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Unequal bequests☆

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ABSTRACT

Using data from the Health and Retirement Study (HRS), we make two contributions to the literature on end-of-life transfers. First, we show that unequal bequests are much more prevalent than generally recognized, with more than one-third of parents with wills planning to divide their estates unequally among their children. Plans for unequal division are particularly concentrated in "weak relationships", i.e., families with stepchildren and families with genetic children with whom parents have limited or no contact. Second, we find that many older Americans have no wills. Although the probability of having a will increases with age, 30 percent of individuals aged 70 plus are without a will and, of the HRS respondents who died between 1995 and 2012, nearly 40 percent died intestate.

1. Introduction

In this paper we shed new light on bequest behavior using a large and nationally representative US sample drawn from the Health and Retirement Study (HRS) over the period 1995–2014. A distinguishing feature of our work is its focus on "weak relationships", in particular on parents with stepchildren and parents with genetic children with whom they have limited or no contact (e.g., children from previous marriages).[1] We complement our analysis of the bequest intentions of parents with wills by examining final bequests using reports about the disposition of the estates of HRS respondents who died between one interview and the next. We find that unequal bequests (both intended and final) are much more prevalent than previously documented, with more than one-third of parents with wills planning to distribute their estates unequally. Unequal intended bequests are most common in weak relationships,

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[1] It might be useful to describe the stepparent case as a "structurally" weak relationship and the no-contact parent case as an "affectively" weak relationship. The term "weak relationship" refers to both cases collectively. Notice that by adopting this new terminology, we intend to distinguish our perspective from the vast literature that deals with "family structure", which focuses on the link between childhood living arrangements and, for instance, child development or later educational attainment. In our context, weak relationships should bring our attention to the importance of a parent's relationship with a child (the term "parent" here includes both genetic parents and stepparents), which is what matters for end-of-life transfers.

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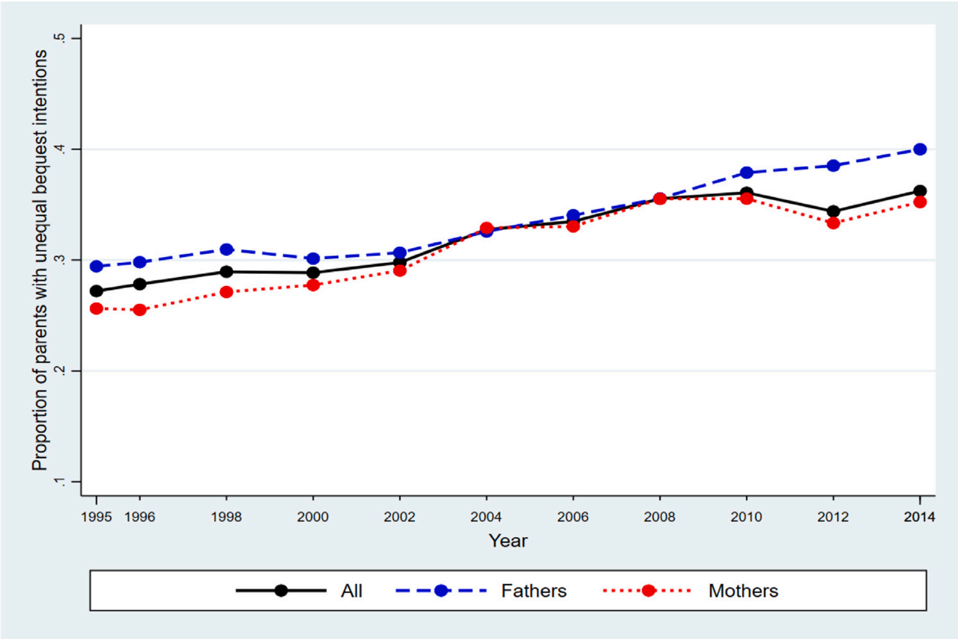

Fig. 1. Unequal bequest intentions, by parent's gender.
Source: Health and Retirement Study, 1995–2014.

but contact between parents and children reduces or eliminates unequal bequests. Finally, a considerable fraction of older parents report having no wills and a substantial fraction of HRS respondents who died had no wills.

Empirical research has long established that a substantial majority of parents divide, or intend to divide, their estates equally among their children (Menchik, 1980; Wilhelm, 1996; McGarry, 1999; Cox, 2003; Light and McGarry, 2004; Behrman and Rosenzweig, 2004). Despite the fact that earlier economic models predicted unequal bequests (e.g., Becker (1974), Bernheim et al. (1985) and Cox (1987)), more recent studies have developed theories that attempt to rationalize the prevalence of equal bequests, sometimes also attempting to explain why parents treat their children unequally with respect to inter vivos transfers but equally with respect to bequests (e.g., Andreoni (1989) and Bernheim and Severinov (2003)).

The proportion of American parents aged 50 and over, with more than one child and who reported having wills,[2] in which their children were treated unequally increased steadily between 1995 and 2014, rising from around 27 percent to more than 36 percent (Fig. 1).[3] This upward trend, which holds for both mothers and fathers, is not simply driven by the ageing of the HRS respondents.[4] A similar increase, with the possible exception of the latest years, can be observed across several cohorts of Americans born since 1890 (Fig. 2). From the start of the 21st century to the end of the sample period, individuals who are no longer married (i.e., widows, widowers, and divorced individuals) are more likely to intend unequal bequests (Fig. 3).[5] Bequests, therefore, bear a strong relationship to demographics: as demographics are changing so are bequests.

Since the middle of the 1990s the fraction of parents reporting unequal bequest intentions has consistently been 30–35 percentage points higher among parents with stepchildren than among those with genetic children only (Fig. 4) and a similar difference can be detected between parents who have had no contact with at least one of their genetic children and parents who have had at least some contact with all of their genetic children.[6] The trends in unequal bequest intentions among parents without contact with their children is the same as the trend observed among parents with stepchildren. As the proportion of weak relationships has risen in the last twenty years, so has the proportion of parents who plan unequal bequests. This is reflected also when we stratify the sample by race: nonwhite (especially black) parents are about 12 percentage points more likely to intend unequal bequests.[7] The proportion

[2] We focus on the bequest intentions of parents with wills because most of the information on bequest intentions collected by HRS is from parents who report that they have wills. See the data description in Section 3.2.

[3] Throughout the paper, stepchildren are counted as "children". Moreover, although the legal definition of stepchildren is narrow (i.e., a stepchild is the child of a spouse), we use this term broadly, to include the children of a cohabiting partner as well as the children of a legally married spouse.

[4] Between 1998 and 2014 the average age of the HRS sample employed in this paper increased by five years. This is due to a number of factors, including attrition, death of older respondents and, since 2004, the introduction of new cohorts of individuals aged 51 to 56.

[5] HRS data do not allow us to distinguish between cohabitors and married individuals.

[6] In 1995 the HRS did not ask the question on parent–child contact.

[7] This breakdown and the breakdown by education are reported in the Online Appendix.

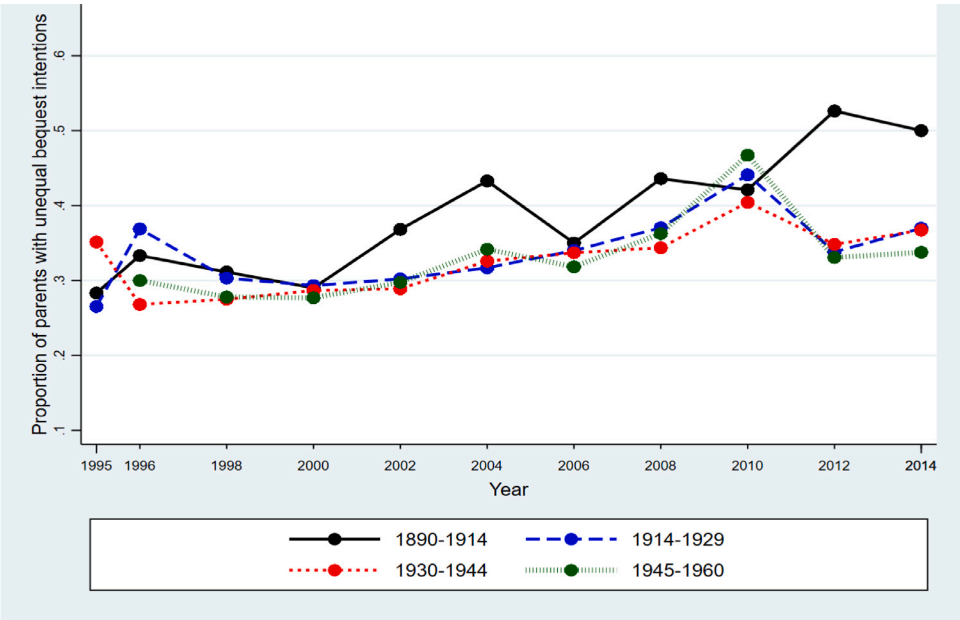

Fig. 2. Unequal bequest intentions, by parent's birth cohort.
Source: Health and Retirement Study, 1995–2014.

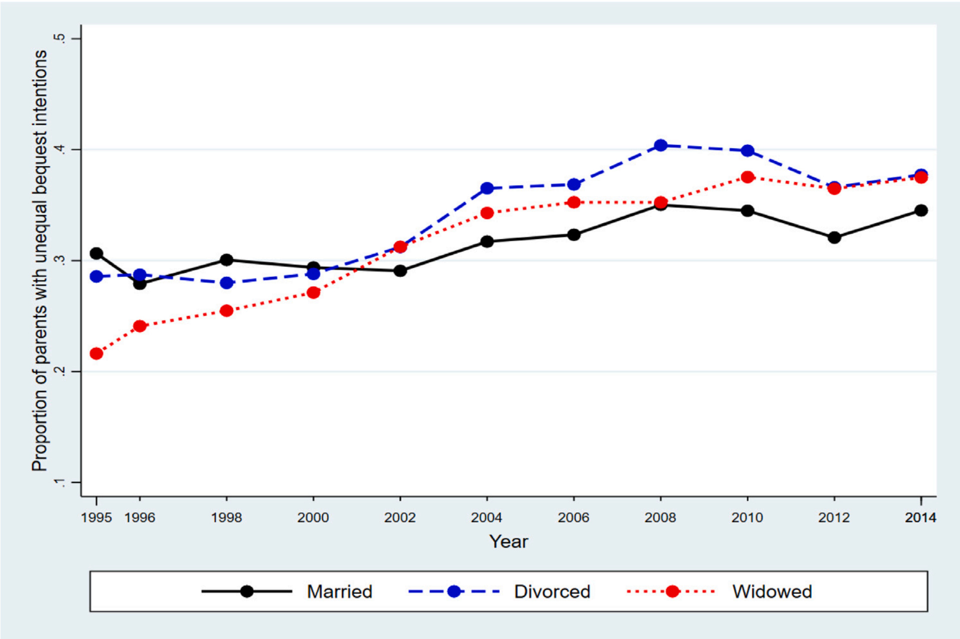

Fig. 3. Unequal bequest intentions, by parent's marital status.
Source: Health and Retirement Study, 1995–2014.

of those who intend unequal bequest increases also among *older* survey respondents (aged 70 or more) who have stepchildren (see Fig. A.1 in the Appendix A).[8]

[8] This relationship, however, does not emerge among older parents with limited or no contact.

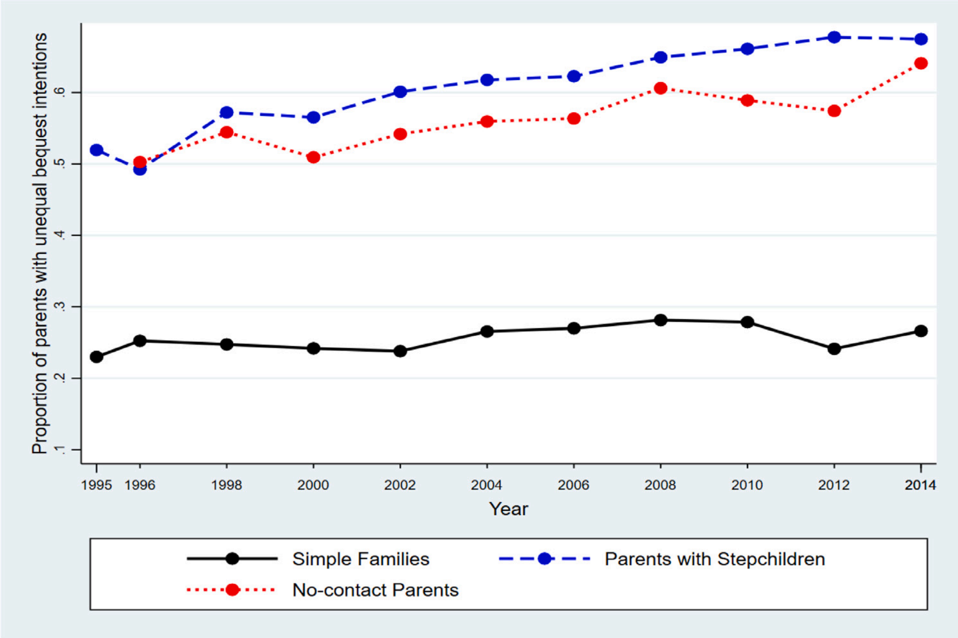

Fig. 4. Unequal bequest intentions, by type of family. *Note*: "Simple Families" indicate parents who have no stepchildren and have regular contact with their genetic children.
Source: Health and Retirement Study, 1995–2014.

The increasing complexity of the American family has implications also for intestacy. When individuals die without a valid will, the intestacy laws of their state provide the default allocation, dividing the decedent's estate between the surviving spouse and the children.[9] After providing an often very substantial share for the surviving spouse, intestacy laws divide the remainder equally among the decedent's genetic and legally adopted children, independently of the frequency of contacts. Unlike surviving spouses, under intestacy laws surviving cohabiting partners inherit nothing. And, unlike genetic and legally adopted children, under intestacy laws stepchildren inherit nothing (Fried, 1992; Brashier, 2004; Friedman, 2009; Reid et al., 2011).

Since 1998 the average fraction of HRS respondents without a will has been around 43 percent, with an increase in the last two waves (Fig. 5).[10] Among respondents with stepchildren the average fraction without wills is somewhat greater (49 percent), and it is even greater among parents who have no contact with their genetic children (59 percent). Parents aged less than 70 are much less likely to have wills, perhaps because writing a will is not yet salient for them, but a staggering 30 percent of parents aged 70 and over report not having wills. We also observe deep differences by education and race.[11] Parents with high school or lower qualifications are about 13 percentage points more likely to be without wills than parents with college degrees or greater qualifications (47 versus 34 percent, respectively). The differences by race are even larger, with three-quarters of black and Hispanic parents without a will and about one-third of their white non-Hispanic counterparts.

Standard economic models ignore weak relationships. The (usually implicit) assumption is that all children are born to a married couple who remain married to each other. When one spouse dies, the surviving spouse is (usually implicitly) assumed not to remarry. Little is said about divorce, remarriage or repartnering and even less about multiple partner fertility.[12] By ignoring divorce, repartnering, or remarriage, canonical economic models fail to recognize the increased complexity of the family (Bumpass and Lu, 2000; Stevenson and Wolfers, 2007; Lundberg and Pollak, 2014, 2015).

In addition to presenting a representative picture of contemporary end-of-life transfers, we make two contributions to the literature. First, we show that unequal bequests are much more common than generally recognized. Unequal bequests are especially concentrated in relationships that we define as "weak", that is, households in which parents have stepchildren and families with genetic children with whom the parent has had no contact. The likelihood of unequal bequests, however, is reduced and often

[9] As Rosenbury (2005) shows, there are important differences in intestacy laws across states, but we focus on features that are common across states.

[10] This figure starts in 1998 because the 1995 HRS wave oversampled older people (with an average age of 78 years), while the 1996 wave oversampled younger individuals, whose average age is 59 years. From 1998 onwards, the study comprised both subsamples, and in that year individuals were on average aged 67.

[11] These breakdowns are reported in the Online Appendix.

[12] In a traditional nuclear family all the children in the household are joint children, but one or both parents may have children from previous partnerships living elsewhere.

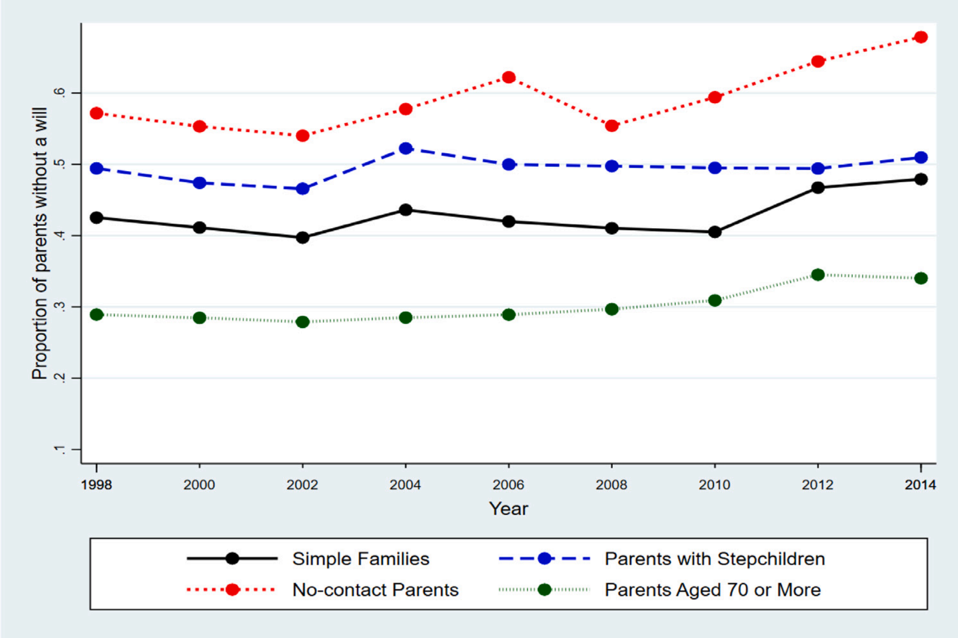

Fig. 5. Trends in intestacy rates, by parent's age and family type.
Source: Health and Retirement Study, 1995–2014.

entirely eliminated by longer coresidence of stepparents and stepchildren. We interpret this finding as reflecting the accumulation of family-specific capital (e.g., trust and affection) that triggers norms of equal treatment towards children.

Our second contribution to the literature on end-of-life transfers shifts the focus from individuals with wills to those who die intestate (i.e., without wills). We find that many older Americans do not have wills. More specifically, 43 percent of HRS respondents in our sample report not having wills and 30 percent of HRS respondents aged 70 and over report not having wills. Of HRS respondents who died, 38 percent died intestate. This is a new and surprising result, as we would expect more engagement with will writing among older Americans since the US legal framework offers essentially full testamentary freedom unlike most European countries (e.g., Pestieau (2003)).[13] Hence, the usual focus on bequest intentions provides an incomplete and misleading picture of end-of-life transfers, irrespective of whether intestacy is intentional or accidental.

The paper is organized as follows. Section 2 reviews previous work on bequests and describes the legal environment in which individuals make end-of-life transfers. The data are described in Section 3, where we also present the statistical methods we use in our analysis. Section 4 presents the benchmark results of our empirical analysis of bequest intentions, while Section 5 shows further empirical results, which include instrumental variables estimates, and the analysis of changes in bequest intentions and of the final division of estates. Section 6 concludes.[14]

2. Background and related literature

Almost all economic models predict unequal bequests.[15] The altruist model assumes that parents equalize marginal utilities across children (Barro, 1974; Becker, 1974; Becker and Tomes, 1979; Tomes, 1981). This assumption, together with some strong assumptions about preferences and inter vivos transfers, implies that parents will bequeath more to their less well-off children. Exchange models assume that bequests are made to children in return for their services such as attention and care (Bernheim et al.,

[13] Preliminary descriptive analysis of data on a set of European countries in the Survey of Health, Ageing and Retirement in Europe shows extremely high intestacy rates (e.g., 90% in Italy, Poland, and the Czech Republic). This is unsurprising, given their limited testamentary freedom. For others, however, such as Germany and the Netherlands, intestacy rates are close to those observed in the US. This indicates that factors other than the legal rules governing end-of-life transfers may play a crucial role in testamentary dispositions. Cross-country comparisons go beyond the scope of this paper, but are an exciting area of future research.

[14] The last section of the Online Appendix presents a simple economic framework for interpreting our main results.

[15] Comprehensive reviews of the extensive economics literature on bequests are given by Behrman (1997), Laitner (1997), Laferrère and Wolff (2006), and McGarry (2008, 2013). For the legal literature, see Friedman (2009), Grossman and Friedman (2011), and Dukeminier and Sitkoff (2013). For more recent discussions, see also Groneck (2017), Erixson and Ohlsson (2019) and Bruze and Essen (2022).

1985; Cox, 1987; Cox and Rank, 1992). Because children face different opportunity costs of providing these services, exchange models predict that children will provide different amounts of services and will receive unequal bequests.[16]

Although both the altruist model and exchange models have some empirical support (Tomes, 1988; Cox and Rank, 1992; Laitner and Ohlsson, 2001), most empirical studies challenge both classes of models finding that an overwhelming majority of parents divide their estates equally among their children (Menchik, 1980, 1988; Wilhelm, 1996; McGarry, 1999; Light and McGarry, 2004; Behrman and Rosenzweig, 2004; Erixson and Ohlsson, 2019).[17] Significant effort has then been devoted to rationalizing equal bequests. For instance, Bernheim and Severinov (2003) propose a model of intergenerational transfers based on the assumption that each child's perception of parental affection influences his or her subjective well-being. Children cannot directly observe parental preferences, but parents signal affection through their actions, including bequests. Altruistic parents then must consider the possibility that unequal bequests may lead their children to infer that they are loved either more or less than their siblings. The assumption that the division of inter vivos gifts is not observed by all the children, whereas the division of bequests (or the division implied by bequest intentions) is observed, remains untested. Nor is it clear whether and how parents' self-reported bequest intentions affect children's actions (e.g., caregiving) regarding the parents. Equal division is also consistent with parents' indifference over how their estates are divided among their children. But indifference is both implausible and theoretically unsatisfying because it is compatible with all possible division patterns.[18]

Evolutionary psychology suggests a suite of hypotheses about end-of-life transfers that are still largely untested (Cox, 2003, 2007). The underlying premise is that parents behave so as to maximize the probability of survival of their genes and that children with greater wealth are more likely to pass on their genes. One implication is what we call the "genetic-child hypothesis" — that is, parents will make end-of-life transfers to their genetic children rather than to their social children (i.e., genetically unrelated children such as stepchildren who live in the same household).[19] We consider the implications of this hypothesis in two cases: stepchildren and genetic children with whom the decedent has had no contact (e.g., children from a previous marriage who were very young when the parents divorced). The genetic child hypothesis makes clear predictions in both of these cases. Decedents will favor their genetic children.[20]

Only few studies attempt to assess the relative importance of the altruism, exchange, and the genetic-child hypotheses. One is by Light and McGarry (2004), which uses intended bequest data for a sample of 45- to 80-year-old mothers drawn from the National Longitudinal Surveys of Young Women and Mature Women. They find that the vast majority of mothers (more than 92 percent) intend to leave equal bequests. The mothers who said they intended to leave unequal bequests were asked to explain why. Some responded with explanations that were consistent with altruism, others with exchange and, among mothers with stepchildren, some with explanations consistent with the genetic-child hypothesis. Light and McGarry find that greater within-family variation in children's incomes (a proxy for altruism), poor maternal health (a proxy for exchange), and the presence of stepchildren (a proxy for the genetic-child motive) are associated with higher probabilities of unequal intended bequests. More specifically, for mothers with at least one genetic child and at least one stepchild, they find that the probability of unequal intended bequests increases from 7.9 to 11.3 percent, a 43 percent increase.

Another relevant paper is by Erixson and Ohlsson (2019). Using administrative data on all estate reports of Swedish decedents observed between 2002 and 2004, they find that children who provide more support to the decedent receive greater bequests than their siblings, in line with the exchange model. They also find that among families with both biological and adopted children, adopted children receive less than half of what the siblings who are the parent's biological children do. This seems to be driven by disfavored adopted stepchildren of the deceased. That is, adopted children with two adoptive parents do not receive less than siblings who are the biological children of the deceased. These results are in line, at least in part, with the genetic-child hypothesis, but also suggest the importance of trust and bonding.

Other studies examine the extent to which the division of end-of-life transfers compensates for caregiving. For example, using data from the first wave of the Assets and Health Dynamics among the Oldest Old, Brown (2006) finds that children who are currently caregivers are 32 percentage points more likely than their noncaregiving siblings to be included in their parents' life insurance policies, while expected caregivers are three percentage points more likely to be included in their parents' wills and 15 percentage points more likely to be included in their parents' life-insurance policies.[21]

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[16] Bargaining power and bargaining ability will also play a role in the absence of special assumptions (e.g., that parents can make take-it-or-leave-it offers to their children.).

[17] Wilhelm (1996), which use federal estate tax data, does allow for adopted children but not for stepchildren and assumes that parents have equal (symmetric) concern for all their children. To the best of our knowledge, all bequest models driven by altruism or exchange motives ignore stepchildren.

[18] Pollak (1988) argues that the credibility of the parents' threat to disinherit a child in the strategic bequest model of Bernheim et al. (1985) crucially depends on the assumption that parents are indifferent over how their estates are divided among their children.

[19] Unlike models based on altruism or exchange, which hinge on actions taken individually by parents and children (such as the child's need for support or the frequency of visits to and other contacts with older parents), the genetic-child hypothesis relies on one specific trait – the genetic link between decedents and potential beneficiaries. In this respect, the genetic-child hypothesis is similar to models of intrahousehold allocation that emphasize a single (exogenous) attribute, such as birth order (Behrman and Taubman, 1986) or the child's sex (Behrman et al., 1986). Although these other single-attribute models may be useful for understanding differential inter vivos transfers or bequests related to birth order or sex, they cannot explain unequal bequests or bequest intentions toward genetic and social children.

[20] Evolutionary reasoning also speaks to the distribution of bequests among genetic children and, when it does, it seldom predicts equal bequests. For example, a childless post-menopausal daughter would not be predicted to receive bequests. These accounts however are outside the scope of our paper.

[21] Using data from the HRS exit files, Groneck (2017) shows that the decision to care for one's parents has a significant positive impact on the incidence and amount of bequests received. In addition and in line with an exchange motive, increasing the amount of care relative to one's siblings significantly increases the proportion of bequests to the caregiving child. This study however does not focus on weak relationships.

Unequal transfers from parents to children and from children to parents have also been documented in divorced families. Analyzing the effects of parentalmarital disruption on late-life inter vivos transfers, Pezzin and Schone (1999) find that parents (especially older men) engage in substantially lower levels of transfers with stepchildren than with their genetic children. Marital disruption is also central in Pezzin et al. (2008). That study, however, concentrates on "upstream transfers" (i.e., adult children's time and cash transfers to their parents) rather than on "downstream transfers" (i.e., transfers of time and cash from parents to their children). They find unequal flows of services to unpartnered disabled parents in families that experience divorce, with stepchildren providing significantly lower transfers than genetic children. Other than Light and McGarry (2004), however, no previous study has examined bequests to stepchildren.

End-of-life transfers and bequests have also been analyzed by legal scholars and commentators. Unequal division of estates among genetic children typically generates unease among trust and estates lawyers because they view unequal bequests as invitations to litigation (Collins, 2000; Blattmachr, 2008; American Bar Association, 2013). Stepchildren, however, belong to a different category since the law treats stepchildren as unrelated strangers rather than as family members (Schanzenbach and Sitkoff, 2009).

Legal scholars also write on intestacy, a subject thus far entirely neglected by economists. Intestacy statutes divide the estates of married decedents with children between the surviving spouse and the decedent's genetic and legally adopted children.[22] If a stepparent dies without a valid will, stepchildren inherit nothing.[23] As a number of scholars have pointed out, stepchildren have never fared well under intestacy statutes (Mahoney, 1989; Gary, 2000; Noble, 2002; Brashier, 2004; Cremer, 2011). Stepchildren however may inherit from their absent biological parent, and so it is unclear whether they are disadvantaged by intestacy law.[24] This issue cannot be explored with the HRS data and requires additional research.

Some stepparents may intentionally forego writing a will precisely because they know that intestacy laws mandate an equal division among their genetic and adopted children and give nothing to their stepchildren. For them, the default aligns with their preferences. On the other hand, parents with genetic children with whom they have had no contact might write wills to avoid giving these children an equal share of their estates.[25] Furthermore, some parents are no doubt aware of the default division imposed by intestacy law while others are not. Unfortunately, HRS provides no information about respondents' knowledge of or beliefs about intestacy law. We can, for the first time, examine whether parents are less likely to write a will if they have stepchildren or if they have genetic children with whom they have had no contact.

3. Data and methods

3.1. Samples: Core and exit files

Our analysis uses data collected between 1995 and 2014 by the Health and Retirement Study (HRS), which contains detailed information about bequest intentions and the final distribution of estates.[26] The HRS is a longitudinal survey of a nationally representative sample of more than 24,000 Americans over the age of 50 who are interviewed every two years. If a respondent has a spouse or partner, the spouse or partner is invited to become an HRS respondent. In each survey year, the "core files" provide data from standard questionnaires administered to all respondents. The "exit files" provide information about the actual distribution of the estates of HRS respondents who died since the previous wave; this information is collected from a proxy respondent, such as the surviving spouse, an adult child, or another close family member.[27]

From the core files we select respondents with at least one child and with no missing information on intended bequests and other basic variables. This leaves us with an unbalanced panel of 24,600 individuals, for a total of 133,119 person-wave observations. When first observed in the study, 11,151 individuals (47 percent of the sample) report having no will, while 13,049 report having a will. As the survey progresses, the percentage of individuals without a will decreases to 42 percent. In the first year of their inclusion in the survey, of the 11,419 parents in our sample with more than one child and who plan to include at least one child in their will, 8030 (70 percent) report that they plan to distribute their estates equally among their children. When first interviewed, around 15 percent the whole sample (3712 parents) report having both genetic children and stepchildren.[28] Of these individuals, 1751 report having a will (about 13 percent of the sample of parents with wills or 47 percent of the parents with both step- and natural children).

[22] The Uniform Probate Code treats adopted children as if they were genetic children of the decedent (Noble, 2002; Cahn, 2005).

[23] California provides a narrow exception to this generalization: a stepchild may inherit if it can be shown that the stepparent would have adopted the stepchild but was prevented from doing so by a legal barrier. This exception is available only to a stepchild who satisfies the legal definition of a stepchild (i.e., a child of the decedent's spouse, not of the decedent's cohabiting partner). See Hanson (1995) and Noble (2002) for more details.

[24] At common law, in fact, the relationship of stepparent and stepchild generally confers no rights and imposes no duties (Wypyski, 1984).

[25] Clearly, parents may decide to make final dispositions not jut because they plan unequal divisions. People may write wills for other reasons, e.g., to govern the distribution of specific assets or simply to confirm intestacy rules. We have no empirical counterfactuals to assess why parents write (or do not write) wills. This is a new issue for data collectors.

[26] As noted in the Introduction, the HRS asks respondents about their bequest intentions only if they report having wills or trusts. We do not distinguish between wills and trusts, because trusts are not common in the HRS sample: only 1.1 percent of the respondents report having a trust but not a will and 1.4 percent report having both a will and a trust.

[27] Although we may occasionally claim that the exit files give us the "actual" distribution of end-of-life transfers, we are aware of measurement error issues in this sort of reports (e.g., Behrman and Rosenzweig, 2004; Laitner and Sonnega, 2010).

[28] The HRS does not distinguish between genetic children and adopted children.

The HRS also collects information on the frequency of contacts between parents and children. We use this information for the 13,887 individuals who have genetic children only and report the frequency of contacts with their children and their bequest intentions. Around 14 percent of them (2013 parents) report having had no contact with at least one of their genetic children for at least one year during the survey period. On average 6.1 percent of parents report having no contact in the previous year with at least one of their children.[29] Among no-contact parents, the proportion without a will exceeds 57 percent. This is substantially greater than that observed among parents who have more frequent contact with all their genetic children (46 percent).

The exit files provide information on the disposition of estates and other basic variables for 10,094 individuals (almost 98 percent) of the 10,307 HRS respondents who died over the sample period. There are 3875 parents (38 percent) who died intestate, a slightly smaller proportion than the 44 percent of HRS respondents in the core files who report having no wills. Of the remaining 6219 who died with a will, 5121 had more than one child and 869 (17 percent of the sample of decedents with wills and with more than one child) had both stepchildren and genetic children, representing more than 90 percent of decedents with stepchildren and a will.[30],[31]

3.2. Outcomes

Table 1 shows the means of our main dependent variables broken down by the presence of stepchildren in both the core and the exit files and by parents' marital status. About 42 percent of the sample in the core files does not have a will (column (a)). The raw difference of 6.6 percentage points between those with stepchildren (column (b)) and those with genetic children only (column (c)) is statistically significant. Almost two-thirds of divorced parents do not have a will. Again, parents with stepchildren are less likely to have a will than parents with genetic children only. The same picture emerges from the exit files, even though the fraction of all parents without a will is around 37 percent, somewhat less than in the core files. We shall return to this issue in the next section.

In the core files, almost one-third of all parents with a will report that they plan to distribute their estate unequally among their children (column (a), panel B). Intended unequal divisions are much more likely among parents with stepchildren (62 percent for all parents and a staggering 75 percent for divorced parents, column (b)) than among parents with genetic children only (23 and 26 percent respectively, column (c)). In the exit files, however, the proportion of estates that are divided unequally is substantially greater (52 percent). The difference between parents with stepchildren and parents with genetic children only is smaller than that observed in the core files, but is always statistically significant. This may reflect a change in parents' behavior between the time they reported their intentions in the core files and the final distribution of their estates reported in the exit files. It may also be driven by selection (parents in the exit files are older) or reflect the difference in mortality rates by socioeconomic status (parents in the exit files are less educated and less healthy, and these might be the type of parents who are more likely to distribute unequally their end-of-life resources).

Table A.1 mirrors Table 1 focusing on no-contact parents.[32] As in the case of parents with stepchildren, parents who have had no contact with their genetic children in the past year are much more likely not to have a will. About 58 percent of no-contact parents have no will, as opposed to 44 percent of parents who have regular contact with all their genetic children (panel A). Among divorced no-contact parents the proportion of those without a will is 70 percent. Looking only at parents with a will, parents in regular contact with their children also report they are more likely than no-contact parents to divide their estates equally (77 and 47 percent, respectively). The difference between these two groups of parents is even greater when we consider those who divorced or widowed (panel C). These patterns are consistent with the predictions implied by exchange models.

3.3. Explanatory variables

Table 2 reports summary statistics for the explanatory variables we use to model the probabilities of reporting having a will and reporting the intention to leave unequal bequests. We show figures for the sample of parents who report having wills (column (b)) and for the broader sample of 24,600 individuals that also includes parents who report not having wills (column (a)). The table also presents summary statistics for the subsample of all parents who have both genetic children and stepchildren (column (c)) and the subsample of 1751 parents with stepchildren who report having wills (column (d)).[33]

Our covariates include standard demographic controls for parents' age, sex, race, marital status, and number of marriages. These variables capture basic heterogeneity within and across households. We also include measures of annual family income

[29] Among parents with both stepchildren and genetic children, the proportion of parents with no contact with at least one of their children is higher, around 28%.

[30] The exit files necessarily yield a sample that is smaller than that obtained from the core files. Moreover, the exit files may over-represent individuals with lower socioeconomic status and higher mortality risks (Cutler et al., 2011).

[31] An interesting possibility emerges in relation to nonresponse to having a will or not. In this case, nonresponse could convey lack of knowledge about, or interest in, testamentary issues and may be seen as an outcome in and of itself. Among HRS respondents who have children and report information on other characteristics, including weak relationship status, nonresponse involves approximately 700 individuals, or about 2.8 percent of our estimating sample only. It is therefore hard to pursue a meaningful analysis of this behavior, but we should stress that the observable characteristics of nonresponse individuals are similar to their full-response counterparts'. Furthermore, about 500 respondents do not report information on equal/unequal bequest intentions, although they provide information on other covariates. Most of these characteristics are comparable between nonresponse and full-response individuals. We exclude nonresponse individuals from our empirical analysis of the probability of having a will, but their inclusion does not change our main results.

[32] For this sample, however, we cannot analyze the exit files because these files do not distinguish between contact and no-contact children of deceased parents.

[33] For the sake of brevity, summary statistics of the independent variables for the sample of contact/no-contact parents are reported in the Online Appendix.

Table 1
Descriptive statistics – Dependent variables.
Source: Health and Retirement Study, 1995–2014.

	(a) All	(b) Parents with step- and genetic children	(c) Parents with genetic children only	(d) Difference (b)–(c) (t-value)	N	n
A. No will (intestacy)						
Core files						
All	0.420	0.474	0.408	0.066*** (18.765)	133,119	24,600
Divorced	0.620	0.657	0.614	0.044*** (4.031)	16,551	3929
Widowed	0.377	0.399	0.373	0.026*** (3.494)	32,920	8400
Exit files						
All	0.373	0.404	0.368	0.036*** (2.596)	9315	9315
Divorced	0.584	0.598	0.580	0.018 (0.386)	900	900
Widowed	0.342	0.354	0.341	0.013 (0.561)	4071	4071
B. Equal intended and final bequest						
Core files						
All	0.672	0.379	0.736	−0.357*** (80.007)	69,061	11,419
Divorced	0.640	0.257	0.707	−0.450*** (25.838)	5323	1117
Widowed	0.671	0.278	0.747	−0.469*** (52.521)	17,667	4317
Exit files						
All	0.479	0.446	0.485	−0.039** (2.050)	4868	4868
Divorced	0.608	0.484	0.634	−0.151** (2.204)	344	344
Widowed	0.709	0.601	0.730	−0.128*** (4.483)	2055	2055

Note: N = number of observations; n = number of individuals. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

and total wealth (both expressed in 1995 prices), parents' education and employment status. We use these variables as controls for heterogeneity in parental resources. HRS respondents are also asked whether they gave money to at least one child or to all children equally; inter vivos transfers are known to depend more directly than bequests on children's current incomes and thus tend to be divided less evenly (McGarry, 1999).

One of our key explanatory variables is an indicator variable for the presence of at least one genetic child and at least one stepchild. The genetic-child hypothesis predicts that parents will treat genetic children and stepchildren differently in allocating resources. Because parents' ability or willingness to make transfers may depend on the total number of children and stepchildren, we include these characteristics as well.

Another key variable is parents' lack of contact with their genetic children. Parents who report having had no contact with at least one of their genetic children over the previous year are defined to be no-contact parents. In Section 5.4 we will also consider parents with infrequent contact. This latter group comprises parents who report having had at least one contact with their children over the last year, but not more frequently, while parents with frequent contacts are those who have contact at least once a month. Exchange models predict that children with more regular contacts will be more likely to receive bequests and especially so if these children are more likely to provide care and support to their needy older parents (Bernheim et al., 1985).

We use parental health status ("poor or fair" as opposed to "good or excellent") as a proxy for a parent's need for children's services and hence, willingness to pay for them (i.e., the exchange motive). Using the parents' reports of the children's income and wealth would substantially reduce the number of observations, so instead of doing so we predict each child's income using observed characteristics. Following Light and McGarry (2004), we predict incomes using estimated parameters from income models that we fit to the data from the Current Population Survey (CPS) between 1994 and 2014. Our sample consists of all CPS respondents in the same age group as the parents/children in our HRS sample. We estimate separate models for men and women using as regressors a constant, a quartic in age, five dummy variables indicating the highest educational attainment, and indicator variables for race, marital status, number of children, and home ownership. We then use this predicted income variable to construct a measure of income differences, the coefficient of variation (obtained by dividing the standard deviation of estimated income by its mean) among the children of each individual.

For each of our covariates, we observe differences between parents with a will, parents with stepchildren, and parents with stepchildren and a will (columns (b)–(d)). Perhaps unsurprisingly, the most striking differences are between parents in the core files

Table 2
Descriptive statistics – Explanatory variables.
Source: Health and Retirement Study, 1995–2014.

	All (a)	Parents with a will (b)	Parents with step- and genetic children (c)	Parents with step-children and a will (d)	Parents included in the exit files[a] (e)
1 if has step- and genetic children	0.174	0.157	1.000	1.000	0.194
Demographics					
Female	0.592	0.588	0.622	0.641	0.523
Age	69.080	71.254	66.463	69.528	79.993
	(10.588)	(10.311)	(11.071)	(10.846)	(10.547)
1 if white	0.825	0.923	0.802	0.913	0.825
1 if married or partnered	0.620	0.650	0.696	0.705	0.468
1 if separated, divorced or never married	0.132	0.084	0.104	0.066	0.098
1 if widowed	0.247	0.265	0.200	0.229	0.434
Number of marriages	1.355	1.314	1.952	1.990	1.356
	(0.668)	(0.613)	(0.811)	(0.758)	(0.676)
Health					
1 if in poor/fair health	0.298	0.246	0.292	0.252	0.616
Education					
1 if below high school	0.351	0.296	0.326	0.291	0.458
1 if high school	0.342	0.352	0.345	0.353	0.316
1 if college or more	0.307	0.352	0.329	0.355	0.226
Employment					
1 if in the labor force	0.389	0.344	0.424	0.355	0.161
1 if disabled	0.084	0.048	0.098	0.059	0.164
1 if retired	0.527	0.608	0.478	0.586	0.675
Child variables					
Number of children	3.511	3.267	5.326	5.157	3.517
	(2.084)	(1.854)	(2.394)	(2.221)	(2.229)
Number of bio children	3.061	2.864	2.821	2.663	3.120
	(1.784)	(1.544)	(1.708)	(1.523)	(1.964)
Number of stepchildren	0.441	0.397	2.494	2.489	0.386
	(1.152)	(1.090)	(1.554)	(1.502)	(1.093)
Coefficient of within-family variation for children's predicted income[b]	0.406 (0.340)	0.394 (0.259)	0.442 (0.233)	0.430 (0.210)	0.408 (0.228)
Financial variables					
Real annual household income[c]	25,718 (228,428)	28,798 (267,296)	25,990 (132,288)	28,157 (176,636)	12,412 (173,768)
Real wealth[d]	270,585	395,477	235,842	355,089	252,877
	(1,293,412)	(1,593,183)	(1,091,592)	(1,398,134)	(1,691,977)
1 if gave money to at least a child[e]	0.355	0.404	0.368	0.411	0.252
1 if gave money to all children equally[e]	0.077	0.097	0.019	0.027	0.074
N	133,119	77,266	23,086	12,091	10,307
n	24,600	13,049	3714	1751	10,307

Note: Figures are means and standard deviations (for continuous variables only) are in parentheses.
N = number of observations; *n* = number of individuals.
[a]Values are from the last year of observation in the core files. For some of the variables, *N* and *n* are different from the values given at the bottom of the table. They are available from the authors.
[b]Based on 69,738 observations from 9083 individuals.
[c]In 1995 values, and based on 84,589 observations from 13,582 respondents.
[d]In 1995 values, and based on 82,671 observations from 11,000 respondents; includes values of financial and real estate properties.
[e]Based on 91,467 observations from 15,934 respondents.

(column (a)) and those in the exit files (column (e)). Compared with the parents in the core files, parents in the exit files are less educated and more likely to report being in poor or fair health in the last wave in which they participated. Parents in the exit files are older (and thus more likely to be retired), and more likely to have been widowed (and hence to have lower household income).

3.4. Empirical approach

The goal is to identify the dependence of unequal bequest division (or intestacy) on whether the relationship among parents and children is "weak". Some could argue that one consistently timed observation on each parent's end-of-life transfers would be sufficient to address our goal. This in part what we pursue with the analysis of the exit files. Notice, however, that he HRS data described earlier in this section provide us also with repeated observations on the same parent's bequest intentions and will availability. This information allows us to follow the same parents over time, as their family situation and relationships with children may change. Some older parents could remarry and gain stepchildren, while they may also weaken their relationships with biological children from previous unions. To generate our central estimates, therefore, we rely on the panel dimension of the data.

Let Y_{it} denote one of the outcome variables described in Section 3.2 above, i.e., whether individual i does not have a will at time t (=1, 0 otherwise) and whether i, conditional on having a will, includes all children equally in the will (=1, 0 otherwise). Let X_{it} be a matrix containing all the explanatory variables described above, and WR_{it} an indicator variable that is equal to 1 if individual i is in a weak relationship (i.e., stepfamily or no-contact family) at time t, and zero otherwise. In the next section, we report and discuss random effects (RE) probit estimates obtained from a specification of the following sort (Arellano, 2003; Wooldridge, 2010):

$$Y_{it} = \alpha + \beta WR_{it} + X'_{it}\gamma + \varepsilon_{it}, \quad (1)$$

where $\varepsilon_{it} = \nu_i + \xi_{it}$ is the residual, in which ν_i is the unobserved individual-specific component and ξ_{it} is an idiosyncratic error term.

This represents our preferred specification, delivering our main results in the next section. Of course, the RE model assumes that ν_i and C_{it} (as well as ν_i and X_{it}) are uncorrelated. In Section 5.1, therefore, we shall present results based on fixed effects (FE) models, which do not impose this no-correlation assumption. In the same subsection, we also deal with the potential endogeneity of weak relationships by using an instrumental variables (IV) method based on a new instrument for WR_{it}. We defer the description of this approach to that part of the paper. We anticipate that the RE results are broadly confirmed by both FE and IV estimates.

4. Benchmark estimates

We present our benchmark estimates emphasizing the roles of stepparents and parents with no contact with at least one of their genetic children. We first describe who has a will and who does not (Section 4.1). Then, conditional on having a will and including all children in the will, we analyze whether parents intend to leave equal bequests to all children (Section 4.2). Due to space limitations, we do not show the results on other variables that might affect bequest behavior, including parental wealth, health, and income, as well as income dispersion among children. These estimates are available in the Online Appendix.

4.1. Who has a will and who does not

As we saw in Table 1, the fraction of HRS respondents who have children but do not have wills is substantial: 42 percent of those in the core files report not having a will. A complication with bequest intention data is right censoring: some parents who will eventually write wills have not done so at the time they respond to the survey. Older and less healthy parents, however, might be more likely than other respondents to write wills. So might unpartnered widows or widowers, who are the last ones to have the responsibility of passing on the family estate to future generations. To account for these possibilities, we control for parental age and health status, and estimate separately the response of widows, widowers and divorced parents. To assess the extent of the right censoring problem more directly, we use data from the exit files.[34]

Table 3 presents marginal effects from random effects probit estimates of β in Eq. (1), that is, the impact of the presence of stepchildren on the probability that parents report *not* having a will. The table, based on data from the core files, shows the results from five specifications.

In specification (a) we include our basic set of controls (demographics, education, and employment status) as well as health status indicators. Specification (b) adds measures of money transfers to children, while specification (c) drops these measures of money transfers but includes controls for parents' expected income and wealth. Specification (d) includes all previous measures, while specification (e) also includes as an additional regressor the coefficient of variation between children's income. Besides the results for all parents, the table also shows results by parents' marital status and gender, i.e., separately for widows, widowers, divorced mothers, and divorced fathers.

Although the descriptive statistics show that individuals with both genetic children and stepchildren are less likely to report having wills than those with genetic children only, the estimates in Table 3 imply that our basic control variables largely account for this difference (columns (a)–(c)). Keeping parents' basic demographics, transfers and income constant, this suggests that divorced parents do not necessarily rely on intestacy in order to exclude stepchildren from accessing their estates after death.

An exception emerges for divorced fathers in the more complete specifications. For divorced fathers with stepchildren, in fact, we find that the probability of not having a will is around 10 percentage points greater than the corresponding probability for divorced fathers with genetic children only when controlling for inter vivos transfers and parental income and wealth (column (d)). When we control for within-family income differences, the probability of not having a will goes up to almost 18 percentage points (column (e)). In the next subsection, we examine whether the differential propensities to have a will reflect parental preferences to favor own genetic children or preferences to equalize the distribution of estates across all children, including stepchildren.

[34] As mentioned in Section 3, 37 percent of parents in the exit files died intestate. This slightly lower proportion than that recorded in the core files may reflect an actual change in parents' behavior or selection driven by differential attrition based on age, health, and socioeconomic status. We leave this issue for future research.

Table 3
Effect of having stepchildren on the probability of not having a will.
Source: Health and Retirement Study, 1995–2014.

		Specification				
		(a)	(b)	(c)	(d)	(e)
All parents	Estimate	0.007	0.012	−0.001	0.009	0.005
	(s.e.)	(0.017)	(0.020)	(0.018)	(0.021)	(0.027)
	N	133,119	91,467	77,136	60,339	37,279
	n	24,600	21,868	16,789	15,649	9675
Widows	Estimate	−0.013	−0.016	−0.007	−0.010	0.004
	(s.e.)	(0.032)	(0.032)	(0.021)	(0.022)	(0.024)
	N	27,216	26,943	21,032	20,894	15,638
	n	6572	6549	5719	5704	4473
Widowers	Estimate	0.017	0.008	0.033	0.028	0.053
	(s.e.)	(0.060)	(0.061)	(0.052)	(0.053)	(0.067)
	N	5704	5584	4650	4577	3382
	n	1834	1818	1610	1601	1225
Divorced mothers	Estimate	−0.016	−0.021	0.046	0.037	−0.049
	(s.e.)	(0.045)	(0.050)	(0.069)	(0.073)	(0.123)
	N	10,817	10,541	7956	7857	5320
	n	2464	2429	1987	1981	1414
Divorced fathers	Estimate	0.057	0.065	0.085	0.101*	0.176***
	(s.e.)	(0.042)	(0.045)	(0.057)	(0.059)	(0.063)
	N	5734	5343	4342	4148	2573
	n	1469	1403	1223	1193	776

Note: The figures are marginal effects of the parent with stepchildren indicator from random effects probit models. The comparison group is given by parents with genetic children only. See Eq. (1) and the text for a full explanation of specifications (a)–(e). All figures are computed on the core files.
N = number of observations; *n* = number of individuals.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The results for no-contact parents shown in Table A.2 are broadly consistent with the results for stepparents. One interesting difference, however, emerges in the case of widowers. Regardless of the specification, widowers are between 11 and 19 percentage points more likely to be intestate if they have no contact with their genetic children. Lack of contact therefore may induce fathers in general, and widowers in particular, to favor the allocations implied by intestacy statutes.

One important question, which we cannot answer in this paper, is why so many individuals do not write wills. Legal scholars suggest that procrastination is one of the most plausible explanations for intestacy (Weisbord, 2012). But procrastination does not imply an intent to die intestate. Likewise, the high rate of intestacy is not the result of agreement with, or reliance on, the default rules of heirship. Although agreement with the default rules could reduce the need for a will (Hirsch, 2004), there is some (dated) anecdotal evidence that suggests that individuals lacking a will do *not* intentionally rely on the default rules (Fellows et al., 1978; Contemporary Studies Project, 1978). With our data, we cannot test this claim.

Economists have also been moving away from the notion that individuals who do not “opt out” could be assumed to prefer the default (Thaler and Sunstein, 2008). For example, in the context of retirement savings, Beshears et al. (2009) provide strong empirical evidence that defaults do matter. In the context of intestacy, however, we have no empirical research to draw on. Nonetheless, the earlier evidence used by legal experts and the empirical evidence found in other contexts argue *against* assuming that individuals without wills prefer, and would have chosen, the distribution mandated by intestacy law.[35]

4.2. Unequal intended bequests

Conditional on parents having a will and having more than one child, Table 4 presents random effects probit estimates of the stepchild variable on the probability that individuals have a will in which all children are treated *equally*.[36] The five specifications in columns (a)–(e) and the organization of the table are the same as in Table 3. Table 5 reports the corresponding RE probit estimates for no-contact parents.

Table 4 indicates that the presence of stepchildren is always associated with a considerably lower probability of equal intended bequests and these differences are almost always statistically significant at the 1 percent level. For example, having both genetic children and stepchildren as opposed to having genetic children only reduces the probability of a will in which all children are treated equally by up to 39 percentage points (first row, column (e)).

[35] In future research, it might be interesting to link the prevalence of intestacy with the extensive literature on the role of bequest motives, or their absence, in life-cycle models of consumption and saving (e.g., De Nardi et al. (2010)).

[36] We also estimated model in which the dependent variable takes value one if parents include all children in their wills, and zero otherwise. Because of space concerns, the results from that analysis are not reported here but are available from the authors upon request.

Table 4
Effect of having stepchildren on the probability that stepparents intend to divide their estate equally among all children.

		Specification				
		(a)	(b)	(c)	(d)	(e)
All parents	Estimate	−0.290***	−0.320***	−0.297***	−0.326***	−0.389***
	(s.e.)	(0.015)	(0.018)	(0.019)	(0.021)	(0.025)
	N	69,061	46,048	42,550	32,596	22,654
	n	14,842	12,901	10,234	9430	6507
Widows	Estimate	−0.417***	−0.411***	−0.409***	−0.399***	−0.416***
	(s.e.)	(0.035)	(0.035)	(0.037)	(0.037)	(0.039)
	N	14,525	14,363	12,586	12,496	10,801
	n	3981	3961	3643	3630	3280
Widowers	Estimate	−0.320***	−0.281***	−0.278***	−0.247***	−0.239**
	(s.e.)	(0.081)	(0.082)	(0.086)	(0.086)	(0.099)
	N	3142	3075	2791	2747	2305
	n	1106	1096	1024	1016	886
Divorced mothers	Estimate	−0.376***	−0.401***	−0.398***	−0.422***	−0.349**
	(s.e.)	(0.081)	(0.088)	(0.094)	(0.099)	(0.137)
	N	3448	3356	2929	2888	2334
	n	951	937	825	821	683
Divorced fathers	Estimate	−0.432***	−0.499***	−0.454***	−0.518***	−0.515***
	(s.e.)	(0.067)	(0.069)	(0.073)	(0.074)	(0.105)
	N	1875	1739	1570	1491	1042
	n	635	602	546	529	371

Note: See the note to Table 3.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5
Effect of no contacts on the probability that parents intend to divide their estate equally among all children.

		Specification				
		(a)	(b)	(c)	(d)	(e)
All parents	Estimate	−0.250***	−0.272***	−0.294***	−0.296***	−0.288***
	(s.e.)	(0.020)	(0.023)	(0.027)	(0.028)	(0.029)
	N	23,260	18,673	14,637	13,328	12,092
	n	7387	6809	5226	5061	4732
Widows	Estimate	−0.330***	−0.335***	−0.296***	−0.296***	−0.292***
	(s.e.)	(0.041)	(0.041)	(0.046)	(0.046)	(0.047)
	N	7230	7173	6309	6271	5820
	n	2712	2695	2500	2489	2368
Widowers	Estimate	−0.331***	−0.338***	−0.347***	−0.344***	−0.346***
	(s.e.)	(0.076)	(0.077)	(0.085)	(0.085)	(0.090)
	N	1569	1554	1407	1394	1278
	n	715	713	666	663	627
Divorced mothers	Estimate	−0.297***	−0.329***	−0.340***	−0.381***	−0.387***
	(s.e.)	(0.069)	(0.071)	(0.080)	(0.083)	(0.085)
	N	1980	1959	1710	1697	1461
	n	717	714	643	640	560
Divorced fathers	Estimate	−0.355***	−0.353***	−0.319***	−0.312***	−0.303***
	(s.e.)	(0.069)	(0.069)	(0.078)	(0.078)	(0.092)
	N	937	917	793	777	601
	n	397	393	349	346	266

Note: See the notes to Tables 3 and A.2.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Unpartnered parents (either divorced or widowed) are generally less likely to plan equal bequests if they have genetic children and stepchildren. For example, divorced fathers are up to 52 percentage points less likely to treat all children equally than divorced fathers with genetic children only (column (d)). Similar, albeit smaller, responses are found for divorced mothers as well as for widows.

Without exceptions, the estimates in Table 5 show that no-contact parents are also less likely to plan an equal division of their estates. No contact is on average associated with a reduction in the probability of equal bequest intentions of 25–38 percentage points. Larger reductions are observed among widows and widowers and among divorced fathers and mothers.[37]

[37] The results in Tables 4 and 5 were found for parents with two or more children *and* a will. An alternative sample selection is to include only parents with two or more children and a will that mentions *all* of the children. This selection clearly leads to smaller samples. But even when this more restrictive definition

In sum, the estimates in Tables 4 and 5 tell a consistent story. Parents in weak relationships who mention all children in their wills are more likely to plan an unequal division of end-of-life transfers. This evidence suggests that stepchildren and genetic children with no contact with their parents appear to face similar chances of inheriting from their stepparents and parents. This result sits at odds with the genetic-child hypothesis, according to which parents favor their own genetic offspring over stepchildren, and seems instead to be driven mainly by other motives. In the next subsection we explore this possibility further.[38]

5. Further empirical results

In this section we discuss further results in four parts. Specifically, in Section 5.1 we compare our benchmark RE estimates with the estimates found with FE models and those found with an instrumental variables approach. In Section 5.2 we take full advantage of the longitudinal aspect of the HRS examining changes in bequest intentions, while in Section 5.3 we turn from bequest intentions to the reported final division of estates using the cross-sectional information contained in the exit files. Finally, in Section 5.4 we examine how contacts and interactions between parents and children in weak relationships are related to end-of-life transfers.

5.1. Evidence from fixed effects and instrumental variables models

FE Estimates — As mentioned in Section 3.4, the RE estimates presented so far rely on the assumption that the unobserved individual-specific component of the error term and our measure of weak relationship (i.e., v_i and WR_{it}, respectively, in Eq. (1)) are uncorrelated. A concern with the RE estimates is that the effect of WR_{it} on bequest behavior might be spurious. This may be due to the mutual association that WR_{it} and bequest behavior share with some unmeasured causal factor. For instance, the association between having stepchildren (or having no contact with genetic children) and not mentioning all children equally in the will may not be driven by weak relationships per se. Rather, it may reflect some hard-to-measure characteristics of the environment of such relationships, e.g., the personality of new partners or poor health.

To address this potential issue we performed our analysis estimating Eq. (1) with FE linear probability models, which are identified by individuals experiencing changes in weak relationships and bequest behavior. We do not see these estimates as offering a casual effect of WR_{it}, but rather as providing us with a robustness check of the estimates we reported earlier. The FE estimates are shown in panel A of Table 6 where, for ease of comparison, we also report the RE estimates from the basic specification discussed above.[39]

Consider first the estimates for stepparents. In the case of equal estate division (column (b)), the FE estimate is just slightly smaller (in absolute value) than the corresponding benchmark RE estimate, but it has the same sign and the same level of statistical significance. Its economic interpretation is therefore the same as that of our previous RE estimate.

If instead we look at the probability of having no will (column (a)), the FE estimates reveal that stepparents are 2 percentage points less likely to be intestate than their counterparts without stepchildren, while the RE estimates revealed no difference between the two groups of parents. Albeit quantitatively small, this difference reveals that stepparents may be less willing to rely on the default rules of heirship, than we would have inferred from the RE results.

Turning to no-contact relationships, the FE estimates confirm the absence of a significant link between this type of family and their likelihood of having no will (column (c)). In the case of equal division, the FE estimates confirm the negative link found with the RE models, but the FE estimates are about 70 percent lower in absolute value. This may mean that the strength of the association between lack of contact and bequest behavior is lower than that suggested by the RE estimates. But it may also reveal the presence of substantial measurement errors in the WR_{it} variable which would bias the FE estimates toward zero, something the IV approach is meant to address, at least in part.

Before focusing on the IV results, we should stress that the FE estimates confirm our previous findings, showing that individuals who acquire stepchildren are more likely to have a will and less likely to divide equally, and those who fall out of contact with a child are less likely to divide equally. The implications of such results for the subgroup of individuals that contribute to the identification of β, and the implied generalizability of the estimates to the broader pool of (largely unchanging) families, represent an important addition to our understanding of end-of-life transfer behavior.

IV Estimates — To account for the potential endogeneity of weak relationships in (1) and limit the possible problem of measurement error in WR_{it}, which could be exacerbated by the FE model, we resort to an instrumental variables approach. Like in the case of

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is used, we find effect estimates that are in line with (albeit of smaller magnitude than) those shown in Tables 4 and 5. These results are reported in the Online Appendix.

[38] We performed several robustness checks, whose estimates are not presented but are available from the authors. For instance, in one of the exercises, we disaggregated the overall effect of the stepchild indicator variable by the number of genetic children and stepchildren. Virtually all our earlier results are robust to this change. In another check, we took advantage of the fact that, regardless of whether individuals have a will, the HRS asks one respondent per household to report the probability of leaving a bequest worth at least $10,000, $100,000, and $500,000, excluding any inheritance to be left to the surviving partner if he/she is still alive. Using random-effects ordered probit regressions, we re-analyzed the models of having a will and equal intended bequests. Again, the results from this analysis are qualitatively very similar to those discussed above. Finally, we looked at parents' decisions to have life insurance policies and to include all their children as beneficiaries of such policies. The results, reported in the Online Appendix, show that parents in weak relationships, as opposed to their counterparts in simple families, are less likely to have a life insurance and, conditional on having one, they are less likely to mention all their children as beneficiaries of such policies. We take these results as providing further evidence that corroborates our main findings on intended bequests.

[39] The FE estimates from the other specifications are available in the Online Appendix.

Table 6
Robustness: Fixed effects and instrumental variable estimates.

		Stepparents		No-contact parents	
		No will (a)	Equal division (b)	No will (c)	Equal division (d)
Benchmark: Random effects					
	Estimate	0.007	−0.290***	0.009	−0.250***
	(s.e.)	(0.017)	(0.015)	(0.021)	(0.020)
A. Fixed effects					
	Estimate	−0.024***	−0.164***	−0.003	−0.081***
	(s.e.)	(0.007)	(0.017)	(0.007)	(0.017)
	N	133,119	69,061	47,766	23,260
	n	24,600	14,842	13,314	7387
B. Instrumental variables					
First stage	Estimate	−0.002***	−0.002***	−0.001***	−0.001*
	(s.e.)	0.000	0.000	0.0000	0.001
	χ^2	96.921	30.364	10.818	3.658
	p-value	0.0000	0.0000	0.001	0.0558
Second stage	Estimate	0.247***	−0.362***	0.132***	−0.231***
	(s.e.)	0.031	0.032	0.038	0.024
	N	94,680	50,644	44,698	22,673
	n	21,284	12,653	14,287	8107

Note: Random effects estimates are marginal effects from a random effect probit model. Fixed effects estimates in panel A are obtained from a fixed effect linear model. All specifications are as in column (a) of Table 3 and Table A.2. All figures are computed on the core files. See the text for an explanation of the FE (panel A) and IV (panel B) estimates, respectively.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

the FE model above, this approach attempts to account for the mutual association that weak relationships and bequest behavior may share with some unobserved causal determinant of the outcomes in (1). We do not claim our IV estimates pin down the causal impact of WR_{it} on Y_{it}. Instead, they should be seen as a robustness check on the benchmark RE results.

The variable we use to instrument for WR_{it} is a novel measure of financial optimism, which we construct using individual expectations information contained in the HRS questionnaires. In particular, we use a measure that combines the individuals' responses to three questions, one on inflation expectations over the next 10 years; one on the expectation of a major depression over the next 10 years; and one on the one-year performance of mutual funds invested in bluechip stocks. We use financial optimism as a predictor of life choices which, in turn, are likely to be linked to weak relationships. A complete description of this variable and its components is available in the Online Appendix, where we also discuss its correlation with individuals' demographic and socioeconomic characteristics.

The only other economic study that correlates optimism to life choices (including remarriage) is Puri and Robinson (2007). Their measure of optimism, however, is based on individuals' life expectancy miscalibration (that is, the gap between individuals' self-reported life expectancy and that implied by actuarial tables), while ours does not refer to events that are affected by respondents' life course decisions. This difference is important because life expectancy and life expectancy miscalibration are likely to be endogenous to family structure and other life decisions, e.g., health choices, which in turn might be associated with individual bequest behavior. Financial optimism could also violate the exclusion restriction needed for a causal interpretation of β. This is why we stress our application as a robustness check rather than an exercise of statistical causality.

Social and medical scientists have provided a wealth of evidence indicating that dispositional optimism — an individual's positive general outlook about future events and life in general — does matter for physical and psychological well-being (Scheier et al., 1994; Solberg Nes and Segerstrom, 2006). For example, a large body of evidence documents that, compared with pessimistic cancer patients, optimists face lower mortality risk and experience faster recovery after surgery (e.g., Schulz et al., 1996; Scheier et al., 1989; Rasmussen et al., 2009). Puri and Robinson (2007) find that more optimistic people work harder, expect to retire later, invest more in individual stocks, and save more. They also find that optimists, who report they have been divorced before, are more likely to remarry.

Our IV results are reported in panel B of Table 6. These are obtained from bivariate probit regressions in which the first and second stages are estimated jointly. The first stage predicts WR_{it} using the residuals of our measure of financial optimism from a regression of optimism on age and sex. To account for the fact that we include a predicted variable, the bivariate probit standard errors are estimated using a bootstrap method that, due to the panel nature of the data, also allows for within-individual correlation.

In both stepfamilies and no-contact families and across all three bequest outcomes, the χ^2 tests and corresponding p-values in the first stage suggest that the instrument is always statistically relevant. We find that, on average, an increase in financial optimism of 1 percent leads to a significant reduction in the likelihood that the HRS respondents experience a weak relationship of 0.1–0.2 percentage points.[40]

The second stage estimates indicate that stepparents are 31 percentage points less likely to intend equal division of their estate than parents with only genetic children (column (b)). This is close to the benchmark RE estimate discussed in Section 4. The corresponding IV estimate for the sample of parents without contact with at least one of their genetic children is also highly comparable to the RE estimate (columns (d)).

Finally, the IV estimates in columns (a) and (c) show that parents in weak relationships are, respectively, 25 and 13 percentage points *more* likely to have no will than their counterparts. The significant and positive sign of these coefficients may indicate that parents in weak relationships are substantially more reluctant to make wills than implied by the RE models in Table 3. Weak relationships may encourage this sort of procrastination. These last results suggest the possible presence of unobserved common factors shared by the processes that generate intestacy decisions and the likelihood of living through a weak relationship.[41] Further research is needed to deepen our understanding of this difference and find alternative identification designs.

In sum, the results presented in Section 4 provide us with a useful benchmark, with the RE estimates being almost always between the FE estimates and the IV estimates. Although the FE model does not impose a zero-correlation assumption between the unobserved individual component of the residuals and WR_{it}, its estimates might exacerbate the problems due to measurement error in the weak relationship variables. The gaps between the IV and the RE estimates shown in Table 6 might instead reflect the downward bias in the RE estimates attributable to measurement errors, with only a small bias in the RE estimates induced by omitted variables.[42] They might also reflect unobserved differences between the characteristics of the treatment and comparison groups (optimists versus pessimists in our case) implicit in the IV approach. Our results therefore suggest that the RE estimates are likely to be not far off the mark, especially for the intention to bequeath equally. For this reason, the results we report in the following subsections rely on RE specifications.

5.2. Transitions in bequest intentions

Exploiting the longitudinal aspect of the HRS, we analyze *changes* in bequest intentions. For both our bequest outcomes, these can be readily estimated using Eq. (1) conditional on $Y_{i,t-1} = 0$ or $Y_{i,t-1} = 1$. Individuals have a high degree of persistence in their intentions. Of those who do not have a will in one wave, 91 percent remain without a will in the subsequent wave two years later, and 81 percent of those intending to bequeath to all children equally at one wave continue to do so in the subsequent wave.

We focus on the transitions from not having a will to having a will, and from unequal intended bequests to equal intended bequests.[43] In the analysis, we explicitly consider the interaction of the stepparents and no-contact parents with changes in parents' marital status (e.g., divorce or death of a spouse). Several other changes might interact with bequest plans and parents in weak relationships, such as changes in parental health and changes in children's economic situations. These however are not modeled, due to the small size of our samples.

Table 7 shows the results from a specification that includes changes in our basic set of controls, health status, money transfers to children, and parental income and wealth (comparable to specification (d) in Tables 3–4). The estimates of interest are robust to their exclusion.

In panel A we look at stepparents, while in panel B we focus on no-contact parents. For each transition, we report two sets of coefficients. In the first column, we present the impact of stepparents or no-contact parents on the transition under study. In the second we also show the interaction terms of the stepparent or no-contact parent variable with two changes in parental marital status: from marriage to divorce and from marriage to widowhood. This is important because, following divorce or the death of a spouse, an individual might write a new will.[44]

In panels C and D, we analyze this possibility more directly by considering only the subsample of widows and widowers. In this case, we first analyze whether parents write a new will or change an old will after the death of their partner (columns (a) and (c)). For each transition, we then present the estimates of how the presence of stepchildren or no-contact children changes bequest intentions further (columns (b) and (d)).[45]

[40] This result is not consistent with the finding by Puri and Robinson (2007) that more optimistic people are more likely to remarry. A number of reasons may explain this difference. For example, we employ a different measure of optimism. Moreover, the individuals in the Puri–Robinson sample are almost twenty years younger than the HRS respondents in our study. Finally, they focus on individuals who have been divorced, while we consider also married individuals. For comparison, we also repeated our analysis on the subsample of divorced individuals. We found results qualitatively similar to those shown in Table 6. These estimates are available in the Online Appendix. Our findings are consistent with the evidence from the psychological literature that documents that optimists are a positive resource for close relationships (Srivastava et al., 2006; Carver et al., 2010).

[41] Of course, we cannot rule out that the exclusion of financial optimism from the decision to write (or fail to write) a will be violated. In fact, if financial optimism is not excludable from the will-writing equation, then this may explain the difference between the IV and the RE intestacy estimates. However, as one can infer from the first stage results in Table 6, the reduced form estimates (not reported for space concerns) are small, suggesting that the direct link between the decision to write a will and financial optimism is likely to be tenuous.

[42] This is confirmed by positive regression coefficients found when we separately regress each measure of WR_{it} on the random effects v_i for each bequest outcome, Y_{it}. See Card (2001).

[43] The picture emerging from the two transitions in the opposite directions is consistent with that obtained from the two transitions just mentioned. They are therefore not presented, but are available in the Online Appendix.

[44] Parents may have incentives to re-write their wills as the external environment changes. For instance, Bruze and Essen (2022) provide interesting evidence of a strong response of parents to inheritance reform in Sweden that shifted the right to inherit an estate from children to parents.

[45] Other interesting changes in marital status (e.g., remarriage and repartnering) cannot be analyzed separately due to sample size limitations.

Table 7
Changes in parents' bequest intentions.

	Transition			
	'No will' ⇒ 'Will'		'Not all children in the will' ⇒ 'All children equally in the will'	
	(a)	(b)	(c)	(d)
Panel A: Stepparents				
Parent has stepchildren	0.003	0.025	−0.268***	−0.256**
	(0.009)	(0.017)	(0.033)	(0.051)
Parent has stepchildren ×		0.011		−0.236***
from married to divorced		(0.038)		(0.121)
Parent has stepchildren ×		−0.013		−0.257***
from married to widowed		(0.021)		(0.057)
N	26,056	8452	5346	2652
n	8344	3967	2915	1719
Panel B: No-contact parents				
No-contact parent	0.010	0.041	−0.198***	−0.193***
	(0.008)	(0.026)	(0.026)	(0.061)
No-contact parent ×		−0.020		−0.280***
from married to divorced		(0.048)		(0.102)
No-contact parent ×		0.022		−0.171
from married to widowed		(0.042)		(0.115)
N	14,904	3713	2880	1137
n	5964	2100	1824	829
Panel C: Widowed parents and stepparents				
Widowed parent	0.077***	0.076***	0.123***	0.162***
	(0.012)	(0.013)	(0.036)	(0.048)
Parent has stepchildren		−0.020		−0.221***
		(0.015)		(0.046)
Widowed parent ×		−0.007		−0.102***
Parent has stepchildren		(0.023)		(0.053)
N	9243	9071	2446	2383
n	3503	3412	1333	1293
Panel D: Widowed parents and no-contact parents				
Widowed parent	0.078***	0.072***	0.099***	0.182***
	(0.012)	(0.015)	(0.037)	(0.053)
No-contact parent		−0.012		−0.136***
		(0.016)		(0.040)
Widowed parent ×		0.067		−0.129*
No-contact parent		(0.044)		(0.075)
N	9243	5861	2446	1552
n	3503	2805	1333	1015

Note: See the notes to Table 3. All figures are computed on the core files. See also the text for further explanation of the transition estimates in panels A–D.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A of Table 7 reveals that the transition from being intestate to having a will is not affected by the joint presence of stepchildren and genetic children (column (a)). This is also the case when the presence of stepchildren is interacted with the two changes in marital status (column (b)). The joint presence of genetic children and stepchildren, instead, significantly reduces the probability of a transition from unequal to equal bequests. Having stepchildren reduces this transition by almost 27 percentage points (column (c)), and controlling for changes in parents' marital status does not significantly alter this result (columns (d)). The presence of stepchildren therefore is negatively correlated not only with the probability of equal intended bequests but also with the probability of changing the will from unequal to equal treatment of children. Having lost a partner through divorce or death generally makes this transition even less likely.

Panel B confirms virtually all the previous results for the case of parents with no-contact children. Generally the estimated effects are slightly smaller in absolute value among these parents than among stepparents. The only exception is in column (d) where the reduction in the probability that no-contact children are mentioned equally is not statistically significant if the no-contact parent's partner dies (or the parents divorce). This could be driven by small sample size and low statistical power. We assess this issue more directly in the next two panels in which we focus on the subsample of widows and widowers.

For this subsample we draw attention to four interesting results. First, the estimates for widowed stepparents are qualitatively similar to those for no-contact parents. Second, widowhood in both types of weak relationships increases the likelihood of changing bequest intentions: it increases both the transition to writing a will and the transition to having a will in which all children are equally included (columns (a) and (c)). Third, stepchildren or no-contact children neither increase nor decrease parents' greater propensity of writing a will (column (b)), but offset their parents' greater propensity of including all children equally in the will

Table 8
Effect of having stepchildren on final bequest dispositions from the exit files.

Probability of:		No will		Equal division	
		(a)	(b)	(a)	(b)
All parents	Estimate	−0.029**	−0.027	−0.035**	−0.108***
	(s.e.)	(0.012)	(0.018)	(0.017)	(0.024)
	N	9355	4411	4905	2461
Widows	Estimate	0.015	0.002	−0.138***	−0.135***
	(s.e.)	(0.024)	(0.028)	(0.034)	(0.038)
	N	3060	2033	1509	1132
Widowers	Estimate	−0.030	0.009	−0.279***	−0.289***
	(s.e.)	(0.036)	(0.043)	(0.047)	(0.055)
	N	1033	730	566	442
Divorced mothers	Estimate	−0.013	−0.067	−0.234**	−0.606***
	(s.e.)	(0.076)	(0.110)	(0.115)	(0.163)
	N	505	324	180	127
Divorced fathers	Estimate	−0.005	−0.023	−0.206**	−0.205**
	(s.e.)	(0.056)	(0.069)	(0.085)	(0.100)
	N	403	276	167	127

Note: All figures are computed on the exit files of the HRS. See the text for an explanation of specifications (a)–(b).
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

(columns (d)). Fourth, the presence of stepchildren combined with the loss of a spouse further reduces the likelihood of moving to a will with equal division by 10 percentage points (panel C). A similar, additional reduction is observed among no-contact parents, albeit significant only at the 10 percent level (panel D). This evidence is overall consistent with what we found in the top two panels.

5.3. Evidence from the exit files

The HRS exit files provide direct information about end-of-life transfers. These files contain reports by the surviving spouse or partner or by other close family members of the deceased HRS respondent and they allow us to analyze the final division of estates rather than bequest intentions. Unlike the core files, the exit files do not suffer from right censoring but they are much smaller than the core files and the HRS respondents who die early are not a random subsample of HRS respondents.

Table 8 gives a summary of our results. For each outcome we show probit estimates from two specifications. The first includes controls for standard demographics (column (a)), while the second further controls for year-of-death fixed effects, an indicator for whether the death was expected, earlier transfers to children, and parental wealth (column (b)).[46]

When looking at the probability of intestate succession (in the first two columns of Table 8), the estimate based on the most parsimonious specification using the whole sample indicates that parents of stepchildren have a 3 percentage point lower probability of leaving no will (column (a)). However, for the specification in column (b) the estimated coefficient of the stepchild variable is statistically indistinguishable from 0. This result, which holds true across all family types and for both mothers and fathers, confirms the general findings reported in Table 3. Moreover, from the exit files, we cannot detect the positive effect for divorced fathers which were found in some regressions performed using the core files. This might reflect an actual change in parents' behavior with respect to their bequest intentions. That is, it is possible that divorced fathers with stepchildren are not more (nor less) likely to rely on intestacy law than their counterparts without stepchildren. But it could also be due to the low statistical power inherent in the small sample size of the exit files.

Are all children included *equally*? The last two columns, where we present the estimates for the probability of equal bequests, suggest that they are not.[47] In fact, in line with the bequest intention estimates of Table 4, the results in Table 8 indicate that the presence of stepchildren reduces the probability that final bequest dispositions are equal by 4 percentage points (first row, specification (a)). This association is substantially smaller than the magnitude of the corresponding impact on intended bequests, and the differential gets larger in absolute value as more controls are included (specification (b)). We cannot detect relevant differential impacts for the subpopulations of parents who experienced divorce or the death of a spouse or partner.

In sum, the presence of stepchildren has a weak positive effect on the probability of writing a will, and, for parents who die with a will, the bequests observed in the exit files are largely consistent with the bequest intentions reported in the core files. The general decline in the difference in equal division rates between parents with and without stepchildren from intended to realized bequests could arise from the differences between the full HRS parent population and the exit sample parent population. It may

[46] The table reports the estimates on the stepchild indicator. Notice however that the exit files do not allow us to perform the same analysis on parents who did not have contacts with their genetic children.

[47] As before, this analysis is based only on the subsample of parents who died with a will.

Table 9
Probability that a stepchild is explicitly mentioned in his/her stepparent's will.

	(a)	(b)	(c)	(d)	(e)
Mean of dependent variable	0.257	0.257	0.228	0.257	0.268
Stepparent has own genetic children	−0.044***	−0.044***	−0.033**	−0.041**	−0.052**
	(0.014)	(0.014)	(0.014)	(0.018)	(0.021)
Years spent with stepparent	0.003***	0.003***	0.002***	0.003***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age at marriage: 0–6[a]	−0.016	−0.016	0.016	0.074*	0.044
	(0.020)	(0.020)	(0.023)	(0.038)	(0.038)
Age at marriage: 7–12[a]	−0.016	−0.016	−0.010	0.001	−0.010
	(0.016)	(0.016)	(0.016)	(0.024)	(0.026)
Age at marriage: 13–18[a]	0.008	0.008	0.016	0.018	0.022
	(0.014)	(0.014)	(0.015)	(0.020)	(0.022)
Stepchild is female	0.016*	0.015*	0.009	0.057***	0.049***
	(0.008)	(0.008)	(0.008)	(0.014)	(0.015)
Age of stepchild	−0.001**	−0.001*	−0.000	−0.002	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Stepparent is female	0.048***	0.049***	0.046***	0.058***	0.063***
	(0.006)	(0.006)	(0.006)	(0.009)	(0.011)
Stepparent age	0.004***	0.004***	0.002***	0.002***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Stepparent is in poor/fair health	−0.041***	−0.041***	−0.046***	−0.050***	−0.057***
	(0.006)	(0.006)	(0.006)	(0.009)	(0.010)
Stepparent takes care of stepchild's child(ren)		0.042***	0.042**	0.042	0.043
		(0.016)	(0.021)	(0.027)	(0.029)
Stepchild is main recipient of inter vivos transfers			0.099***	0.106***	0.107***
			(0.017)	(0.021)	(0.023)
Log of stepchild's income				0.125***	0.120***
				(0.014)	(0.015)
Stepparent expects help from stepchild in the future					0.113***
					(0.020)
Stepchild's predicted income is below genetic children's income by:					
1–49 percent				0.065***	0.058***
				(0.018)	(0.020)
50+ percent				0.035***	0.031**
				(0.013)	(0.015)
N	31,743	31,743	17,488	12,945	10,993
n	7789	7789	6227	4824	4387

Note: Figures are marginal effects from RE probit regressions. Standard errors are in parentheses.
N = number of observations; n = number of stepchildren.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
[a]The age reported here refers to the age of the stepchild at the time in which his/her parent formed a partnership with his/her stepparent (who writes the will). The reference category is 18 years or more.

also indicate a real movement toward equal division among both genetic children and stepchildren as parents in weak relationships approach the end of life. This could be better understood in future research, as we collect more data from the exit files.

5.4. Interactions of stepparents and no-contact parents with children

We now focus on our last empirical exercise and look at how interactions between parents and children are related to the probability that children are mentioned in the will. We first look at the stepparent–stepchild interaction and investigate whether stepchildren are less likely to be included in the will of a stepparent when the stepparent also has genetic children.

Table 9 presents random effects probit estimates of the probability that a stepchild is mentioned in the stepparent's will for the whole sample of stepchildren.[48] The table shows the results from five specifications. In specification (a) we include a basic set of controls (i.e., parent and child's age and gender), the age at which the child became a stepchild, and the number of years spent with the stepparent. Specification (b) also controls for whether the stepparent reported providing care for the stepchild's child(ren), while specification (c) includes an indicator of whether the stepchild was the main recipient of inter vivos transfers from the stepparent. Specification (d) adds a measure of the stepchild's predicted income, which was constructed using the procedure described in Section 3, and controls for the within-family difference between the stepchild's predicted income and the genetic child's income (or the income mean when there are two or more genetic children). We distinguish three subgroups, one in which

[48] Among the stepchildren not included in their stepparents' will we include also those stepchildren whose stepparents do not have a will, as intestacy rules would automatically preclude stepchildren inheriting from the stepparents.

the stepchild's income is equal or greater than the genetic child's, another in which it is 1–49 percent lower, and the last one in which it is 50+ percent lower.[49] Finally, specification (e) includes an indicator of whether the stepparent expects to receive help from his/her stepchild in the future.

Table 9 reveals that for a child whose stepparent also has a genetic child the probability of being included in the will is 3–5 percentage points lower, an average impact of about 12 percent (columns (a)–(e)). This is consistent with the genetic-child hypothesis according to which parents tend to favor children who share their genes. This negative relationship is entirely eliminated, however, if the stepchild's predicted income is lower than the genetic child's (specification (d)). Nearly two-fifths of stepchildren in the sample have relatively lower incomes. This finding is consistent with altruism if parents not only are more likely to mention low-income stepchildren in their wills (as we find here), but also give them more. We cannot test this last point because, as mentioned in Section 3.2, the HRS contains no information about the monetary amount that the respondents intend to bequeath to each child.

Across all specifications, the older the stepparent the higher the likelihood that the stepchild is included in the will: the stepchild penalty is offset if the stepparent is 10 to 15 years older than the average stepparent. This may indicate a greater need for the stepchild's assistance. These findings mirror the relationship between parents and their genetic children. In particular, they suggest that stepparents may use bequests to elicit a long-term flow of reciprocal services rather than episodic short-term care. It is possible, in fact, that episodic short-term care could be "paid for" by inter vivos transfers. This behavior is consistent with the strategic use of bequests postulated by Bernheim et al. (1985). Children whose stepparents are in poor/fair health (another possible indicator of need) have however a 4–6 percentage point *decrease* in the probability of being included in the will.

Table 9 also shows that, regardless of the age at which a child acquired the stepparent, the more years he/she spent with the stepparent the higher the likelihood of being included in the will: 10–11 years of stepchildhood completely eliminate the stepchild penalty. Moreover, a stepchild's probability of inclusion in the will goes up by about 4 percentage points if the stepparent reports having provided care for the stepchild's child(ren), although this effect is not always significant (specifications (d)–(e)) and by another 10–11 percentage points if the stepchild is also the main recipient of inter vivos transfers (specifications (c)–(e)). This may reflect trust and bonding, which are strengthened by repeated interactions over longer time periods. Finally, if stepparents expect help from their stepchildren in the future, the likelihood the stepchild is mentioned in the will goes up by 11 percentage points (a 30 percent increase over the baseline probability). This result suggests again the presence of exchange motives with parents using bequests strategically toward stepchildren.

Stratifying the sample by gender (see Tables A.3 and A.4), we find that the negative association between the probability of being mentioned in the will and the presence of a step-sibling (i.e., the variable 'stepparent has own genetic children') is concentrated among male stepchildren, who experience a reduction in this probability of about 5–11 percentage points. Female stepchildren experience a reduction of at most two percentage points but this reduction is never statistically significant. The relationship between stepparental expectations about future help and inclusion in the will is stronger for female stepchildren (17 percentage points for female as opposed to 11 percentage points for male stepchildren).[50]

We now turn our attention to no-contact parent–genetic child interactions and investigate how these contacts affect bequest intentions. In Table 10 we report how the probability that a genetic child is mentioned in his/her parent's will changes with the frequency of contact and with the fact that the parent's spouse is not genetically related to the child.[51] The first two columns of the table show that parents who have no contact with their genetic children are 36–62 percentage points less likely to mention them in their wills. The lack of parent–child contact therefore dramatically reduces the child's odds of inclusion in the parent's will. Having infrequent rather than frequent contacts also dents the likelihood of inclusion by 12–28 percentage points, and, as indicated by the p-values at the bottom of the table, the difference between having infrequent contacts and having no contact is always statistically significant (with the p-value being just above 5 percent only in specification (e)). These results do not change when we add controls for child's income and other parent–child interaction terms (e.g., grandchild's care and inter vivos transfers).

We find that the "no-contact genetic child penalty" is partly offset if the child is the main recipient of inter vivos transfers. This might reflect earlier (more frequent) interactions. In columns (c) and (d) we explore how the child's odds of being mentioned in the will change if he/she is not the genetic child of the parent's partner and if the parent expects to receive help from him/her in the future. We find that, for the child to be genetically unrelated to the parent's partner does not affect his/her probability of being included in the will (columns (c) and (d)). Expecting help from the absent child in the future increases the likelihood of mentioning him/her in the will by 1 percentage point, although the estimate is only significant at the 10 percent level and in one specification (column (d)).

Finally, we explore how the lack of contact interacts with the absence of a relationship with the parent's partner as well as with the parent's expectations of receiving help in the future (column (e)). If parents expect to receive help from their absent genetic children in the future, the probability that such children are included in the will increases by 11 percentage points. This does not completely offset the penalty of having no contact. However, if the parent formed a new family and the absent child is not related to the parent's new partner/spouse, the chances that the absent child is mentioned in the will are reduced by 22 percentage points.

[49] We checked the sensitivity of this cutoff using different partitions (e.g., at one-third and two-thirds of the genetic child's income), and found results that are essentially identical to those shown in Table 9. These alternative estimates are thus not reported.

[50] The same pattern of results, with the same gender differences, persists when we focus on the subsample of stepchildren of divorced and widowed parents. These results are not reported for the sake of brevity, but are available from the authors.

[51] In this case we only included children of parents who have a will. Due to small sample size we could not estimate a specification which included the within-family coefficient of variation in children's income. We thus cannot use the estimates in Table 10 to assess the role played by altruism.

Table 10
Probability that a genetic child is explicitly mentioned in his/her no-contact or infrequent-contact parent's will.

	(a)	(b)	(c)	(d)	(e)
Mean of dependent variable	0.840	0.846	0.823	0.827	0.827
Frequency of contacts (base = frequent)					
Infrequent	−0.135***	−0.115***	−0.216***	−0.282***	−0.235***
	(0.009)	(0.011)	(0.064)	(0.079)	(0.081)
No contact	−0.361***	−0.346***	−0.619***	−0.599***	−0.504***
	(0.015)	(0.022)	(0.078)	(0.092)	(0.110)
Parent is female	0.001	0.002	−0.001	0.002	0.001
	(0.004)	(0.004)	(0.009)	(0.010)	(0.010)
Parent age	0.001***	0.001***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Child is female	0.004*	0.024***	0.008	0.009	0.009
	(0.002)	(0.004)	(0.006)	(0.007)	(0.007)
Child age	−0.001***	−0.001***	−0.002***	−0.002***	−0.002***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Parent is married	−0.078***	−0.085***	−0.092***	−0.091***	−0.090***
	(0.003)	(0.004)	(0.005)	(0.006)	(0.006)
Parent married more than once	−0.024***	−0.021***	−0.035***	−0.039***	−0.041***
	(0.003)	(0.004)	(0.008)	(0.008)	(0.009)
Parent takes care of child's children		0.005	0.005	0.000	0.001
		(0.005)	(0.008)	(0.008)	(0.008)
Child is main recipient of inter vivos transfers		0.043***	0.035***	0.031***	0.031***
		(0.003)	(0.006)	(0.006)	(0.006)
Log of child's income		0.032***	0.011*	0.009	0.009
		(0.003)	(0.006)	(0.006)	(0.006)
Child is not spouse's genetic child			−0.010	0.010	0.021**
			(0.009)	(0.009)	(0.009)
Parent expects help from child in the future				0.010*	0.008
				(0.006)	(0.006)
Child is not spouse's genetic child × infrequent contacts					−0.097**
					(0.047)
Child is not spouse's genetic child × no contacts					−0.220***
					(0.084)
Parent expects help in future × infrequent contacts					0.042
					(0.031)
Parent expects help in future × no contacts					0.105***
					(0.011)
N	157,173	94,003	39,300	34,145	34,140
n	73,522	54,423	26,902	23,982	23,928
p-value[a]	0.0000	0.0000	0.0002	0.0123	0.0526

Note: Figures are marginal effects from RE probit regressions. Standard errors are in parentheses.
N = number of observations; n = number of stepchildren. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
[a]Refers to the test of equality between the coefficients of "Infrequent contacts" and "No contacts".

We also conducted this analysis separately for male and female children, the results of which are shown in the Online Appendix. These estimates broadly confirm the results in Table 10, and, as per the case of the stepchildren, the effects are larger and more significant for sons than for daughters. Both women and men who are not the genetic children of the parent's partner face an additional penalty only if they have no contacts with their parents.

In sum, parents are more likely to transfer resources to children who share their genes than to stepchildren who are genetically unrelated to them. But a simple evolutionary story, such as the genetic-child hypothesis, does not explain what we observe in the data as, for example, in the case of no-contact parents. Furthermore, bequests to stepchildren are affected by altruistic and exchange motives. Parents are likely to leave bequests to their low-income stepchildren suggesting altruistic motives. And stepchildren are more likely to be mentioned in their stepparents' wills if the stepparents are older suggesting exchange motives. Trust and bonding appear to be highly relevant in weak relationships: there is no stepchild penalty if stepparents help with child care or have already made other transfers. Similar patterns occur between parents and their no-contact genetic children. The relationship between parents and children in weak relationships requires deeper, more subtle explanations than those provided by the genetic-child hypothesis.

6. Conclusion

In the last thirty years, American families have experienced massive changes: a retreat from marriage, increased divorce and remarriage, and growth in cohabitation and nonmarital childbearing. Stepparents and no-contact parents may be less motivated than parents in traditional families to provide resources to children with whom they do not share their genes or have not shared their homes. And children in weak relationships may be less willing than children in traditional families to assist disabled older parents, especially those with whom they have no genetic connection or only briefly shared a home.

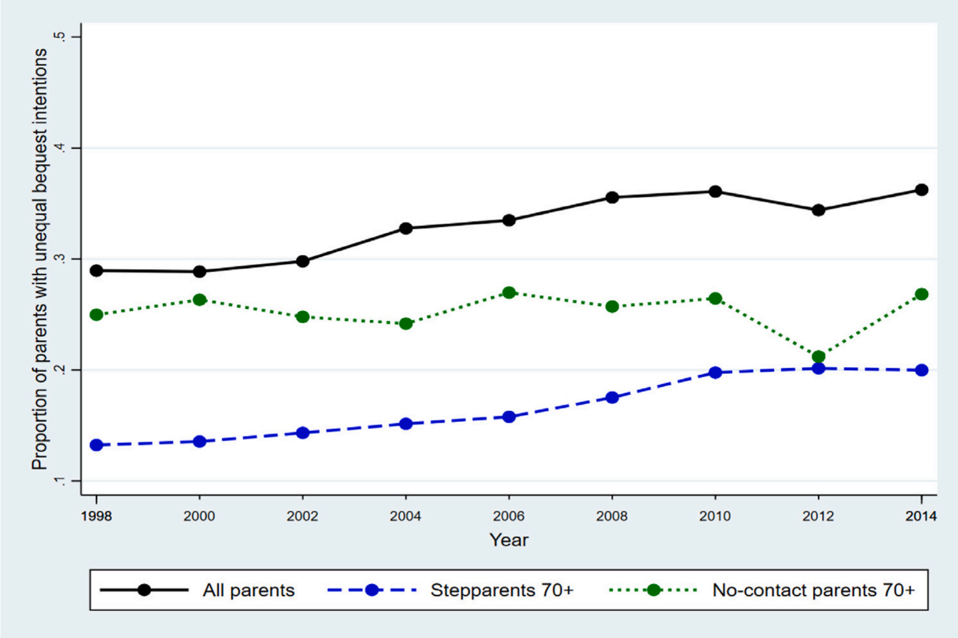

Fig. A.1. Unequal bequest intentions and proportion of older stepparents.
Source: Health and Retirement Study, 1995–2014.

For younger cohorts, nonmarital fertility of cohabiting couples who break up and repartner will substantially increase the likelihood of life in a weak relationship. Those presently in the HRS data are older, and their family situations are generally a by-product of divorce and remarriage. The implications for intergenerational transfers of these changes in circumstances are difficult to predict because weak relationships created by cohabitation and nonmarital fertility in younger cohorts may evolve differently from those created by divorce and remarriage in older cohorts.

We have shown that bequests are much more unequal now than in the recent past and much more unequal than generally recognized. In simple families (i.e., families with neither stepchildren nor no-contact children), equal bequests are the dominant pattern. In other family environments, however, we find substantial inequality in both bequest intentions and final bequest dispositions. We cannot assess the relative importance of genetic ties and contact by studying simple families because in such families all of the children have the same genetic ties with their parents. But the bequest patterns we find in weak relationships imply that contact trumps genetic ties.

Economic theory on end-of-life transfers assumes that individuals, or at least older individuals, make wills. We find instead that parents often fail to write wills and, either by design or by default, rely on intestacy law to determine the distribution of their estates. For parents with stepchildren, the effect of relying on intestacy law is to leave everything to genetic and legally-adopted children and nothing to stepchildren. For no-contact parents, the effect of relying on intestacy law is to treat contact and no-contact genetic children equally. If parents understand the most basic provisions of the intestacy default, this finding is puzzling. It implies that parents who have had no contact with some of their genetic children are more likely to treat all of their genetic children equally than are parents who have maintained contact with all of their genetic children. We suspect that the absence of wills reflects the disutility of making wills (and contemplating death) rather than preferences for the distribution mandated by intestacy law. Unfortunately, the HRS provides no information that would allow us to speak to this issue.

Deepening the economic understanding of intestate behavior is a relatively under-explored field of research, whose development is left for the future. Another promising area of investigation is on the link between bequest intentions and actual bequest allocations, especially from the perspective of the decedent's family history at the end of her or his life. This link is bound to become cleaner as the HRS respondents grow older and more of them are represented in the exit files.

Appendix A

See Fig. A.1 and Tables A.1–A.4.

Appendix B. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.euroecorev.2023.104513.

Table A.1
Descriptive statistics for contact and no-contact parents – Dependent variables.
Source: Health and Retirement Study, 1995–2014.

	(a) All	(b) Parents have no contact with at least one child	(c) Parents have contacts with all children	(d) Difference (b)–(c) (t-value)	N	n
A. No will						
All	0.443	0.584	0.434	0.151*** (15.877)	47,766	13,314
Divorced	0.624	0.699	0.615	0.084*** (5.016)	9188	2951
Widowed	0.388	0.563	0.377	0.185*** (11.650)	16,785	5886
B. Equal intended bequest						
All	0.754	0.475	0.768	−0.293*** (22.543)	23,260	5979
Divorced	0.737	0.384	0.772	−0.388*** (14.086)	2917	833
Widowed	0.746	0.403	0.762	−0.359*** (16.405)	8799	3001

Note: All figures are calculated on the core files.
N = number of observations; n = number of individuals. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table A.2
Effect of no contacts on the probability of not having a will.

		Specification				
		(a)	(b)	(c)	(d)	(e)
All parents	Estimate	0.009	0.004	−0.002	−0.002	0.010
	(s.e.)	(0.021)	(0.023)	(0.024)	(0.026)	(0.028)
	N	47,766	39,580	28,438	26,122	20,254
	n	13,314	12,480	9295	9072	7237
Widows	Estimate	0.032	0.030	0.013	0.010	0.014
	(s.e.)	(0.034)	(0.035)	(0.026)	(0.026)	(0.028)
	N	13,940	13,848	10,785	10,729	8554
	n	4697	4678	4064	4049	3259
Widowers	Estimate	0.192**	0.181**	0.124*	0.114*	0.133*
	(s.e.)	(0.077)	(0.076)	(0.072)	(0.060)	(0.079)
	N	2845	2818	2358	2338	1882
	n	1193	1189	1058	1054	860
Divorced mothers	Estimate	−0.001	−0.003	−0.033	−0.023	0.002
	(s.e.)	(0.034)	(0.035)	(0.062)	(0.061)	(0.069)
	N	6371	6320	4723	4697	3375
	n	1947	1944	1597	1592	1180
Divorced fathers	Estimate	0.012	0.013	0.003	−0.003	0.048
	(s.e.)	(0.041)	(0.041)	(0.059)	(0.060)	(0.067)
	N	2817	2765	2189	2155	1439
	n	1006	993	840	830	570

Note: The figures are marginal effects of the no-contact parent indicator from random effects probit models. See the note to Table 3 in the text for further explanations.
N = number of observations; n = number of individuals. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3
Probability that a male stepchild is explicitly mentioned in his stepparent's will.

	(a)	(b)	(c)	(d)	(e)
Mean of dependent variable	0.251	0.251	0.222	0.252	0.262
Stepparent has own	−0.065***	−0.065***	−0.048**	−0.071**	−0.105***
genetic children	(0.021)	(0.021)	(0.019)	(0.027)	(0.033)
Years spent with stepparent	0.003***	0.003***	0.002***	0.002**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age at marriage: 0–6[a]	−0.009	−0.009	0.005	0.048	0.022
	(0.027)	(0.027)	(0.029)	(0.049)	(0.049)
Age at marriage: 7–12[a]	−0.006	−0.006	0.013	0.051	0.040
	(0.023)	(0.023)	(0.025)	(0.041)	(0.044)
Age at marriage: 13–18[a]	−0.013	−0.013	−0.002	0.010	0.013
	(0.018)	(0.018)	(0.018)	(0.027)	(0.030)
Age of stepchild	−0.001	−0.001	0.000	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Stepparent is female	0.048***	0.048***	0.044***	0.052***	0.060***
	(0.008)	(0.008)	(0.009)	(0.013)	(0.015)
Stepparent age	0.003***	0.003***	0.002**	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Stepparent is in	−0.048***	−0.048***	−0.061***	−0.073***	−0.084***
poor/fair health	(0.008)	(0.008)	(0.008)	(0.012)	(0.013)
Stepparent takes care		0.036	0.026	0.033	0.036
of stepchild's child(ren)		(0.022)	(0.029)	(0.039)	(0.043)
Stepchild is main recipient			0.105***	0.124***	0.135***
of inter vivos transfers			(0.024)	(0.032)	(0.036)
Log of stepchild's income				0.119***	0.113***
				(0.019)	(0.021)
Stepparent expects help from					0.075***
stepchild in the future					(0.028)
Stepchild's predicted income is below genetic children's income by:					
1–49 percent				0.092**	0.091**
				(0.036)	(0.039)
50+ percent				0.037**	0.030
				(0.018)	(0.019)
N	15,968	15,968	8773	6506	5543
n	3919	3919	3123	2414	2201

Note: Figures are marginal effects from probit regressions. Standard errors are in parentheses.
N = number of observations; n = number of stepchildren.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
[a]The age reported here refers to the age of the stepchild at the time in which his parent formed a partnership with his stepparent (who writes the will). The reference category is 18 years or more.

Table A.4
Probability that a female stepchild is explicitly mentioned in her stepparent's will.

	(a)	(b)	(c)	(d)	(e)
Mean of dependent variable	0.262	0.262	0.233	0.261	0.267
Stepparent has own	−0.019	−0.019	−0.017	−0.009	−0.002
genetic children	(0.020)	(0.020)	(0.019)	(0.024)	(0.026)
Years spent with stepparent	0.003***	0.003***	0.003***	0.004***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age at marriage: 0–6[a]	−0.023	−0.022	0.024	0.088	0.059
	(0.028)	(0.028)	(0.034)	(0.056)	(0.056)
Age at marriage: 7–12[a]	−0.026	−0.025	−0.031	−0.039	−0.048
	(0.023)	(0.023)	(0.020)	(0.028)	(0.030)
Age at marriage: 13–18[a]	0.033	0.033	0.033	0.021	0.027
	(0.023)	(0.023)	(0.023)	(0.029)	(0.032)
Age of stepchild	−0.002*	−0.002*	−0.001	−0.002*	−0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Stepparent is female	0.048***	0.049***	0.048***	0.062***	0.063***
	(0.009)	(0.009)	(0.009)	(0.013)	(0.015)
Stepparent age	0.004***	0.004***	0.003***	0.003***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Stepparent is in	−0.033***	−0.033***	−0.031***	−0.029**	−0.031**

(*continued on next page*)

Table A.4 (*continued*).

	(a)	(b)	(c)	(d)	(e)
poor/fair health	(0.008)	(0.008)	(0.009)	(0.013)	(0.015)
Stepparent takes care		0.045**	0.054*	0.051	0.044
of stepchild's child(ren)		(0.022)	(0.030)	(0.037)	(0.040)
Stepchild is main recipient			0.097***	0.091***	0.083***
of inter vivos transfers			(0.023)	(0.028)	(0.031)
Log of stepchild's income				0.137***	0.134***
				(0.020)	(0.021)
Stepparent expects help from					0.142***
stepchild in the future					(0.028)
Stepchild's predicted income is below genetic children's income by:					
1–49 percent				0.052**	0.047*
				(0.021)	(0.024)
50+ percent				0.032	0.033
				(0.020)	(0.023)
N	15,775	15,775	8715	6439	5450
n	3896	3896	3114	2417	2190

Note: Figures are marginal effects from probit regressions. Standard errors are in parentheses.
N = number of observations; *n* = number of stepchildren.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
[a]The age reported here refers to the age of the stepchild at the time in which her parent formed a partnership with her stepparent (who writes the will). The reference category is 18 years or more.

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