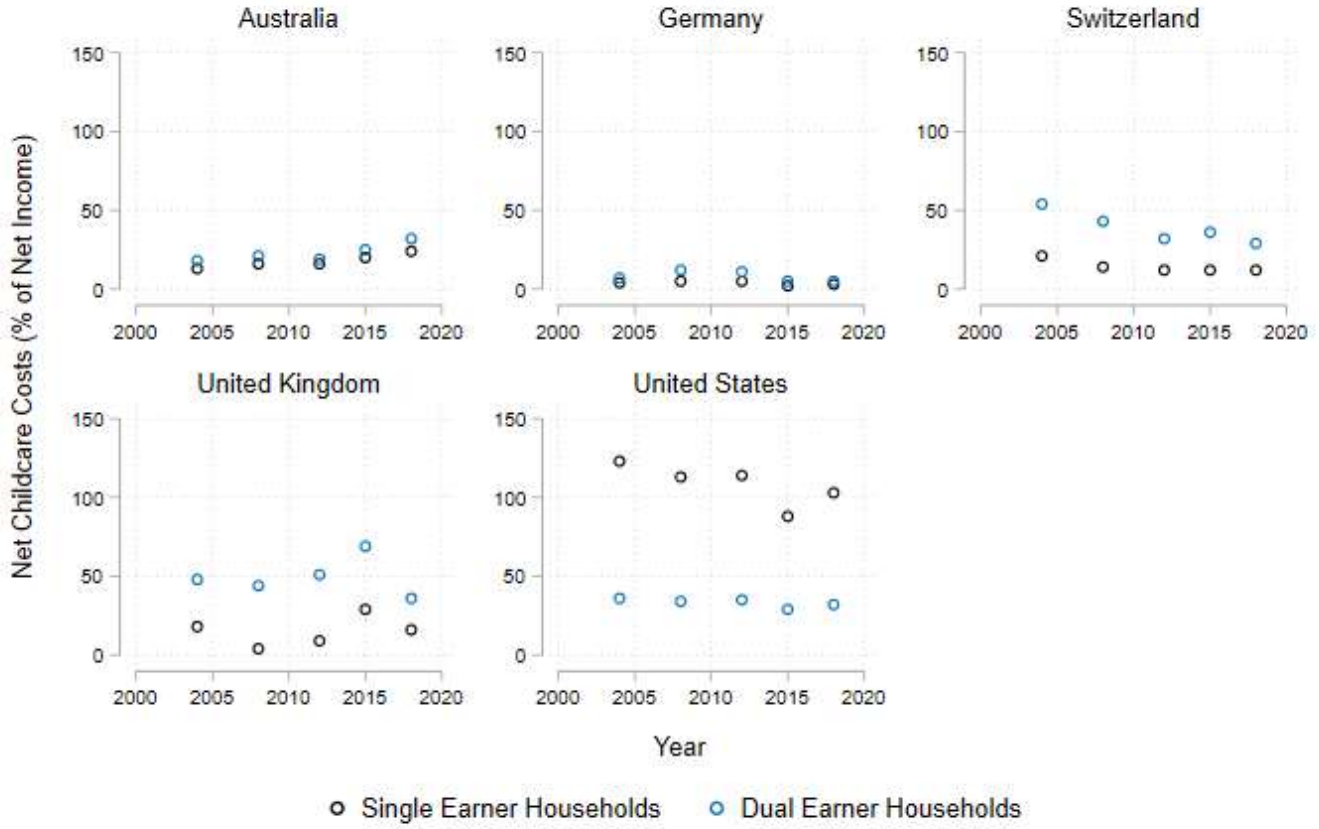
Figure 1: Employment-Related Policies across Time in Study Countries:

a) Paid Maternity and Parental Leave for Mothers



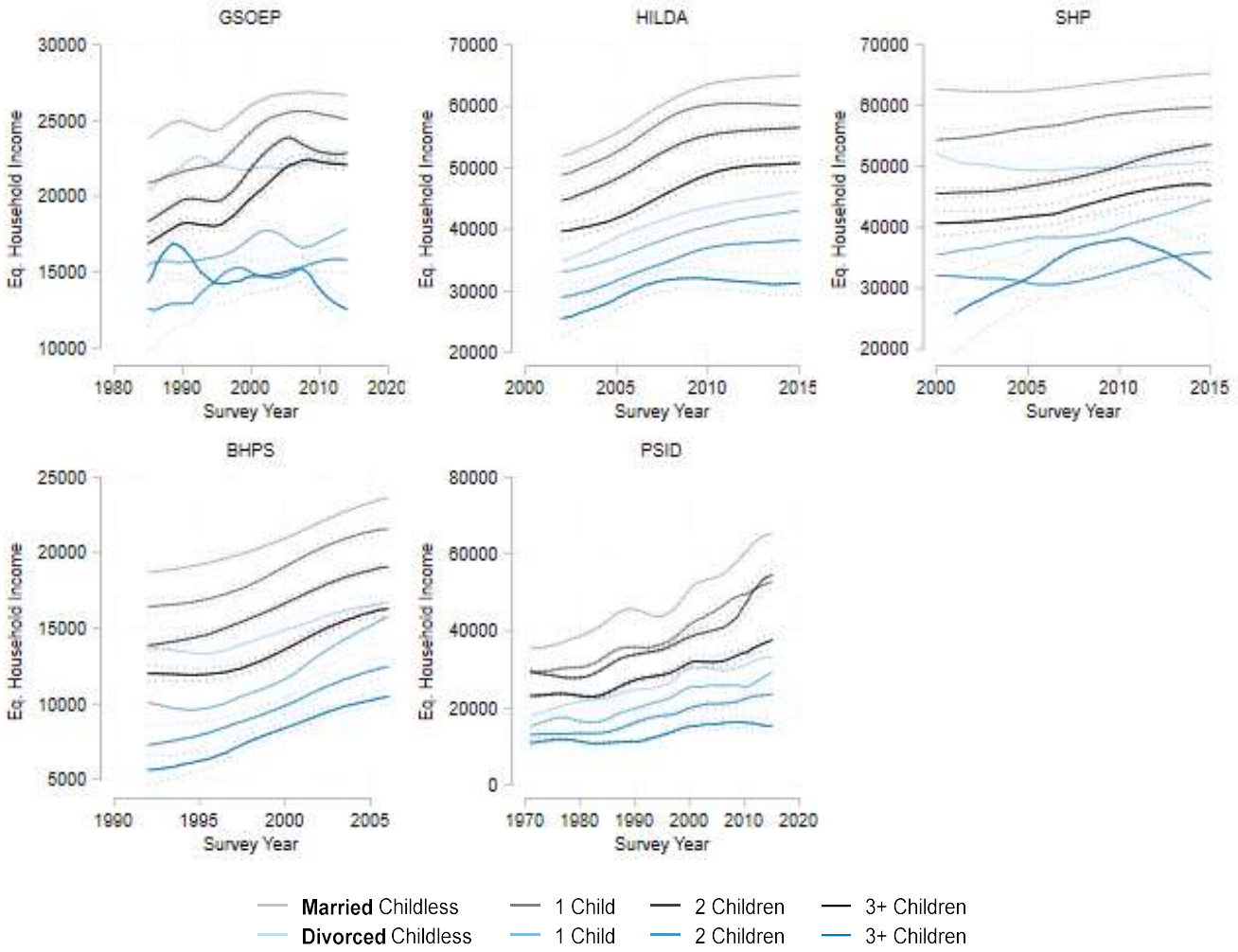
Note: Number of weeks of maternity, parental, and home care leave that is employment-protected and paid that can be used by the mother. Source: OECD Family Database.

b) Net Cost of Childcare Services for Single and Dual Earner Household



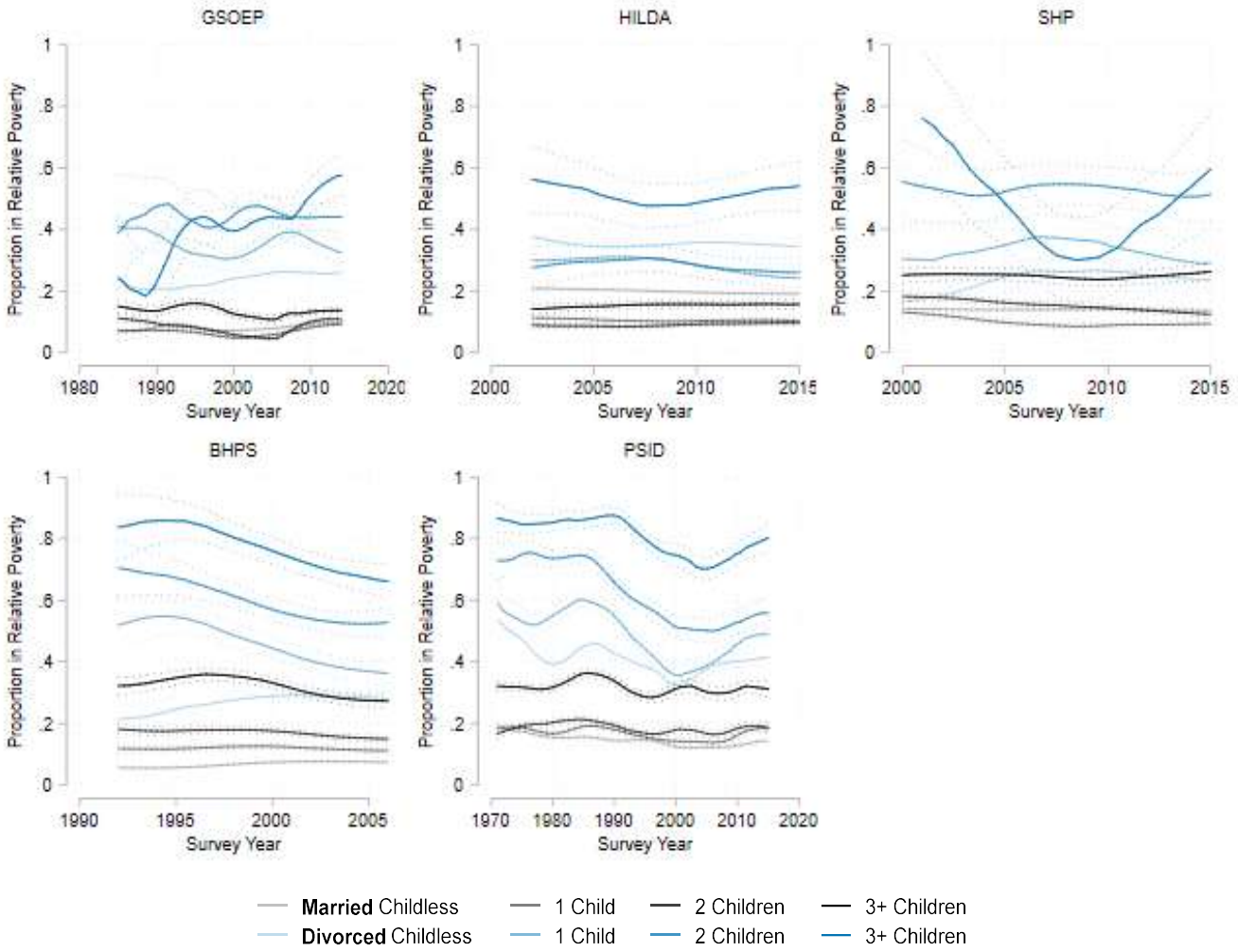
Note: The net costs of full-time care in a typical childcare center families where the first earner makes 67 percent of average earnings and the second for a dual-earner household earns the average, where both parents are employed full-time with children aged 2 and 3. Source: OECD Family Database.

Figure 3a: Average Equivalized Household Income across Studies' Observation Window for Married (Black) and Divorced (Blue) Respondents by Family Size



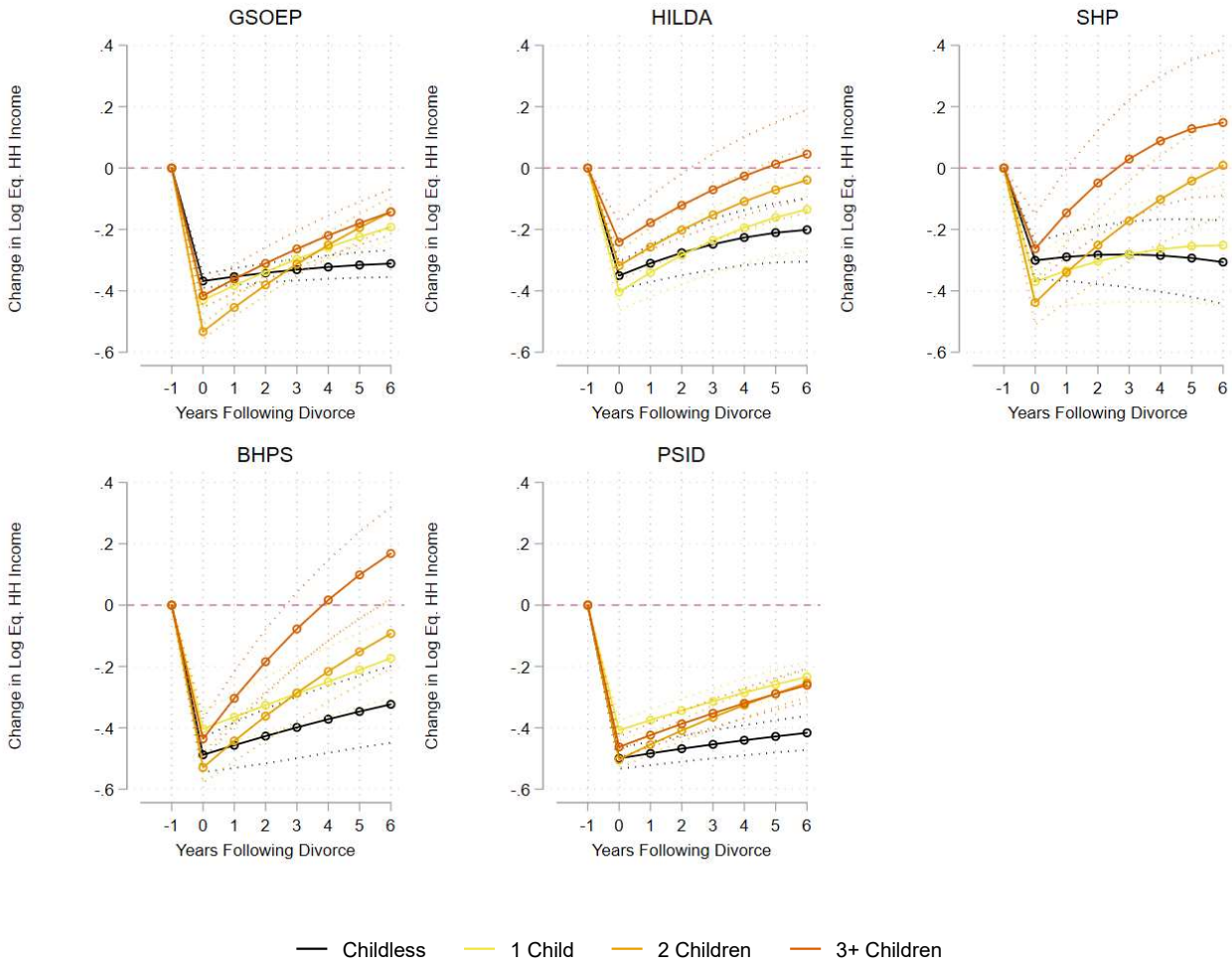
Note: Averages and 95% confidence intervals displayed using a local polynomial smoothing function. Incomes adjusted to inflation in 2015 values in national currencies.

Figure 3b: Proportion of Married (Black) and Divorced (Blue) Respondents in Relative Poverty across Studies' Observation Window by Family Size



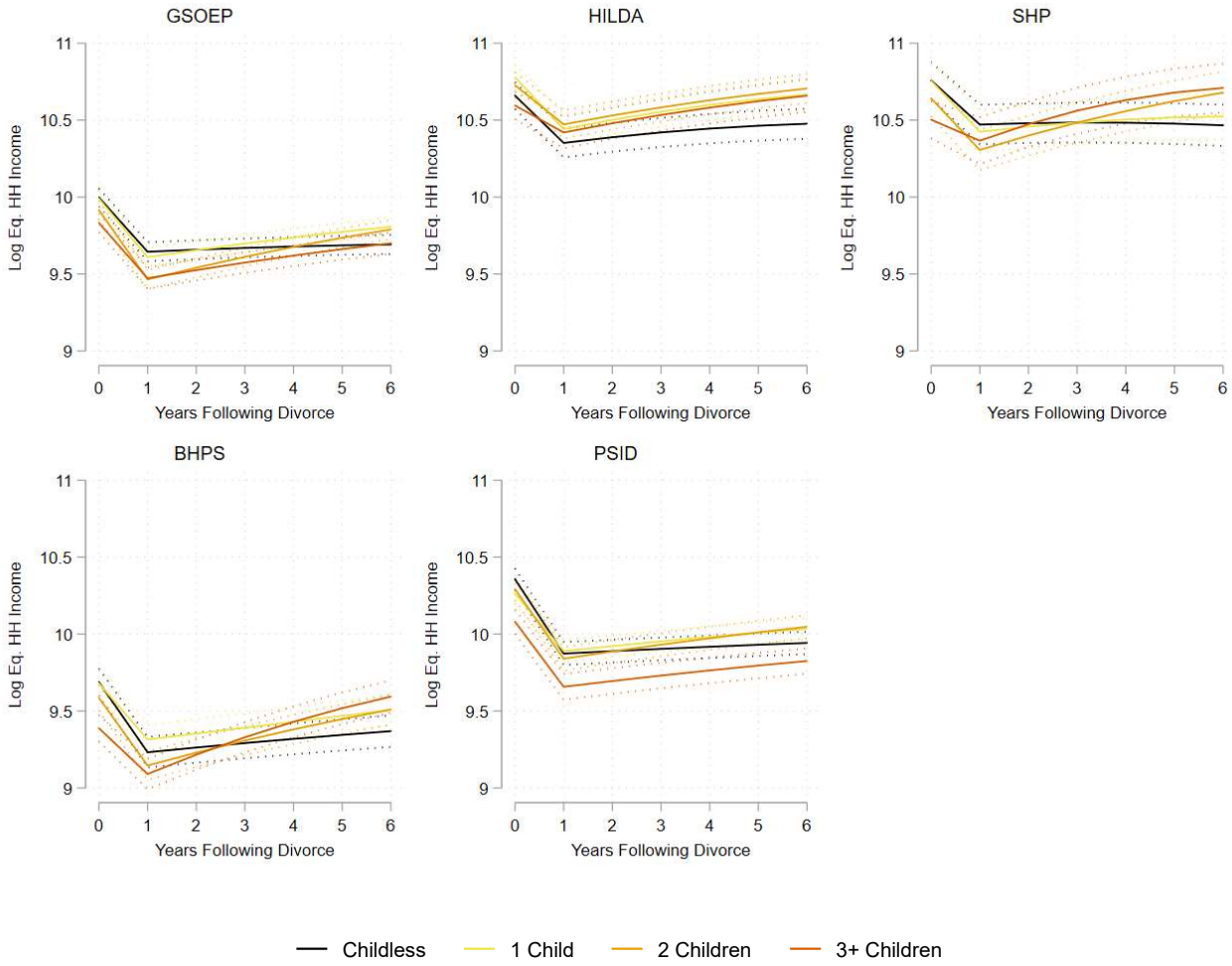
Note: Averages and 95% confidence intervals displayed using a local polynomial smoothing function.

Figure 4a: Estimated Change in Log Equivalized Household Income following Divorce



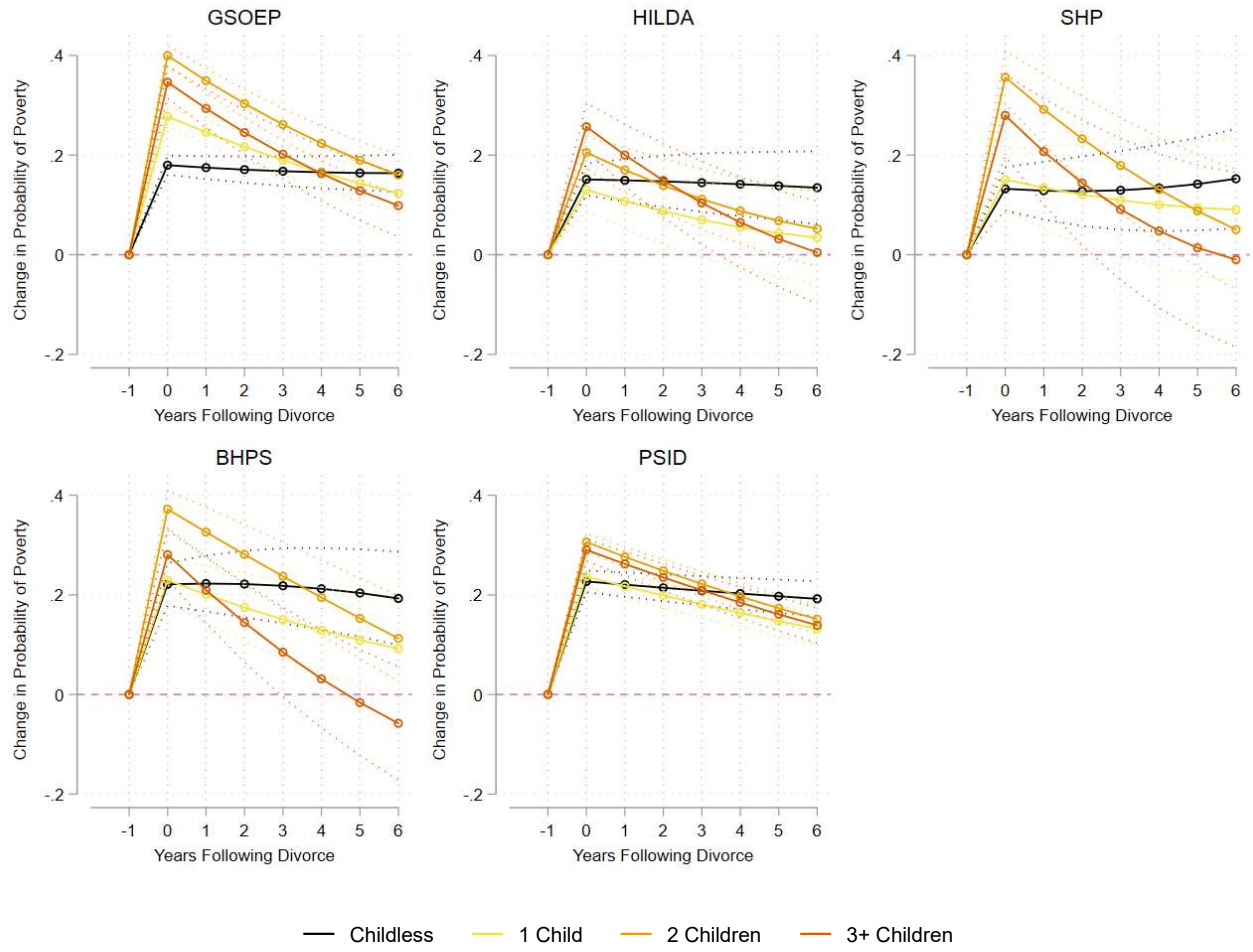
Note: Estimated coefficients and 95% confidence intervals displayed.

Figure 4b: Predicted Log Equivalized Household Income following Divorce



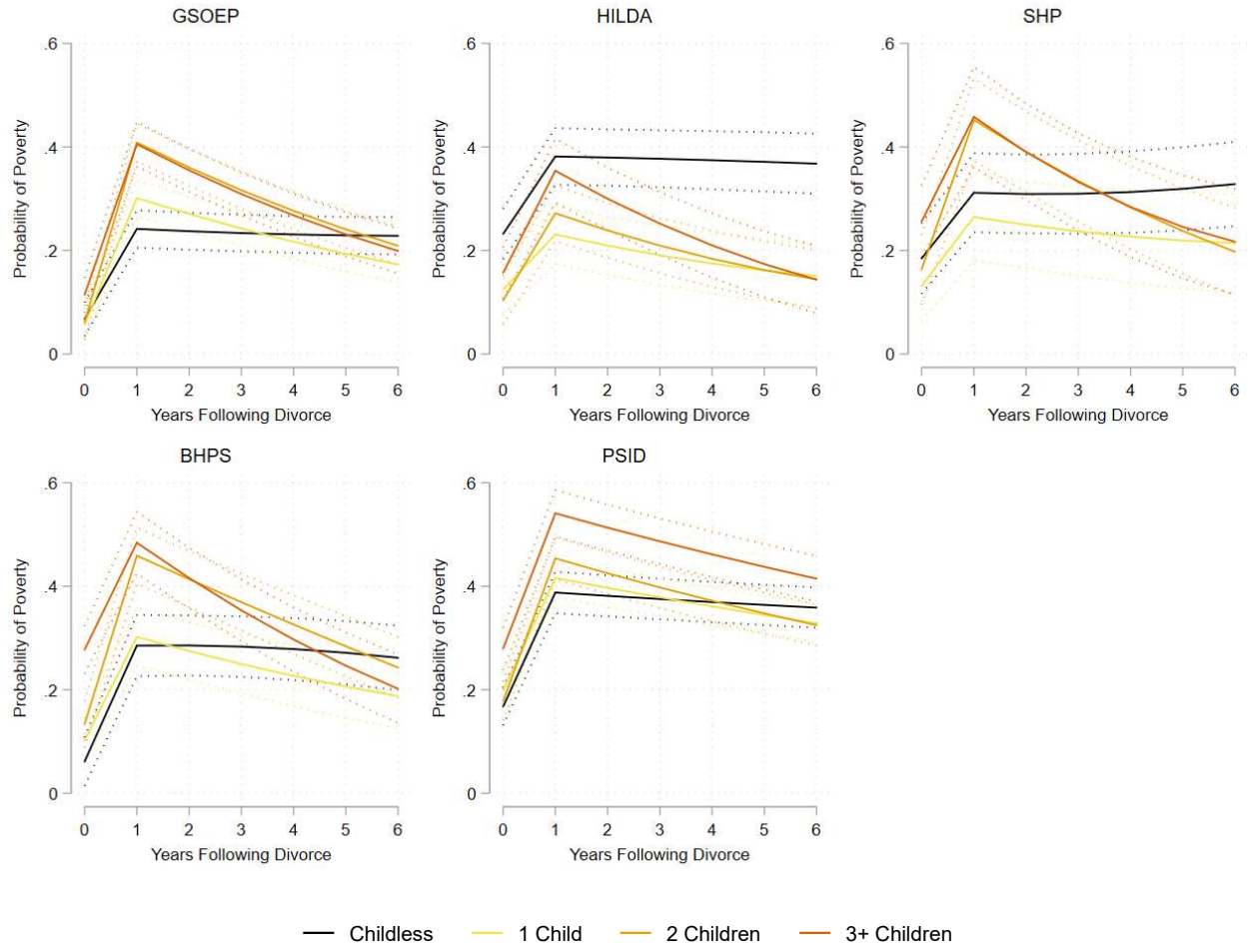
Note: Predicted probabilities and 95% confidence intervals displayed.

Figure 5a: Estimated Change in the Probability of Poverty following Divorce



Note: Estimated coefficients and 95% confidence intervals displayed.

Figure 5b: Predicted Probability of Poverty following Divorce



Note: Predicted probabilities and 95% confidence intervals displayed.

Appendix

Tables

Table A1: Results from Hybrid Random Effects Regressions on Log Equivalized Household Income following Divorce by Study

Log Household Income	GSOEP	HILDA	SHP	BHPS	PSID
Divorce					
Between	0.130	0.054	0.648*	0.258	-0.297+
	(0.111)	(0.184)	(0.222)	(0.211)	(0.145)
Within	-0.368**	-0.351**	-0.301**	-0.488**	-0.499**
	(0.011)	(0.023)	(0.030)	(0.029)	(0.017)
Duration					
Between	0.016	-0.025	-0.165+	-0.037	0.048+
	(0.027)	(0.072)	(0.079)	(0.069)	(0.024)
Within	0.016**	0.046**	0.016	0.033*	0.017**
	(0.003)	(0.009)	(0.012)	(0.011)	(0.002)
Duration^2					
Between	0.000	0.001	0.021	0.006	-0.001
	(0.002)	(0.010)	(0.011)	(0.008)	(0.001)
Within	-0.001**	-0.003**	-0.002+	-0.001	-0.000**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Family Size					
(ref. Childless)					
1 Child	-0.056**	-0.089**	-0.103**	-0.072**	-0.084**
	(0.009)	(0.015)	(0.017)	(0.016)	(0.019)
2 Children	-0.134**	-0.154**	-0.231**	-0.156**	-0.123**
	(0.009)	(0.014)	(0.015)	(0.014)	(0.017)
3+ Children	-0.219**	-0.282**	-0.377**	-0.344**	-0.374**
	(0.010)	(0.016)	(0.019)	(0.017)	(0.017)
Family Size*Divorce					
Between					
1 Child	-0.268+	0.153	-1.067**	-0.618+	-0.048
	(0.124)	(0.264)	(0.292)	(0.260)	(0.182)
2 Children	-0.535**	-0.280	-0.940*	-0.737*	-0.240
	(0.124)	(0.250)	(0.287)	(0.250)	(0.187)
3+ Children	-0.540**	-0.538	0.569	-0.938**	-0.323
	(0.134)	(0.296)	(0.562)	(0.272)	(0.192)
Within					
1 Child	-0.062**	-0.053	-0.070	0.085+	0.092**
	(0.016)	(0.038)	(0.053)	(0.041)	(0.024)
2 Children	-0.165**	0.032	-0.137*	-0.041	-0.004
	(0.017)	(0.033)	(0.047)	(0.038)	(0.023)
3+ Children	-0.048+	0.109*	0.038	0.052	0.037

	(0.022)	(0.041)	(0.064)	(0.044)	(0.025)
Family Size*Duration					
Between					
1 Child	-0.005	-0.009	0.294+	0.209+	-0.062
	(0.036)	(0.120)	(0.141)	(0.102)	(0.034)
2 Children	0.067	0.014	0.247	0.133	-0.031
	(0.037)	(0.110)	(0.130)	(0.098)	(0.033)
3+ Children	0.067	0.097	-0.278	0.183	-0.012
	(0.047)	(0.130)	(0.205)	(0.106)	(0.035)
Within					
1 Child	0.035**	0.025	0.027	0.005	0.017**
	(0.004)	(0.015)	(0.021)	(0.016)	(0.003)
2 Children	0.068**	0.020	0.091**	0.059**	0.034**
	(0.004)	(0.013)	(0.019)	(0.015)	(0.003)
3+ Children	0.042**	0.023	0.120**	0.111**	0.024**
	(0.005)	(0.016)	(0.023)	(0.017)	(0.003)
Family Size*Duration^2					
Between					
1 Child	-0.000	-0.005	-0.026	-0.030+	0.003
	(0.003)	(0.017)	(0.019)	(0.012)	(0.002)
2 Children	-0.005	0.004	-0.028	-0.016	0.001
	(0.003)	(0.015)	(0.018)	(0.012)	(0.002)
3+ Children	-0.006	-0.006	0.028	-0.021	0.001
	(0.004)	(0.017)	(0.024)	(0.013)	(0.002)
Within					
1 Child	-0.001**	-0.001	-0.001	0.001	-0.000**
	(0.000)	(0.001)	(0.002)	(0.001)	(0.000)
2 Children	-0.002**	0.000	-0.002	-0.002	-0.001**
	(0.000)	(0.001)	(0.002)	(0.001)	(0.000)
3+ Children	-0.001**	0.000	-0.007**	-0.005**	-0.001**
	(0.000)	(0.001)	(0.002)	(0.002)	(0.000)
Sample Indicator					
(ref. Control)					
Divorce	-0.001	-0.067	-0.136+	-0.087	-0.016
	(0.032)	(0.048)	(0.064)	(0.047)	(0.046)
Age					
Between	0.013**	0.010**	0.006**	0.009**	0.020**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Within	0.006**	0.016**	0.007**	0.027**	0.012**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age^2					
Between	-0.001**	-0.001**	-0.000**	-0.000**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Within	-0.001**	-0.001**	0.001**	0.001**	-0.000**

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year Indicator	0.004**	0.026**	0.012**	0.025**	0.009**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Constant	10.088**	11.041**	11.021**	10.105**	10.679**
	(0.008)	(0.010)	(0.011)	(0.017)	(0.016)
Random Effects					
Intercept	0.149**	0.183**	0.171**	0.170**	0.297**
	(0.002)	(0.003)	(0.003)	(0.003)	(0.005)
Residual	0.069**	0.141**	0.134**	0.120**	0.215**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	157,151	70,387	50,027	57,268	142,818
Respondents	20,758	9,795	8,149	8,573	11,829

Note: Statistical significance $^{+}$ p<0.05, * p<0.01, ** p<0.001; Unstandardized coefficients and standard errors in parentheses displayed.

Table A2: Results from Hybrid Random Effects Regressions on the Probability of Relative Poverty by Study

Relative Poverty	GSOEP	HILDA	SHP	BHPS	PSID
Divorce					
Between	0.031	0.012	-0.258+	0.035	0.203*
	(0.062)	(0.105)	(0.132)	(0.119)	(0.076)
Within	0.180**	0.151**	0.132**	0.221**	0.227**
	(0.010)	(0.016)	(0.022)	(0.022)	(0.011)
Duration					
Between	-0.006	0.026	0.099+	0.005	-0.026+
	(0.015)	(0.041)	(0.047)	(0.038)	(0.013)
Within	-0.006*	-0.001	-0.007	0.004	-0.007**
	(0.002)	(0.007)	(0.009)	(0.008)	(0.001)
Duration^2					
Between	-0.000	-0.003	-0.015+	-0.003	0.001
	(0.001)	(0.006)	(0.006)	(0.004)	(0.001)
Within	0.000**	-0.000	0.001	-0.001	0.000*
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Family Size					
(ref. Childless)					
1 Child	-0.004	0.015	0.003	0.011	0.033*
	(0.005)	(0.009)	(0.010)	(0.009)	(0.010)
2 Children	-0.000	0.018+	0.046**	0.035**	0.035**
	(0.005)	(0.008)	(0.009)	(0.008)	(0.009)
3+ Children	0.052**	0.069**	0.146**	0.167**	0.154**
	(0.006)	(0.009)	(0.011)	(0.010)	(0.009)
Family Size*Divorce					
Between					
1 Child	0.134	0.019	0.571*	0.173	-0.021
	(0.071)	(0.151)	(0.174)	(0.146)	(0.096)
2 Children	0.307**	0.157	0.593**	0.553**	0.204+
	(0.071)	(0.143)	(0.171)	(0.140)	(0.099)
3+ Children	0.240*	0.305	-0.151	0.786**	0.303*
	(0.077)	(0.170)	(0.330)	(0.154)	(0.101)
Within					
1 Child	0.098**	-0.021	0.019	0.008	0.010
	(0.014)	(0.027)	(0.039)	(0.031)	(0.015)
2 Children	0.220**	0.054+	0.224**	0.151**	0.079**
	(0.014)	(0.023)	(0.035)	(0.029)	(0.014)
3+ Children	0.167**	0.106**	0.147*	0.060	0.063**
	(0.019)	(0.029)	(0.047)	(0.033)	(0.016)

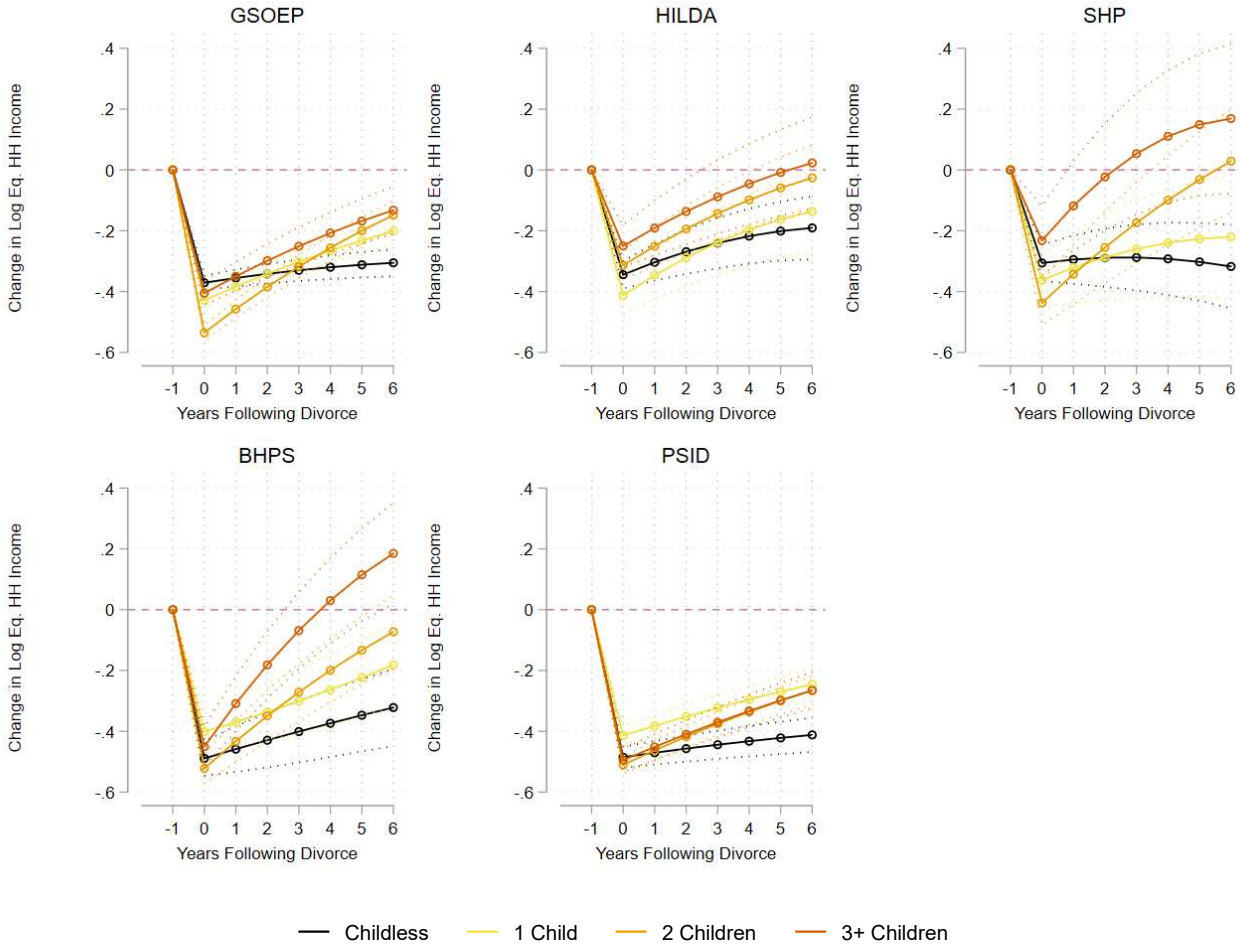
Family Size*Duration					
Between					
1 Child	-0.007	-0.043	-0.154	-0.061	0.027
	(0.020)	(0.068)	(0.082)	(0.056)	(0.018)
2 Children	-0.056*	-0.049	-0.187+	-0.147*	0.003
	(0.021)	(0.062)	(0.076)	(0.053)	(0.017)
3+ Children	-0.037	-0.061	0.050	-0.188*	-0.004
	(0.026)	(0.074)	(0.120)	(0.058)	(0.018)
Within					
1 Child	-0.028**	-0.024+	-0.012	-0.035*	-0.013**
	(0.003)	(0.011)	(0.015)	(0.012)	(0.002)
2 Children	-0.048**	-0.037**	-0.063**	-0.051**	-0.024**
	(0.003)	(0.009)	(0.014)	(0.011)	(0.002)
3+ Children	-0.051**	-0.061**	-0.075**	-0.081**	-0.023**
	(0.004)	(0.011)	(0.017)	(0.013)	(0.002)
Family Size*Duration^2					
Between					
1 Child	0.001	0.009	0.015	0.012	-0.001
	(0.002)	(0.009)	(0.011)	(0.006)	(0.001)
2 Children	0.004*	0.003	0.023+	0.017*	0.000
	(0.002)	(0.008)	(0.010)	(0.006)	(0.001)
3+ Children	0.004	0.004	-0.003	0.020*	0.000
	(0.002)	(0.010)	(0.014)	(0.007)	(0.001)
Within					
1 Child	0.001**	0.002	-0.000	0.002+	0.000**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
2 Children	0.002**	0.002+	0.001	0.002	0.001**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
3+ Children	0.002**	0.003*	0.003+	0.004**	0.000**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Sample Indicator (ref. Control)					
Divorce	-0.033	0.001	0.026	-0.017	-0.021
	(0.018)	(0.027)	(0.036)	(0.025)	(0.024)
Age					
Between	-0.005**	-0.004**	-0.003**	-0.005**	-0.008**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Within	0.001**	0.004**	0.000	-0.002**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Age^2					
Between	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Within	0.000**	0.000	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year Indicator	0.001**	-0.003**	-0.003**	0.000	-0.000
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Constant	0.099**	0.054**	0.078**	0.107**	0.099**
	(0.005)	(0.006)	(0.007)	(0.010)	(0.009)
Random Effects					
Intercept	0.042**	0.054**	0.053**	0.043**	0.078**
	(0.001)	(0.001)	(0.011)	(0.001)	(0.001)
Residual	0.049**	0.000**	0.072**	0.066**	0.088**
	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)
Observations	157,186	70,441	50,122	54,413	142,948
Respondents	20,760	9,795	8,152	8,259	11,834

Note: Statistical significance $^{+}$ p<0.05, * p<0.01, ** p<0.001; Unstandardized coefficients and standard errors in parentheses displayed.

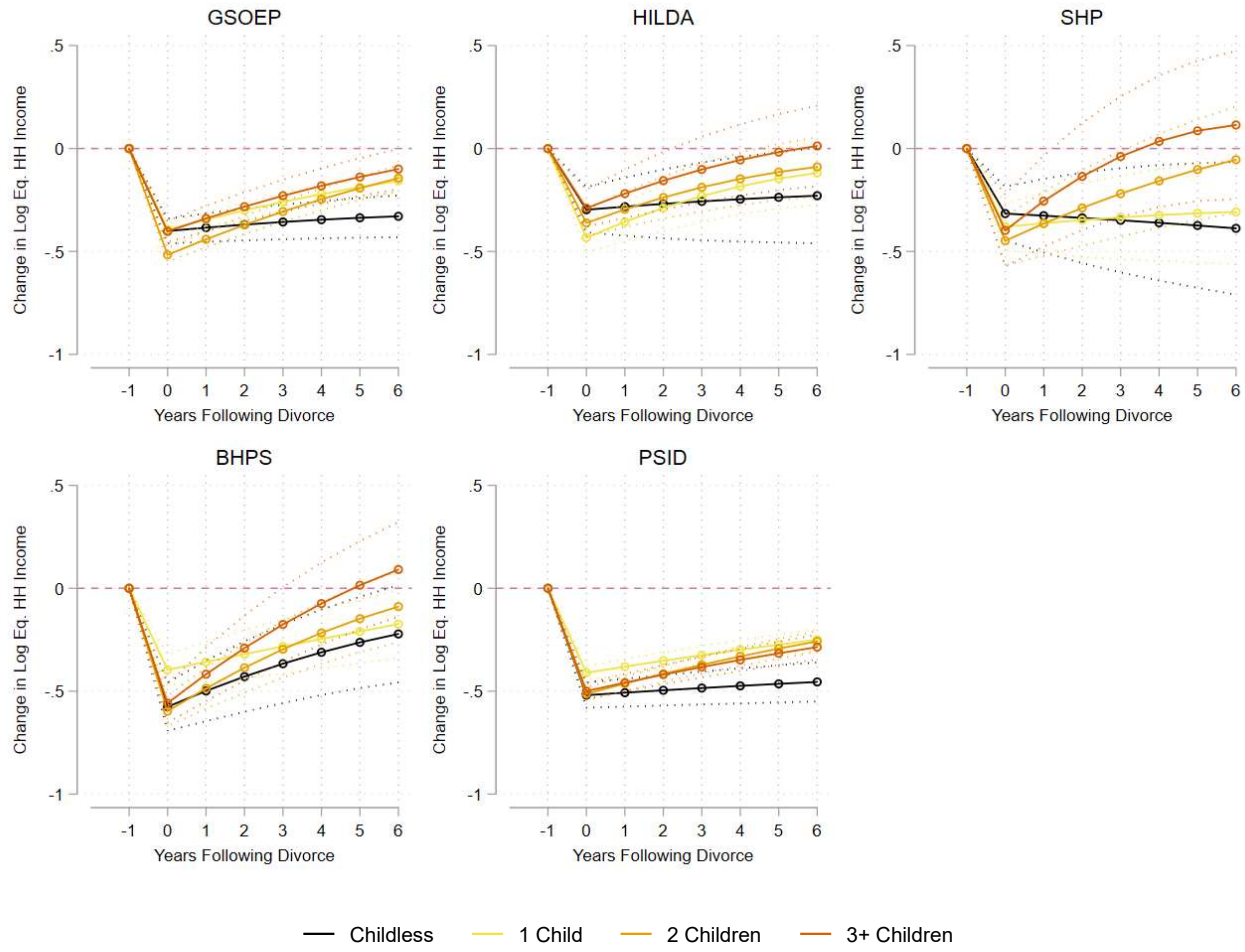
Figures

Figure A1: Estimated Change in Log Equivalized Household Income following Divorce – Adjusted for Years of Education



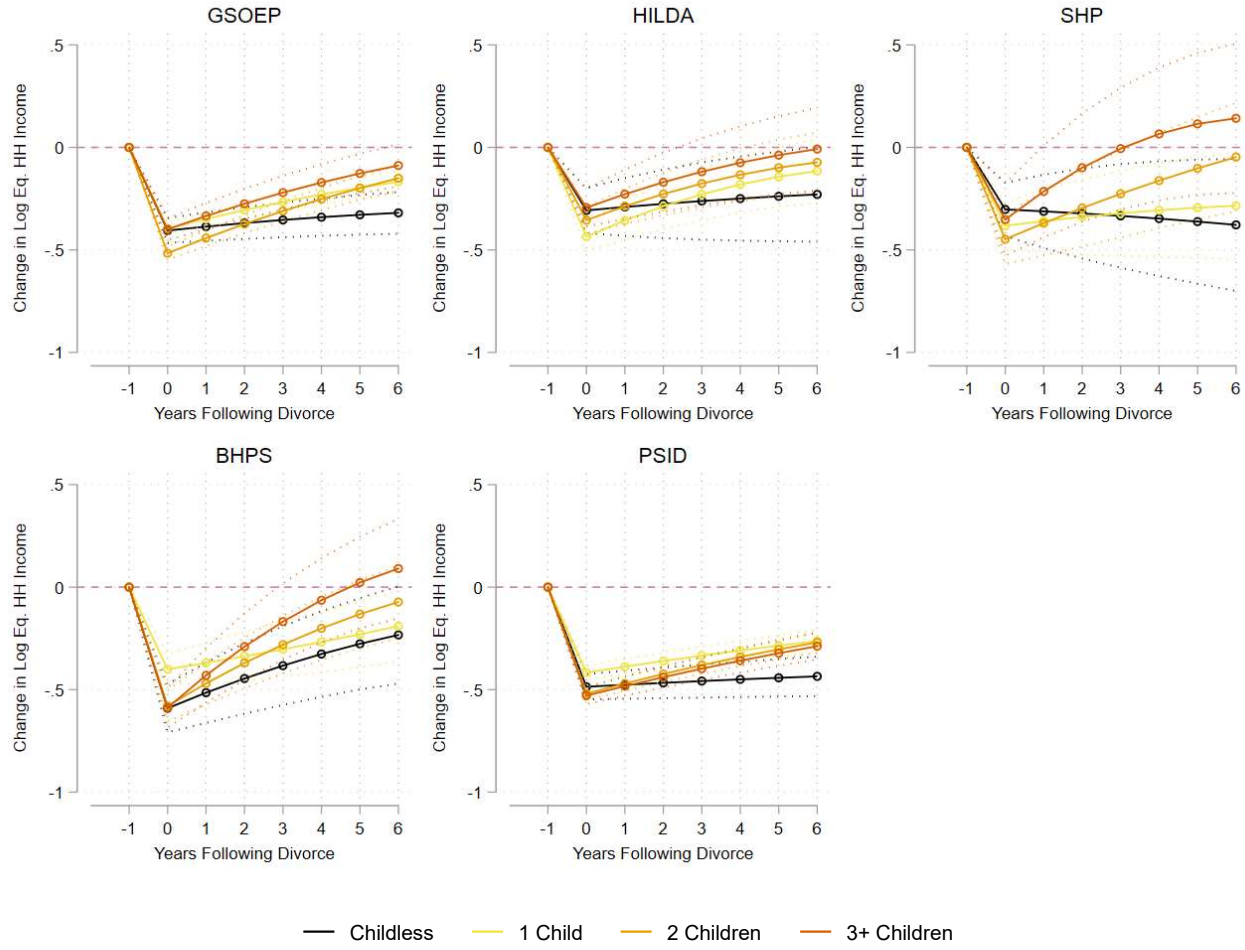
Note: Estimated coefficients and 95% confidence intervals displayed.

Figure A2: Estimated Change in Log Equivalized Household Income following Divorce – Adjusted for Age of the Youngest Child



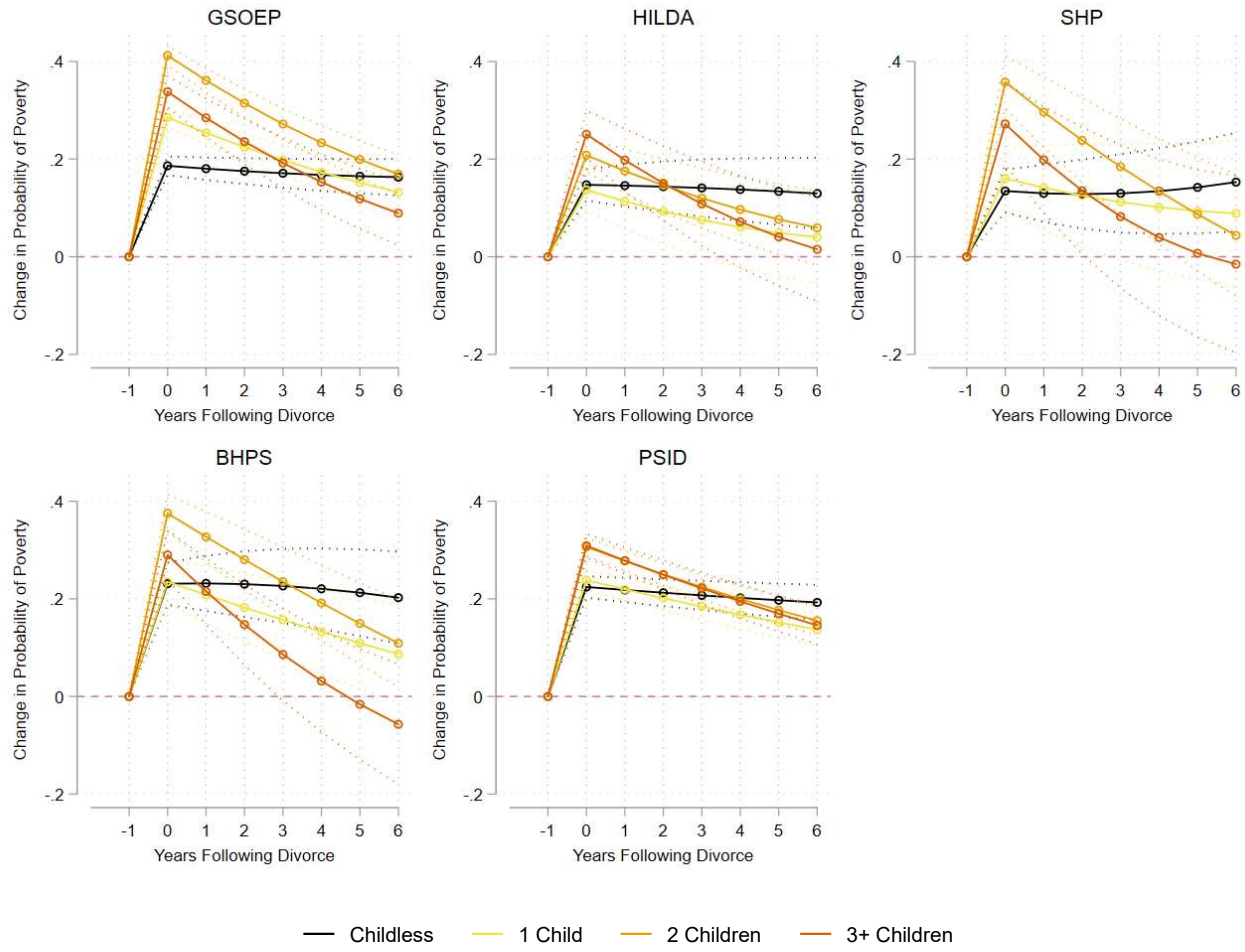
Note: Estimated coefficients and 95% confidence intervals displayed.

Figure A3: Estimated Change in Log Equivalized Household Income following Divorce – Adjusted for Years of Education and the Age of the Youngest Child



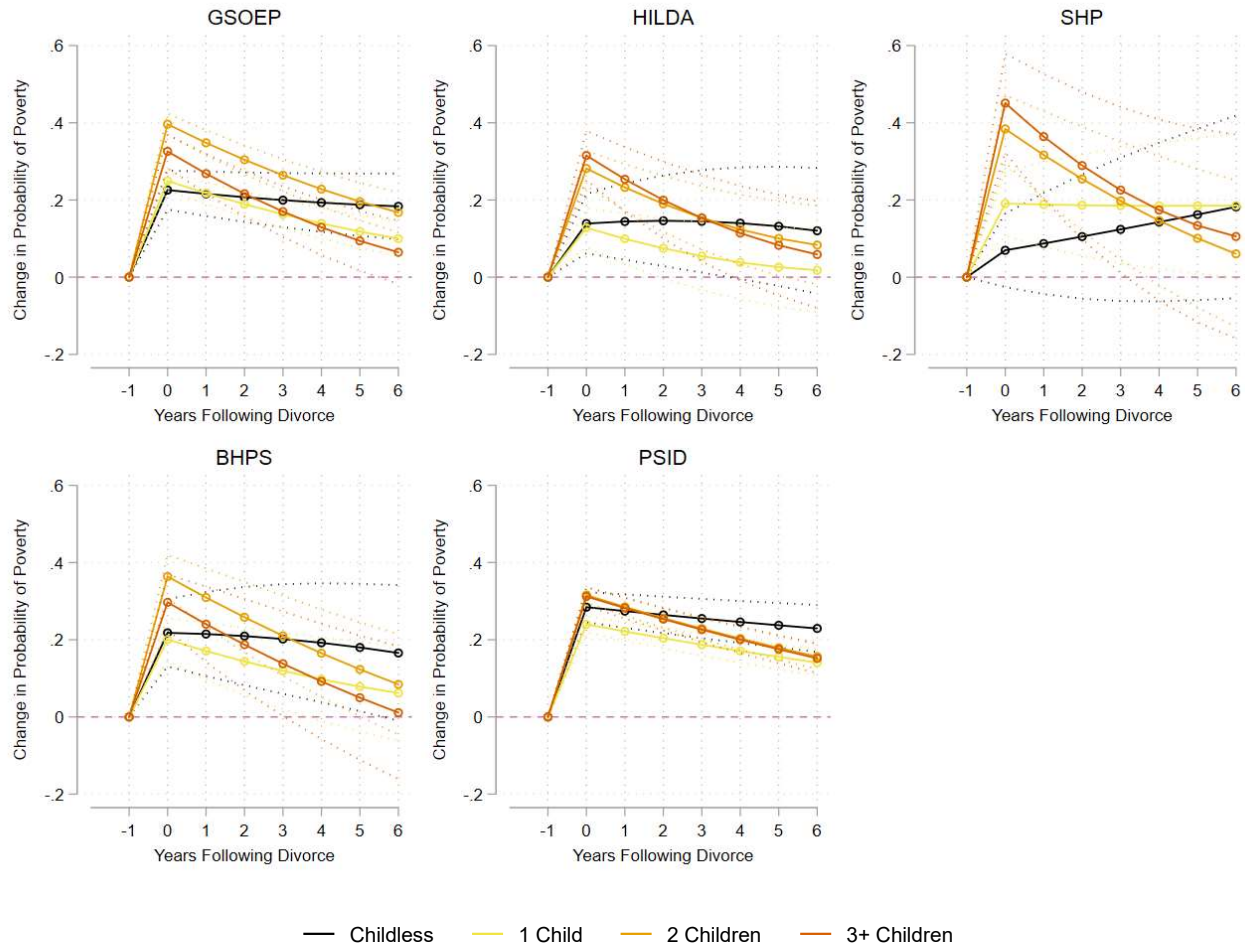
Note: Estimated coefficients and 95% confidence intervals displayed.

Figure A4: Estimated Change in the Probability of Poverty following Divorce – Adjusted for Years of Education



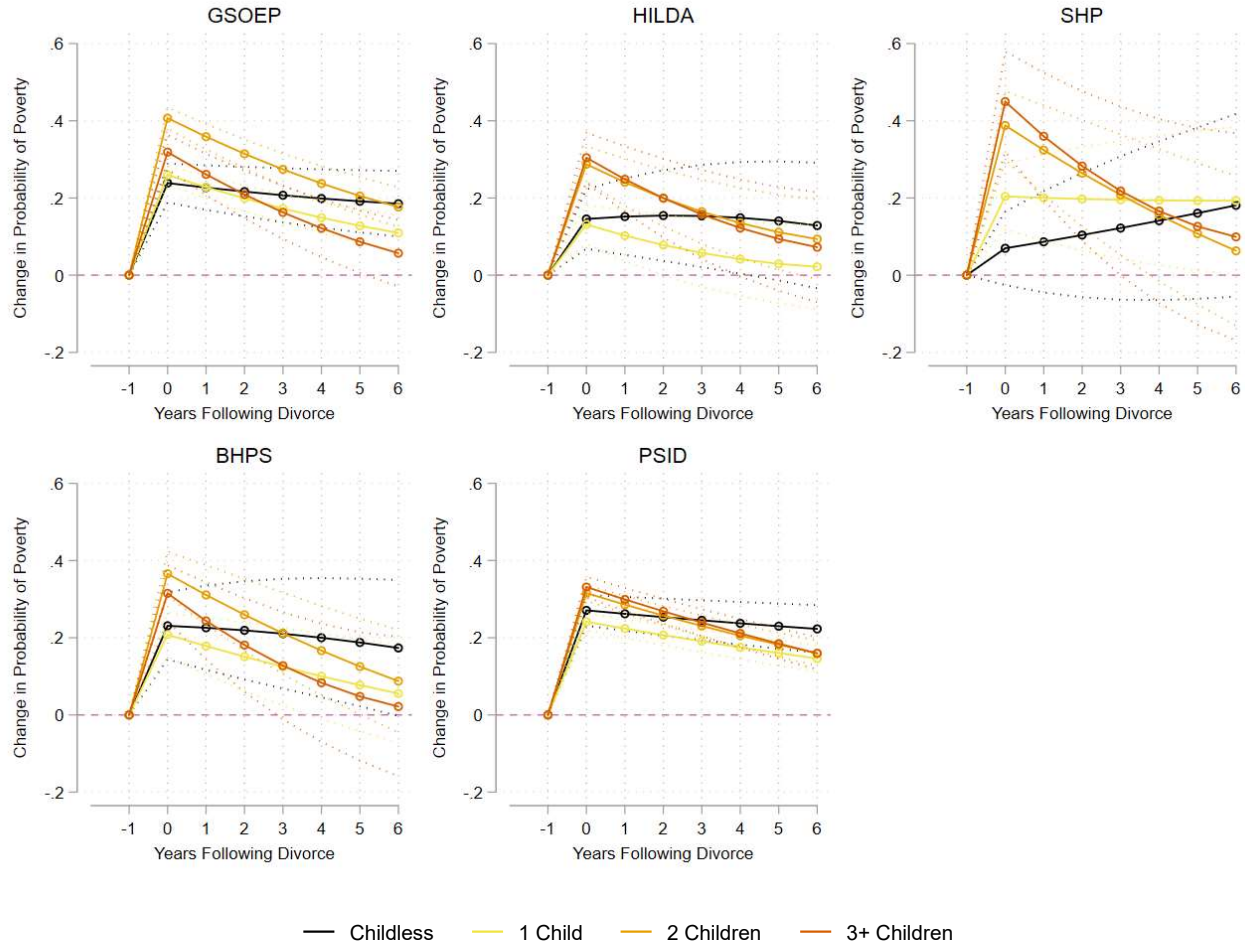
Note: Estimated coefficients and 95% confidence intervals displayed.

Figure A5: Estimated Change in the Probability of Poverty following Divorce – Adjusted for Age of the Youngest Child



Note: Estimated coefficients and 95% confidence intervals displayed.

Figure A6: Estimated Change in the Probability of Poverty following Divorce – Adjusted for Years of Education and the Age of the Youngest Child



Note: Estimated coefficients and 95% confidence intervals displayed.