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UNEQUAL BEQUESTS

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### **ABSTRACT**

Using data from the Health and Retirement Study, 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 complex families, 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 people who died between 1995 and 2012, nearly 40 percent died intestate.

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<https://sites.google.com/site/domtabasso/appendix-material-for-unequal-bequests>

# 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 complex families, 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). We complement our analysis of the bequest intentions of parents with wills by examining actual 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 actual) 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 complex families, but contact between parents and children reduces or eliminates unequal bequests. Finally, a substantial 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, Shleifer, and Summers 1985; 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; Bernheim and Severinov 2003).

The proportion of American parents aged 50 and over, with more than one child and who reported having wills,<sup>1</sup> in which their children were treated unequally increased steadily between 1995 and 2014, rising from around 27 percent to more than 36 percent (Figure 1).<sup>2</sup> This upward trend, which holds for both mothers and fathers, is not simply driven by the ageing of the HRS respondents.<sup>3</sup> A similar increase, with the possible exception of the latest years, can be observed across several cohorts of Americans born since 1890 (Figure 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)

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<sup>1</sup>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 subsection 3.B.

<sup>2</sup>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.

<sup>3</sup>Between 1998 and 2014 the average age of the HRS sample employed in this paper increased only 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.

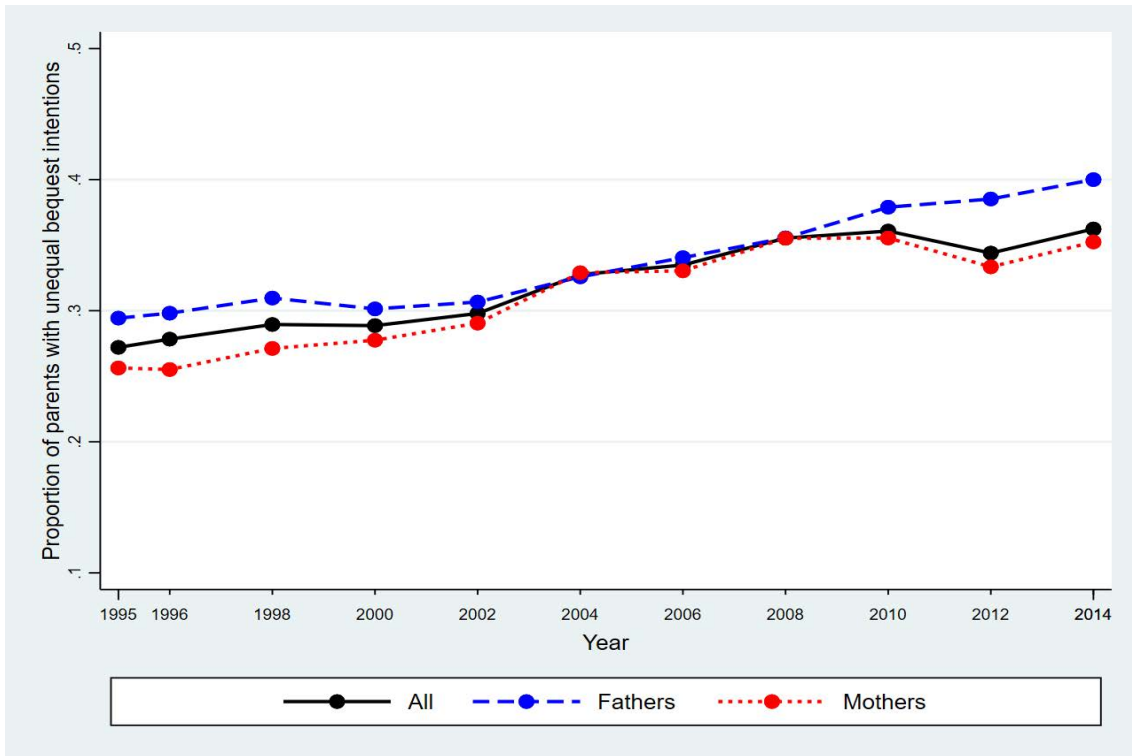


Figure 1: Unequal Bequest Intentions, by Parent’s Gender

are more likely to intend unequal bequests (Figure 3).<sup>4</sup> 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 (Figure 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.<sup>5</sup> 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 complex families 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.<sup>6</sup>

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.<sup>7</sup> After providing an often very substantial share for the surviving spouse, intes-

<sup>4</sup>HRS data do not allow us to distinguish between cohabitators and married individuals.

<sup>5</sup>In 1995 the HRS did not ask the question on parent-child contact.

<sup>6</sup>This breakdown and the breakdown by education are reported in the Online Appendix.

<sup>7</sup>As Rosenbury (2005) shows, there are important differences in intestacy laws across states, but we

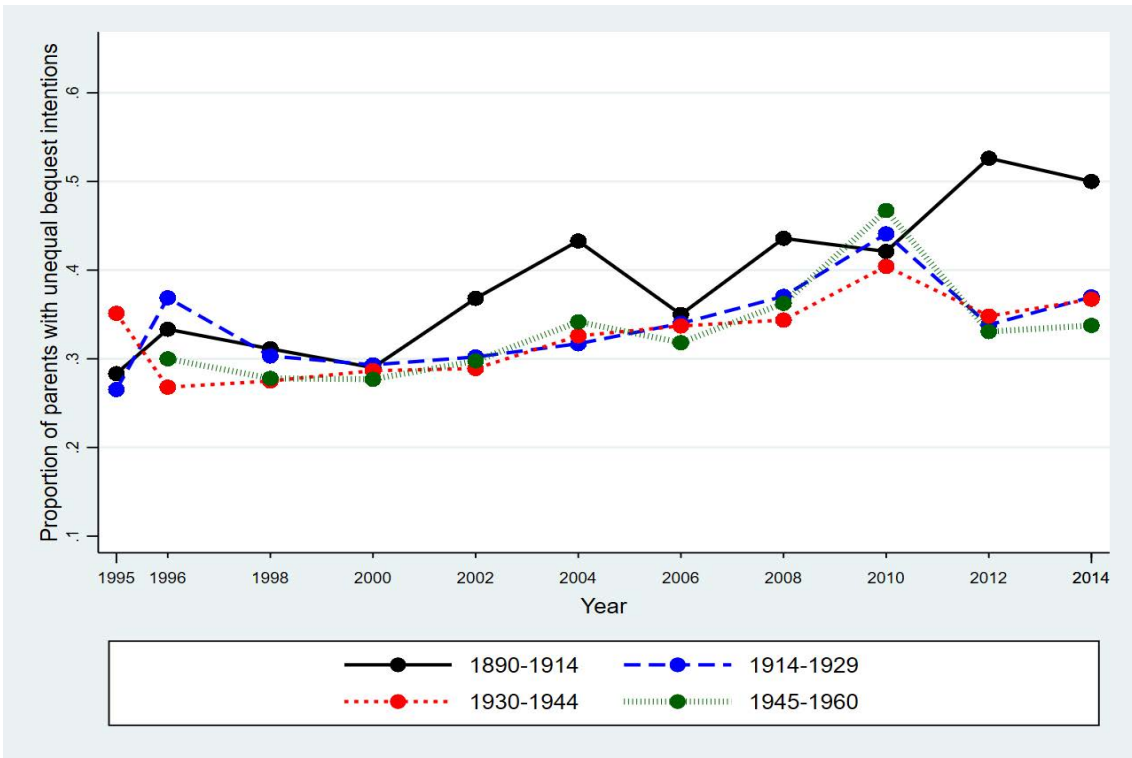


Figure 2: Unequal Bequest Intentions, by Parent's Birth Cohort

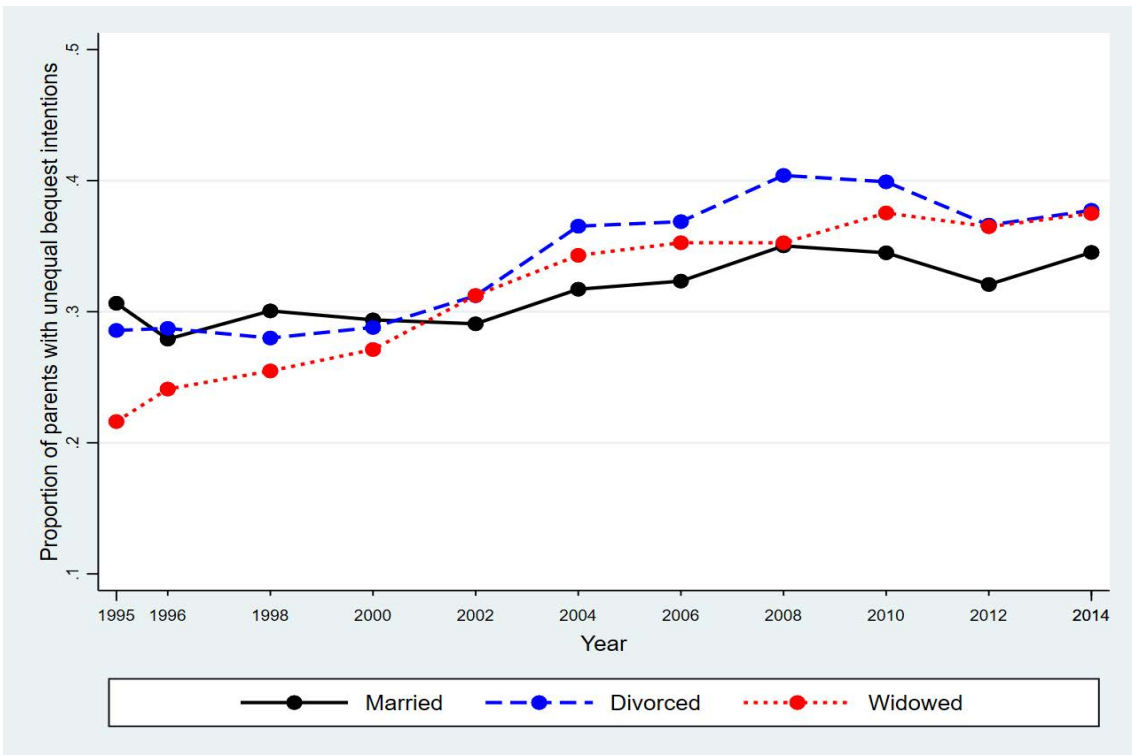


Figure 3: Unequal Bequest Intentions, by Parent's Marital Status

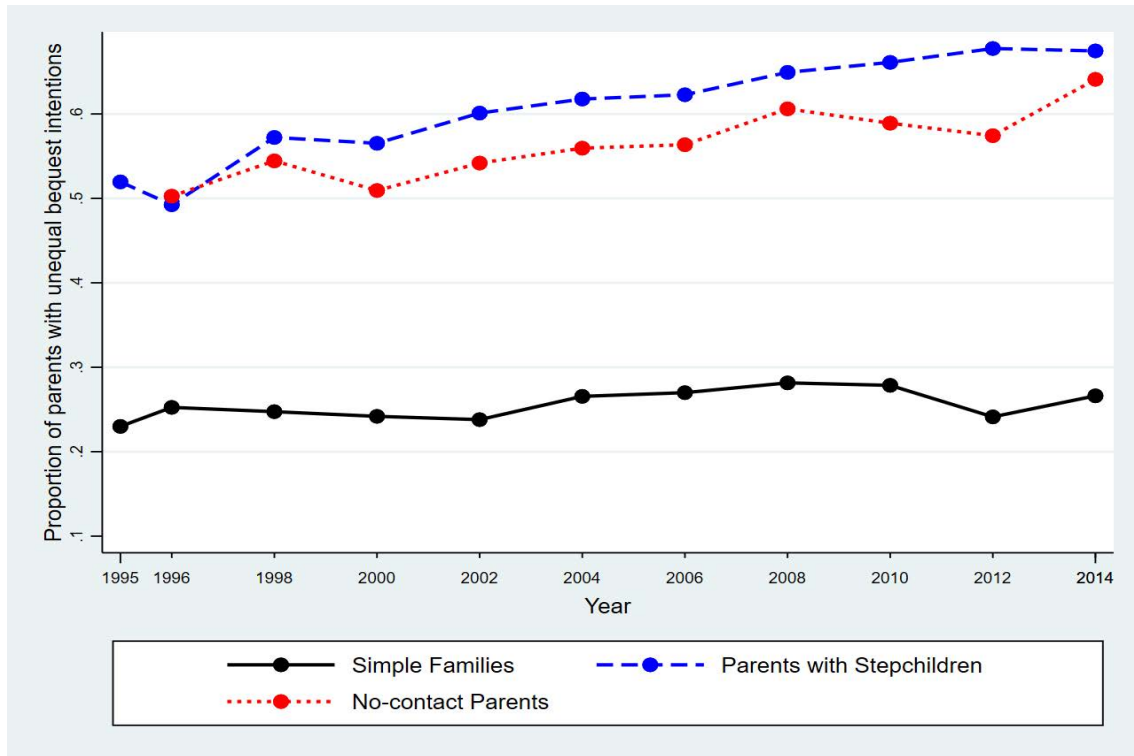


Figure 4: Unequal Bequest Intentions, by Parent’s Marital Status

*Note:* “Simple Families” indicate parents who have no stepchildren and have regular contact with their genetic children.

tacy 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, de Waal, and Zimmermann 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 (Figure 5).<sup>8</sup> 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.<sup>9</sup> 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

focus on features that are common across states.

<sup>8</sup>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.

<sup>9</sup>These breakdowns are reported in the Online Appendix.

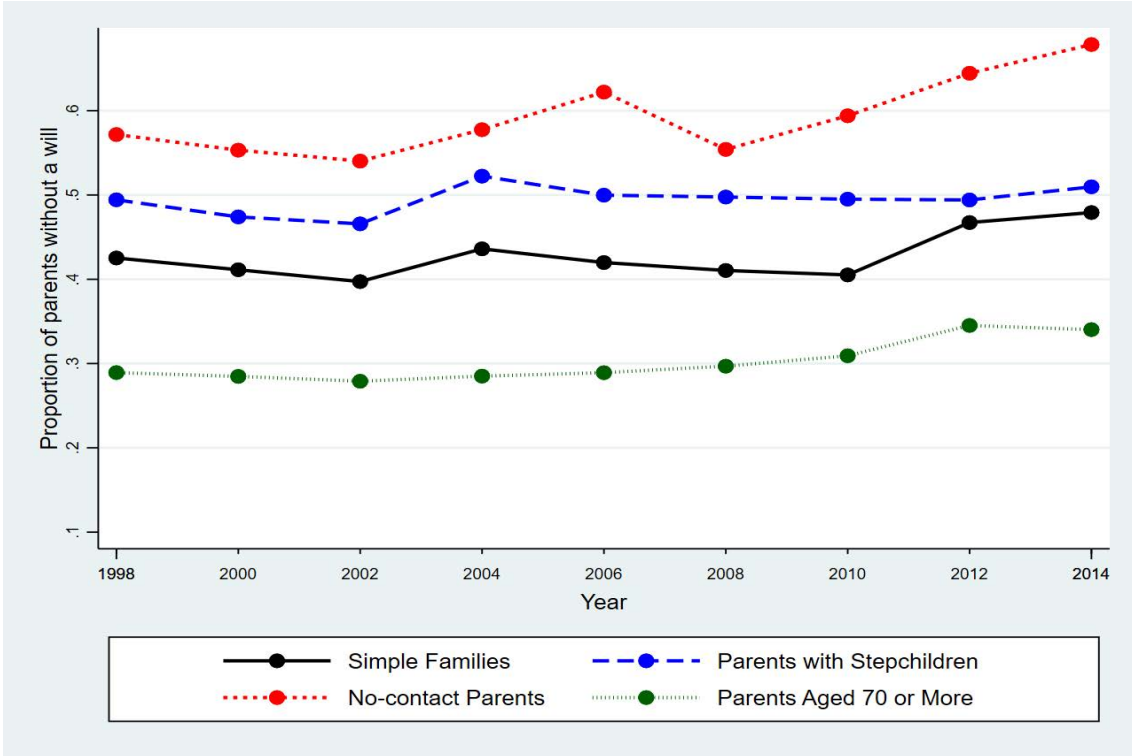


Figure 5: Trends in Intestacy Rates, by Parent’s Age and Family Type

34 percent, respectively). The differences by race are even larger, with three-quarters of black and other ethnic minority parents without a will and about one-third of their white counterparts.

Standard economic models ignore complex families. 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.<sup>10</sup> 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 concentrated in complex families, that is, families in which parents have stepchildren and families with genetic children with whom the parent has had no contact. Parents with stepchildren are substantially less likely to plan equal bequests. Similarly, parents who have had no contact with one or more of their genetic children are less likely to plan equal bequests. The likelihood of unequal bequests, however, is reduced and often entirely eliminated by

<sup>10</sup>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.

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. Hence, the usual focus on bequest intentions provides an incomplete and misleading picture of end-of-life transfers.

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 actual division of estates. Section 6 concludes.<sup>11</sup>

## 2. Background and Related Literature

Almost all economic models predict unequal bequests.<sup>12</sup> For example, 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, Shleifer, and Summers 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.<sup>13</sup>

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

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<sup>11</sup>The last section of the Online Appendix presents a simple economic framework for interpreting our main results.

<sup>12</sup>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).

<sup>13</sup>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.)



1999; Light and McGarry 2004; Behrman and Rosenzweig 2004; Erixson and Ohlsson 2015).<sup>14</sup> 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’ stated 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.<sup>15</sup>

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).<sup>16</sup> 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.<sup>17</sup>

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<sup>14</sup>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.

<sup>15</sup>Pollak (1988) argues that the credibility of the parents’ threat to disinherit a child in the strategic bequest model of Bernheim, Shleifer, and Summers (1985) crucially depends on the assumption that parents are indifferent over how their estates are divided among their children.

<sup>16</sup>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, Pollak and Taubman 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.

<sup>17</sup>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.

The only empirical work that attempts to assess the relative importance of the altruism, exchange, and the genetic-child hypotheses is Light and McGarry (2004). Using 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.

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.<sup>18</sup>

Unequal transfers from parents to children and from children to parents have also been documented in divorced families. Analyzing the effects of parental marital 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, Pollak, and Schone (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

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<sup>18</sup>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 bequest within a family. This study however does not focus on complex families.

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.<sup>19</sup> If a stepparent dies without a valid will, stepchildren inherit nothing.<sup>20</sup> 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.<sup>21</sup> 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 will mandate an equal division among their genetic and adopted children and give nothing to their stepchildren. 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. 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

#### 3.A. 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 actual distribution of estates.<sup>22</sup> 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

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<sup>19</sup>The Uniform Probate Code treats adopted children as if they were genetic children of the decedent (Noble 2002; Cahn 2005).

<sup>20</sup>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.

<sup>21</sup>At common law, in fact, the relationship of stepparent and stepchild generally confers no rights and imposes no duties (Wypyski 1984).

<sup>22</sup>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.

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.

From the core files we select respondents with at least one child and with nonmissing 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 which plan to include at least one child in their will, 8,030 (70 percent) report their plans to distribute their estates equally among their children. When first interviewed, around 15 percent the whole sample (3,712 parents) report having both genetic children and stepchildren.<sup>23</sup> Of these individuals, 1,751 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).

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 (2,013 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.<sup>24</sup> 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 actual disposition of estates and other basic variables for 10,094 individuals (almost 85 percent) of the 10,307 HRS respondents who died over the sample period. There are 3,875 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 6,219 who died with a will, 5,121 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.<sup>25</sup>

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<sup>23</sup>The HRS does not distinguish between genetic children and adopted children.

<sup>24</sup>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%.

<sup>25</sup>The exit files necessarily yield a sample that is smaller than that obtained from the core files. More-

### 3.B. 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 actual 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).

Appendix Table A1 mirrors Table 1 focusing on no-contact parents.<sup>26</sup> 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

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over, the exit files may over-represent individuals with lower socioeconomic status and higher mortality risks (Cutler et al. 2011).

<sup>26</sup>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.

Table 1: Descriptive Statistics – Dependent Variables

	(a)	(b)	(c)	(d)		
	All	Parents with step- and genetic children	Parents with genetic children only	Difference (b)-(c) ( <i>t</i> -value)	<i>N</i>	<i>n</i>
A. No will (intestacy)						
<i>Core files</i>						
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	3,929
Widowed	0.377	0.399	0.373	0.026*** ( 3.494)	32,920	8,400
<i>Exit files</i>						
All	0.373	0.404	0.368	0.036*** ( 2.596)	9,315	9,315
Divorced	0.584	0.598	0.580	0.018 (0.386)	900	900
Widowed	0.342	0.354	0.341	0.013 (0.561)	4,071	4,071
B. Equal intended and actual bequest						
<i>Core files</i>						
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)	5,323	1,117
Widowed	0.671	0.278	0.747	-0.469*** (52.521)	17,667	4,317
<i>Exit files</i>						
All	0.479	0.446	0.485	-0.039** (2.050)	4,868	4,868
Divorced	0.608	0.484	0.634	-0.151** (2.204)	344	344
Widowed	0.709	0.601	0.730	-0.128*** (4.483)	2,055	2,055

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

(panel C). These patterns are consistent with the predictions implied by exchange models.

### 3.C. Explanatory Variables and Statistical Methods

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 1,751 parents with stepchildren who report having wills (column (d)).<sup>27</sup>

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 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 subsection 5.D 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 if these children are also more likely to provide care and support to their needy older parents (Bernheim, Shleifer, and Summers 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

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<sup>27</sup>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 2: Descriptive Statistics – Explanatory Variables

	All	Parents with a will	Parents with step- and genetic children	Parents with step- children and a will	Parents included in the exit files <sup>a</sup>
	(a)	(b)	(c)	(d)	(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 (10.588)	71.254 (10.311)	66.463 (11.071)	69.528 (10.846)	79.993 (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 (0.668)	1.314 (0.613)	1.952 (0.811)	1.990 (0.758)	1.356 (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 (2.084)	3.267 (1.854)	5.326 (2.394)	5.157 (2.221)	3.517 (2.229)
Number of bio children	3.061 (1.784)	2.864 (1.544)	2.821 (1.708)	2.663 (1.523)	3.120 (1.964)
Number of stepchildren	0.441 (1.152)	0.397 (1.090)	2.494 (1.554)	2.489 (1.502)	0.386 (1.093)
Coefficient of within-family variation for children's predicted income <sup>b</sup>	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 <sup>c</sup>	25,718 (228,428)	28,798 (267,296)	25,990 (132,288)	28,157 (176,636)	12,412 (173,768)
Real wealth <sup>d</sup>	270,585 (1,293,412)	395,477 (1,593,183)	235,842 (1,091,592)	355,089 (1,398,134)	252,877 (1,691,977)

(cont.)



(cont.)	(a)	(b)	(c)	(d)	(e)
1 if gave money to at least a child <sup>e</sup>	0.355	0.404	0.368	0.411	0.252
1 if gave money to all children equally <sup>e</sup>	0.077	0.097	0.019	0.027	0.074
<i>N</i>	133,119	77,266	23,086	12,091	10,307
<i>n</i>	24,600	13,049	3,714	1,751	10,307

*Note:* Figures are means and standard deviations (for continuous variables only) are in parentheses. *N*=number of observations; *n*=number of individuals.

<sup>a</sup> 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.

<sup>b</sup> Based on 69,738 observations from 9,083 individuals.

<sup>c</sup> In 1995 values, and based on 84,589 observations from 13,582 respondents.

<sup>d</sup> In 1995 values, and based on 82,671 observations from 11,000 respondents; includes values of financial and real estate properties.

<sup>e</sup> Based on 91,467 observations from 15,934 respondents.

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 (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).

*Methods* — Let  $Y_{it}$  denote one of the outcome variables described in subsection 3.B above, i.e., whether individual  $i$  does not have a will at time  $t$  ( $=1$ , 0 otherwise), 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  $C_{it}$  an indicator variable that is equal to 1 if individual  $i$  lives in a complex family (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):

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

where  $\varepsilon_{it} = \nu_i + \xi_{it}$  is the residual, in which  $\nu_i$  is the unobserved individual-specific component and  $\xi_{it}$  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  $\nu_i$  and  $C_{it}$  (as well as  $\nu_i$  and  $X_{it}$ ) are uncorrelated. In subsection 5.A, 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 family complexity by using an instrumental variables (IV) method based on a new instrument for  $C_{it}$ . 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 without contact with at least one of their genetic children. We first describe who has a will and who does not (subsection 4.A). 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 (subsection 4.B). 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 siblings. These estimates are available in the Online Appendix.

### 4.A. 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.<sup>28</sup>

Table 3 presents marginal effects from random effects probit estimates of  $\beta$  in equation (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.

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<sup>28</sup>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

		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	9,675
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
	$n$	6,572	6,549	5,719	5,704	4,473
Widowers	Estimate	0.017	0.008	0.033	0.028	0.053
	(s.e.)	(0.060)	(0.061)	(0.052)	(0.053)	(0.067)
	$N$	5,704	5,584	4,650	4,577	3,382
	$n$	1,834	1,818	1,610	1,601	1,225
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	7,956	7,857	5,320
	$n$	2,464	2,429	1,987	1,981	1,414
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)
	$N$	5,734	5,343	4,342	4,148	2,573
	$n$	1,469	1,403	1,223	1,193	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 the text for an explanation of specifications (a)–(e).

$N$ =number of observations;  $n$ =number of individuals.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

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 and 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 (column (a)), with the only exception of divorced fathers in the more complete

Table 4: 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	9,295	9,072	7,237
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	8,554
	$n$	4,697	4,678	4,064	4,049	3,259
Widowers	Estimate	0.192**	0.181**	0.124*	0.114*	0.133*
	(s.e.)	(0.077)	(0.076)	(0.072)	(0.060)	(0.079)
	$N$	2,845	2,818	2,358	2,338	1,882
	$n$	1,193	1,189	1,058	1,054	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)
	$N$	6,371	6,320	4,723	4,697	3,375
	$n$	1,947	1,944	1,597	1,592	1,180
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)
	$N$	2,817	2,765	2,189	2,155	1,439
	$n$	1,006	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 for further explanations.

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

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(2)). 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.

Table 4 broadly confirms the results found for stepparents in the case of no-contact parents. One interesting difference, however, emerges in the case of widowers. Regardless of the specification, in fact, 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, to which we cannot give an 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 manifest 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, Simon, and Rau 1978; Contemporary Studies Project 1978). 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, 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.

#### 4.B. Unequal Intended Bequests

Conditional on parents having a will and having more than one child, Table 5 presents random effects probit estimates of the stepchild variable on the probability that individuals have a will in which all children are treated *equally*.<sup>29</sup> The five specifications in columns (a)–(e) and the rest of the organization of the table are the same as in Table 3. Appendix Table A2 reports the corresponding RE probit estimates for no-contact parents. Table 5 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)).

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.

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<sup>29</sup>We also estimated model in which the dependent variable takes value one if parents include all children in their wills, and zero otherwise. For the sake of space concerns, the results from that analysis are not reported but are available from the authors upon request.

Table 5: 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)
	<i>N</i>	69,061	46,048	42,550	32,596	22,654
	<i>n</i>	14,842	12,901	10,234	9,430	6,507
Widows	Estimate	-0.417***	-0.411***	-0.409***	-0.399***	-0.416***
	(s.e.)	(0.035)	(0.035)	(0.037)	(0.037)	(0.039)
	<i>N</i>	14,525	14,363	12,586	12,496	10,801
	<i>n</i>	3,981	3,961	3,643	3,630	3,280
Widowers	Estimate	-0.320***	-0.281***	-0.278***	-0.247***	-0.239**
	(s.e.)	(0.081)	(0.082)	(0.086)	(0.086)	(0.099)
	<i>N</i>	3,142	3,075	2,791	2,747	2,305
	<i>n</i>	1,106	1,096	1,024	1,016	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)
	<i>N</i>	3,448	3,356	2,929	2,888	2,334
	<i>n</i>	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)
	<i>N</i>	1,875	1,739	1,570	1,491	1,042
	<i>n</i>	635	602	546	529	371

Note: See the note to Table 3.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Without exceptions, the estimates in Appendix Table A2 reveal that parents who have no contact with their genetic children are also less likely to plan an equal division of their estates. Parental absence 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.<sup>30</sup>

In sum, the estimates in Table 5 and those in Appendix Table A2 tell a consistent story. Parents in complex families 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

<sup>30</sup>The results in Tables 5 and A2 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 is used, we find effect estimates that are in line with (albeit of smaller magnitude than) those shown in Tables 5 and A2. These results are reported in the Online Appendix.

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.<sup>31</sup>

## 5. Further Empirical Results

In this section we discuss further results in four parts. Specifically, in subsection 5.A we compare our benchmark RE estimates with the estimates found with FE models and those found with an instrumental variables approach. In subsection 5.B we exploit the longitudinal aspect of the HRS examining changes in bequest intentions, while in subsection 5.C we turn from bequest intentions to the actual division of estates using the exit files. Finally, in subsection 5.D we examine how contacts and interactions between parents and children in complex families are related to end-of-life transfers.

### 5.A. Evidence from Fixed Effects and Instrumental Variables Models

*FE Estimates* — As mentioned in Section 3, the RE estimates presented so far rely on the assumption that the unobserved individual-specific component of the error term and our measure of family complexity (i.e.,  $\nu_i$  and  $C_{it}$ , respectively, in equation (1)) are uncorrelated. A concern with the RE estimates is that the effect of family complexity on bequest behavior might be spurious. This may be due to the mutual association that family complexity 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 family complexity per se. Rather, it may reflect some hard-to-measure characteristics of the complex families in which older individuals live, such as the personality of their new partners or frail health.

To address this potential issue we performed our analysis estimating equation (1) with FE linear probability models. We do not see these estimates as offering a casual effect of family complexity, 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

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<sup>31</sup>We performed several robustness checks, whose estimates are not presented for brevity 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.

Table 6: Robustness: Fixed Effects and Instrumental Variable Estimates

		Stepparents		No-Contact Parents	
		No will	Equal division	No will	Equal division
		(a)	(b)	(c)	(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)
	<i>N</i>	133,119	69,061	47,766	23,260
	<i>n</i>	24,600	14,842	13,314	7,387
B. Instrumental Variables					
First stage	Estimate	-0.002***	-0.002***	-0.001***	-0.001*
	(s.e.)	0.000	0.000	0.0000	0.001
	$\chi^2$	96.921	30.364	10.818	3.658
	<i>p</i> -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
	<i>N</i>	94,680	50,644	44,698	22,673
	<i>n</i>	21,284	12,653	14,287	8,107

*Note:* Random effects figures are marginal effects from a random effect probit model. Fixed effects figures in panel A are estimated from a fixed effect linear model. Regression specifications as in column (a) of Tables 3 and 4. All figures are computed on the core files.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

above.<sup>32</sup>

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 what we would have inferred from the RE results.

<sup>32</sup>The FE estimates from the other specifications are available in the Online Appendix.



Turning to no-contact families, the FE estimates confirm the absence of a significant relationship between this type of families 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 suggest 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  $C_{it}$  variable which would bias the FE estimates toward zero. Because of this possibility, we now turn to the instrumental variables approach.

*IV Estimates* — To account for the potential endogeneity of family complexity in (1) and limit the possible problem of measurement error in  $C_{it}$ , which could be exacerbated by the FE model, we resort to an instrumental variables approach. The variable we use to instrument for family complexity is a novel measure of 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; 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 optimism as a predictor of life choices which, in turn, are linked to family complexity. A complete description of this variable and its subcomponents is available in the Online Appendix, where we also discuss its relationship with individuals' demographic and socioeconomic characteristics.

The only other economic study that correlates optimism to life choices (and remarriage, among others) 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 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.

Social and medical scientists have provided a wealth of evidence indicating that dispositional optimism — whereby one has a positive general outlook about future events and life in general — does matter for physical and psychological well-being (Scheier, Carver, and Bridges 1994; Solberg Nes and Segerstrom 2006). For example, there is a large body of evidence that documents that optimistic cancer patients, as opposed to pessimists, face lower mortality risk and experience faster recovery after surgery (e.g., Schulz et al. 1996; Scheier et al. 1989; Rasmussen, Scheier, and Greenhouse 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 family complexity,  $C_{it}$ , using the residuals of our measure of 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.

Irrespective of the type of complex family (whether stepfamily or no-contact family) and across all three bequest outcomes, the  $\chi^2$  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 optimism of 1 percent leads to a significant reduction in the likelihood that the HRS respondents live in a complex family of 0.1–0.2 percentage points.<sup>33</sup>

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 one obtained from the RE model (columns (d)).

Finally, the IV estimates in columns (a) and (c) show that parents in complex families 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 complex families are substantially more reluctant to make wills than implied by the RE models in Table 3. Family complexity 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 in a complex family. Further research is needed to deepen our understanding of this difference.

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 unob-

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<sup>33</sup>This result is not in line 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).

served individual component of the residuals and  $C_{it}$ , its estimates might exacerbate the problems due to measurement error in the family complexity 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.<sup>34</sup> 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.B. 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 equation (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, and 81 percent of those intending to bequeath to all children equally at one point in time continue to do so the subsequent time they are interviewed.

We focus on the transitions from not having a will to having a will, and from unequal intended bequests to equal intended bequests.<sup>35</sup> In the analysis, we explicitly consider the interaction of the presence of stepchildren or parental absence with changes in parents' marital status (e.g., divorce or death of a spouse). Several other changes might interact with bequest plans and the joint presence of genetic children and stepchildren or the lack of contact with genetic children, 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 3–5). 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 having stepchildren or genetic children with whom the parent has no contact on the transition under study. In the second we also show the interaction terms of the

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<sup>34</sup>This is confirmed by positive regression coefficients found when we regress each measure of family complexity,  $C_{it}$ , on the random effects  $\nu_i$  for each bequest outcome,  $Y_{it}$ . See Card (2001).

<sup>35</sup>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.

Table 7: Changes in Parents' Bequest Intentions

	Transition			
	'No will' $\Rightarrow$ 'Will'		'Not all children in the will' $\Rightarrow$ 'All children equally in the will'	
	(a)	(b)	(c)	(d)
<i>Panel A: Parents with Stepchildren</i>				
Parent has stepchildren	0.003 (0.009)	0.025 (0.017)	-0.268*** (0.033)	-0.256** (0.051)
Parent has stepchildren $\times$ from married to divorced		0.011 (0.038)		-0.236*** (0.121)
Parent has stepchildren $\times$ from married to widowed		-0.013 (0.021)		-0.257*** (0.057)
<i>N</i>	26,056	8,452	5,346	2,652
<i>n</i>	8,344	3,967	2,915	1,719
<i>Panel B: No-contact Parents</i>				
No-contact parent	0.010 (0.008)	0.041 (0.026)	-0.198*** (0.026)	-0.193*** (0.061)
No-contact parent $\times$ from married to divorced		-0.020 (0.048)		-0.280*** (0.102)
No-contact parent $\times$ from married to widowed		0.022 (0.042)		-0.171 (0.115)
<i>N</i>	14,904	3,713	2,880	1,137
<i>n</i>	5,964	2,100	1,824	829
<i>Panel C: Widowed Parents and Parents with Stepchildren</i>				
Widowed parent	0.077*** (0.012)	0.076*** (0.013)	0.123*** (0.036)	0.162*** (0.048)
Parent has stepchildren		-0.020 (0.015)		-0.221*** (0.046)
Widowed parent $\times$ Parent has stepchildren		-0.007 (0.023)		-0.102*** (0.053)
<i>N</i>	9,243	9,071	2,446	2,383
<i>n</i>	3,503	3,412	1,333	1,293
<i>Panel D: Widowed Parents and No-contact Parents</i>				
Widowed parent	0.078*** (0.012)	0.072*** (0.015)	0.099*** (0.037)	0.182*** (0.053)
No-contact parent		-0.012 (0.016)		-0.136*** (0.040)
Widowed parent $\times$ No-contact parent		0.067 (0.044)		-0.129* (0.075)
<i>N</i>	9,243	5,861	2,446	1,552
<i>n</i>	3,503	2,805	1,333	1,015

Note: See the notes to Tables 3. All figures are computed on the core files.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

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.

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)).<sup>36</sup>

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 all complex families 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 (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

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<sup>36</sup>Other interesting changes in marital status (e.g., remarriage and repartnering) cannot be analyzed separately due to sample size limitations.

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.C. Actual End-of-Life Transfers: 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 actual 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)).<sup>37</sup>

When looking at the probability of intestate succession (in the first two columns of Table 8), the estimate found with the most parsimonious specification on 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.

Would all children be included *equally*? The last two columns, where we present the estimates for the probability of equal bequests, suggest that they are not.<sup>38</sup> In fact, in line with the bequest intention estimates of Table 5, the results in Table 8 indicate that the presence of stepchildren reduces the probability that actual bequests are equal by 4 percentage points (first row, specification (a)). This association is substantially smaller

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<sup>37</sup>The table reports the estimates on the stepchild indicator found among families with stepparents. 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.

<sup>38</sup>As before, this analysis is based only on the subsample of parents who died with a will.

Table 8: Effect of Having Stepchildren on Actual Bequest Decisions 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)
	<i>N</i>	9,355	4,411	4,905	2,461
Widows	Estimate	0.015	0.002	-0.138***	-0.135***
	(s.e.)	(0.024)	(0.028)	(0.034)	(0.038)
	<i>N</i>	3,060	2,033	1,509	1,132
Widowers	Estimate	-0.030	0.009	-0.279***	-0.289***
	(s.e.)	(0.036)	(0.043)	(0.047)	(0.055)
	<i>N</i>	1,033	730	566	442
Divorced mothers	Estimate	-0.013	-0.067	-0.234**	-0.606***
	(s.e.)	(0.076)	(0.110)	(0.115)	(0.163)
	<i>N</i>	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)
	<i>N</i>	403	276	167	127

*Note:* See the text for an explanation of specifications (a)–(b).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

than the magnitude of the corresponding impact on intended bequests, but the differential becomes less relevant 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 does not strongly affect the probability of writing a will, and, for parents who die with a will, the actual bequests observed in the exit files are largely consistent with the bequest intentions reported in the core files.

#### 5.D. Interactions between Parents and Children in Complex Families

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.<sup>39</sup> The table shows

<sup>39</sup>Among the stepchildren not included in their step-parents’ will we include also those stepchildren

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 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.<sup>40</sup> 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.B, 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, Shleifer and Summers (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

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whose step-parents do not have a will, as intestacy rules would automatically preclude the stepchildren inheriting from the step-parents.

<sup>40</sup>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.



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*** (0.014)	-0.044*** (0.014)	-0.033** (0.014)	-0.041** (0.018)	-0.052** (0.021)
Years spent with stepparent	0.003*** (0.001)	0.003*** (0.001)	0.002*** (0.001)	0.003*** (0.001)	0.004*** (0.001)
Age at marriage: 0-6 <sup>a</sup>	-0.016 (0.020)	-0.016 (0.020)	0.016 (0.023)	0.074* (0.038)	0.044 (0.038)
Age at marriage: 7-12 <sup>a</sup>	-0.016 (0.016)	-0.016 (0.016)	-0.010 (0.016)	0.001 (0.024)	-0.010 (0.026)
Age at marriage: 13-18 <sup>a</sup>	0.008 (0.014)	0.008 (0.014)	0.016 (0.015)	0.018 (0.020)	0.022 (0.022)
Stepchild is female	0.016* (0.008)	0.015* (0.008)	0.009 (0.008)	0.057*** (0.014)	0.049*** (0.015)
Age of stepchild	-0.001** (0.001)	-0.001* (0.001)	-0.000 (0.001)	-0.002 (0.001)	-0.002 (0.001)
Stepparent is female	0.048*** (0.006)	0.049*** (0.006)	0.046*** (0.006)	0.058*** (0.009)	0.063*** (0.011)
Stepparent age	0.004*** (0.001)	0.004*** (0.001)	0.002*** (0.001)	0.002*** (0.001)	0.002*** (0.001)
Stepparent is in poor/fair health	-0.041*** (0.006)	-0.041*** (0.006)	-0.046*** (0.006)	-0.050*** (0.009)	-0.057*** (0.010)
Stepparent takes care of stepchild's child(ren)		0.042*** (0.016)	0.042** (0.021)	0.042 (0.027)	0.043 (0.029)
Stepchild is main recipient of inter vivos transfers			0.099*** (0.017)	0.106*** (0.021)	0.107*** (0.023)
Log of stepchild's income				0.125*** (0.014)	0.120*** (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*** (0.018)	0.058*** (0.020)
50+ percent				0.035*** (0.013)	0.031** (0.015)
<i>N</i>	31,743	31,743	17,488	12,945	10,993
<i>n</i>	7,789	7,789	6,227	4,824	4,387

Note: Figures are marginal effects from RE probit regressions. Standard errors are in parentheses.

*N*=number of observations; *n*=number of stepchildren.

<sup>a</sup> 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.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

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 Appendix Tables A3 and A4), 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).<sup>41</sup>

We now turn our attention to no-contact parent–genetic child interactions and investigate how contacts in complex families affect bequest intentions. In Table 10 we report how the probability that a genetic child is mentioned in his/her parent’s will varies with the frequency of contact and with the fact that the parent’s spouse is not genetically related to the child.<sup>42</sup> 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

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<sup>41</sup>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.

<sup>42</sup>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.

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.

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, effects that 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 within all complex families: 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

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*** (0.009)	-0.115*** (0.011)	-0.216*** (0.064)	-0.282*** (0.079)	-0.235*** (0.081)
No contact	-0.361*** (0.015)	-0.346*** (0.022)	-0.619*** (0.078)	-0.599*** (0.092)	-0.504*** (0.110)
Parent is female	0.001 (0.004)	0.002 (0.004)	-0.001 (0.009)	0.002 (0.010)	0.001 (0.010)
Parent age	0.001*** (0.000)	0.001*** (0.000)	0.002*** (0.001)	0.002*** (0.001)	0.002*** (0.001)
Child is female	0.004* (0.002)	0.024*** (0.004)	0.008 (0.006)	0.009 (0.007)	0.009 (0.007)
Child age	-0.001*** (0.000)	-0.001*** (0.000)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)
Parent is married	-0.078*** (0.003)	-0.085*** (0.004)	-0.092*** (0.005)	-0.091*** (0.006)	-0.090*** (0.006)
Parent married more than once	-0.024*** (0.003)	-0.021*** (0.004)	-0.035*** (0.008)	-0.039*** (0.008)	-0.041*** (0.009)
Parent takes care of child's children		0.005 (0.005)	0.005 (0.008)	0.000 (0.008)	0.001 (0.008)
Child is main recipient of inter vivos transfers		0.043*** (0.003)	0.035*** (0.006)	0.031*** (0.006)	0.031*** (0.006)
Log of child's income		0.032*** (0.003)	0.011* (0.006)	0.009 (0.006)	0.009 (0.006)
Child is not spouse's genetic child			-0.010 (0.009)	0.010 (0.009)	0.021** (0.009)
Parent expects help from child in the future				0.010* (0.006)	0.008 (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)
<i>N</i>	157,173	94,003	39,300	34,145	34,140
<i>n</i>	73,522	54,423	26,902	23,982	23,928
<i>p</i> -value <sup>a</sup>	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. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

<sup>a</sup> Refers to the the test of equality between the coefficients of "Infrequent contacts" and "No contacts".

children. The relationship between stepchildren and parents in complex families 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 non-marital childbearing. Stepparents and no-contact parents in complex families 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 complex families 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.

For younger cohorts, nonmarital fertility of cohabiting couples who break up and repartner will substantially increase the prevalence of complex families. Those presently in the HRS data are older, and their complex families are generally a by-product of divorce and remarriage. The implications for intergenerational transfers of these changes in family structure are difficult to predict because complex families created by cohabitation and nonmarital fertility in younger cohorts may behave 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 complex families, however, we find substantial inequality in both bequest intentions and actual bequests. 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 complex families imply that contact trumps genetic ties.

The economics literature 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 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 new (and under-explored) field of research 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.

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# Appendix

Table A1: Descriptive Statistics – Dependent Variables

	(a)	(b)	(c)	(d)		
	All	Parents have no contact with at least one child	Parents have contacts with all children	Difference (b)-(c) ( <i>t</i> -value)	<i>N</i>	<i>n</i>
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)	9,188	2,951
Widowed	0.388	0.563	0.377	0.185*** (11.650)	16,785	5,886
B. Equal intended bequest						
All	0.754	0.475	0.768	-0.293*** (22.543)	23,260	5,979
Divorced	0.737	0.384	0.772	-0.388*** (14.086)	2,917	833
Widowed	0.746	0.403	0.762	-0.359*** (16.405)	8,799	3,001

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

Table A2: 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)
	<i>N</i>	23,260	18,673	14,637	13,328	12,092
	<i>n</i>	7,387	6,809	5,226	5,061	4,732
Widows	Estimate	-0.330***	-0.335***	-0.296***	-0.296***	-0.292***
	(s.e.)	(0.041)	(0.041)	(0.046)	(0.046)	(0.047)
	<i>N</i>	7,230	7,173	6,309	6,271	5,820
	<i>n</i>	2,712	2,695	2,500	2,489	2,368
Widowers	Estimate	-0.331***	-0.338***	-0.347***	-0.344***	-0.346***
	(s.e.)	(0.076)	(0.077)	(0.085)	(0.085)	(0.090)
	<i>N</i>	1,569	1,554	1,407	1,394	1,278
	<i>n</i>	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)
	<i>N</i>	1,980	1,959	1,710	1,697	1,461
	<i>n</i>	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)
	<i>N</i>	937	917	793	777	601
	<i>n</i>	397	393	349	346	266

*Note:* See the notes to Tables 3 and 4.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A3: 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 genetic children	-0.065*** (0.021)	-0.065*** (0.021)	-0.048** (0.019)	-0.071** (0.027)	-0.105*** (0.033)
Years spent with stepparent	0.003*** (0.001)	0.003*** (0.001)	0.002*** (0.001)	0.002** (0.001)	0.003** (0.001)
Age at marriage: 0-6 <sup>a</sup>	-0.009 (0.027)	-0.009 (0.027)	0.005 (0.029)	0.048 (0.049)	0.022 (0.049)
Age at marriage: 7-12 <sup>a</sup>	-0.006 (0.023)	-0.006 (0.023)	0.013 (0.025)	0.051 (0.041)	0.040 (0.044)
Age at marriage: 13-18 <sup>a</sup>	-0.013 (0.018)	-0.013 (0.018)	-0.002 (0.018)	0.010 (0.027)	0.013 (0.030)
Age of stepchild	-0.001 (0.001)	-0.001 (0.001)	0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Stepparent is female	0.048*** (0.008)	0.048*** (0.008)	0.044*** (0.009)	0.052*** (0.013)	0.060*** (0.015)
Stepparent age	0.003*** (0.001)	0.003*** (0.001)	0.002** (0.001)	0.000 (0.001)	0.000 (0.001)
Stepparent is in poor/fair health	-0.048*** (0.008)	-0.048*** (0.008)	-0.061*** (0.008)	-0.073*** (0.012)	-0.084*** (0.013)
Stepparent takes care of stepchild's child(ren)		0.036 (0.022)	0.026 (0.029)	0.033 (0.039)	0.036 (0.043)
Stepchild is main recipient of inter vivos transfers			0.105*** (0.024)	0.124*** (0.032)	0.135*** (0.036)
Log of stepchild's income				0.119*** (0.019)	0.113*** (0.021)
Stepparent expects help from stepchild in the future					0.075*** (0.028)
Stepchild's predicted income is below genetic children's income by:					
1-49 percent				0.092** (0.036)	0.091** (0.039)
50+ percent				0.037** (0.018)	0.030 (0.019)
<i>N</i>	15,968	15,968	8,773	6,506	5,543
<i>n</i>	3,919	3,919	3,123	2,414	2,201

Note: Figures are marginal effects from probit regressions. Standard errors are in parentheses.

*N*=number of observations; *n*=number of stepchildren.

<sup>a</sup> 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.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A4: 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 genetic children	-0.019 (0.020)	-0.019 (0.020)	-0.017 (0.019)	-0.009 (0.024)	-0.002 (0.026)
Years spent with stepparent	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	0.004*** (0.001)	0.005*** (0.001)
Age at marriage: 0-6 <sup>a</sup>	-0.023 (0.028)	-0.022 (0.028)	0.024 (0.034)	0.088 (0.056)	0.059 (0.056)
Age at marriage: 7-12 <sup>a</sup>	-0.026 (0.023)	-0.025 (0.023)	-0.031 (0.020)	-0.039 (0.028)	-0.048 (0.030)
Age at marriage: 13-18 <sup>a</sup>	0.033 (0.023)	0.033 (0.023)	0.033 (0.023)	0.021 (0.029)	0.027 (0.032)
Age of stepchild	-0.002* (0.001)	-0.002* (0.001)	-0.001 (0.001)	-0.002* (0.001)	-0.003* (0.001)
Stepparent is female	0.048*** (0.009)	0.049*** (0.009)	0.048*** (0.009)	0.062*** (0.013)	0.063*** (0.015)
Stepparent age	0.004*** (0.001)	0.004*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	0.004*** (0.001)
Stepparent is in poor/fair health	-0.033*** (0.008)	-0.033*** (0.008)	-0.031*** (0.009)	-0.029** (0.013)	-0.031** (0.015)
Stepparent takes care of stepchild's child(ren)		0.045** (0.022)	0.054* (0.030)	0.051 (0.037)	0.044 (0.040)
Stepchild is main recipient of inter vivos transfers			0.097*** (0.023)	0.091*** (0.028)	0.083*** (0.031)
Log of stepchild's income				0.137*** (0.020)	0.134*** (0.021)
Stepparent expects help from stepchild in the future					0.142*** (0.028)
Stepchild's predicted income is below genetic children's income by:					
1-49 percent				0.052** (0.021)	0.047* (0.024)
50+ percent				0.032 (0.020)	0.033 (0.023)
<i>N</i>	15,775	15,775	8,715	6,439	5,450
<i>n</i>	3,896	3,896	3,114	2,417	2,190

Note: Figures are marginal effects from probit regressions. Standard errors are in parentheses.

*N*=number of observations; *n*=number of stepchildren.

<sup>a</sup> 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.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .